

# **RULES**

## **FOR THE EQUIPMENT OF SEA-GOING SHIPS**

### **PART II**

#### **LIFE-SAVING APPLIANCES**

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## **RULES FOR THE EQUIPMENT OF SEA-GOING SHIPS**

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Rules for the Equipment of Sea-Going Ships of Russian Maritime Register of Shipping (RS, the Register) have been approved in accordance with the established approval procedure and come into force on 1 January 2023.

The Rules are published in the following parts:

Part I "General";

Part II "Life-Saving Appliances";

Part III "Signal Means";

Part IV "Radio Equipment";

Part V "Navigational Equipment".

All Parts of the Rules are published in electronic format in Russian and English.

The requirements of these Rules apply to ships contracted for construction or conversion on or after 01.01.2023, and to which SOLAS-74 as amended is not applicable.

For ships to which SOLAS-74 as amended is applicable, it is recommended to apply the Guidelines on the application of provisions of Chapters III, IV and V of the International Convention for the Safety of Life at Sea (SOLAS-74) developed by RS, available in the "RS Publications" section of the official RS website (<https://lk.rs-class.org/regbook/rules>), in addition to the mandatory and applicable provisions of SOLAS-74 as amended.

The requirements of Part III "Signal Means" apply to the ships as defined in the International Regulations for Preventing Collisions at Sea, 1972.

**REVISION HISTORY**

(purely editorial amendments are not included in the Revision History)

For this version there are no amendments to be included in the Revision History.

## **1 GENERAL**

### **1.1 APPLICATION**

**1.1.1** The requirements of the this Part of the Rules for the Equipment of Sea-Going Ships<sup>1</sup> unless in the text provided otherwise, apply to the ships and offshore installations specified in 1.1.1 and 1.1.2, Part I of the Rules, whose equipment with life-saving appliances and arrangements is subject to survey by the Register as well as to the life-saving appliances and arrangements intended for installation aboard these ships.

**1.1.2** The ships constructed before 1 January 2023 shall comply with the requirements of regulations being in force prior to 1 January 2023, as well as with the requirements of the present Part of the Rules, when it is specially specified in the RS Rules.

**1.1.3** For ships constructed before 1 January 2023, when life-saving appliances or arrangements on such ships are replaced or such ships undergo repairs, alterations or modifications of a major character which involve replacement of, or any addition to, their existing life-saving appliances or arrangements, such lifesaving appliances or arrangements comply with the requirements of this Part of the Rules. If a survival craft other than an inflatable liferaft is replaced without replacing its launching appliance, or vice versa, the survival craft or launching appliance is of the same type as that replaced.

**1.1.4** This Part of the Rules lays down the technical requirements which life-saving appliances and arrangements shall comply with and specifies the number of these appliances and arrangements and their location on board ships.

**1.1.5** Individual ships or classes of ships which, in the course of their voyage, do not proceed more than 20 miles from the nearest land, may be exempted from the requirements of this Part, taking into account that the sheltered nature and conditions of the voyage are such that the application of such requirements rendered unreasonable or unnecessary, that shall be in each case substantiated by the procedure approved by the Register.

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<sup>1</sup> Hereinafter referred to as the Rules.

## 1.2 DEFINITIONS AND EXPLANATIONS

**1.2.1** Definitions and explanations relating to the general terminology of the Rules are given in Part I "Classification" of the Rules for the Classification and Construction of Sea-Going Ships<sup>1</sup>.

For the purpose of the present Part of the Rules the following definitions have been adopted.

**Anti-exposure suit** is a protective suit designed for use by rescue boat crews and marine evacuation system parties.

**Detection** is the determination of the location of survivors and life-saving appliances.

**Effective clearing of the ship** is the ability of the free-fall lifeboat to move away from the ship after free-fall launching without using its engine.

**Embarkation ladder** is the ladder provided at survival craft embarkation stations to permit safe access to survival craft after their launching.

**Fast rescue boat** is a rescue boat which is capable of manoeuvring for at least 4 h at a speed of at least 20 knots in calm water with a crew of 3 persons and at least 8 knots with a full complement of persons and equipment.

**Float-free launching** is that method of launching survival craft whereby the craft is automatically released from a sinking ship and is ready for use.

**Free-fall acceleration** is the rate of change of velocity experienced by the occupants during launching of a free-fall lifeboat.

**Free-fall certification height** is the greatest launching height for which the lifeboat is to be approved by the Register, measured from the still water surface to the lowest point on the lifeboat when the lifeboat is in the launch configuration. Free-fall certification height shall be measured from the lightest seagoing condition without regard to the list and trim.

**Free-fall launching** is that method of launching survival craft whereby the craft with its complement of persons and equipment on board is released from a ship and allowed to fall into the water without any restraining apparatus.

**Highly visible colour** is saturate orange or yellow colour.

**Immersion suit** is a protective suit made of waterproof material intended for reducing the body heat-loss of a person wearing it in cold water.

**Inflatable appliance** is an appliance which depends upon non-rigid, gas filled chambers for buoyancy and which is normally kept uninflated until ready for use.

**Inflated appliance** is an appliance which depends upon non-rigid, gas filled chambers for buoyancy and which is kept inflated and ready for use at all times.

**International voyage** is a voyage from a country to which the International Convention for the Safety of Life at Sea, 1974, applies to a port outside this country, or conversely.

**Launching appliance** is the davits and other arrangements aboard ship intended for launching and recovery the lifeboats, rescue boats and liferafts.

**Launching crew** is the personnel remaining aboard a lifeboat to handle it during launching and recovering.

**Launching ramp angle** is the angle between the horizontal and the launch rail of the lifeboat in its launching position with the ship on even keel.

**Length of ship** is 96 % of the total length on a waterline at 85 % of the least moulded depth measured from the top of the keel, or the length from the fore-side of the stem to the axis of the rudder stock on the same waterline, if that is greater.

In ships designed with a rake of keel the waterline on which this is measured shall be parallel to the designed waterline.

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<sup>1</sup> Hereinafter referred to as the Rules for the Classification.

**Lightest sea-going condition** is the loading condition with the ship on even keel, without cargo, with 10 % stores and fuel remaining and in the case of a passenger ship with the full number of passengers and crew and their luggage.

**Marine evacuation system** is an appliance for the rapid transfer of persons from the embarkation deck of a ship to a floating survival craft.

**Moulded depth** is the vertical distance measured from the top of the keel to the top of the freeboard deck beam at side. In wood and composite ships this distance is measured from the lower edge of the keel rabbet. Where the form at the lower part of the midship section is of a hollow character, or where thick garboards are fitted, the depth is measured from the point where the line of the flat of the bottom continued inwards cuts the side of the keel.

In ships having rounded gunwales, the moulded depth shall be measured to the point of intersection of the moulded lines of the deck and side shell plating, the lines extending as though the gunwales were of angular design.

If the freeboard deck is stepped in the longitudinal direction and the raised part of the deck extends over the point at which the moulded depth shall be determined, the moulded depth shall be measured to a line of reference extending from the lower part of the deck along a line parallel with the raised part.

**Novel life-saving appliance or arrangement** is an appliance or arrangement which embodies new features not fully covered by the provisions of this Chapter but which provides an equal or higher standard of safety.

**Positive stability** is the ability of a craft to return to its original position after the removal of a heeling moment.

**Recovery time** for a rescue boat is the time required to raise the boat to a position where persons on board can disembark to the deck of the ship. Recovery time includes the time required to make preparations for recovery on board the rescue boat such as passing and securing a painter, connecting the rescue boat to the launching appliance, and the time to raise the rescue boat. Recovery time does not include the time needed to lower the launching appliance into position to recover the rescue boat.

**Rescue boat** is a special life-saving appliance to be carried aboard ships in a state of continuous readiness for immediate use and intended to rescue persons fallen into the water, persons from a ship in distress, as well as to marshal and tow liferafts in emergency conditions.

**Retro-reflective material** is a material which reflects in the opposite direction a beam of light directed on it.

**Rotation resistant wire ropes** are those designed to resist twisting.

**Ships constructed** is definition given in 1.2, Part IV "Radio Equipment" of the Rules.

**Short international voyage** is an international voyage in the course of which a ship is not more than 200 miles from a port or place in which the passengers and crew could be placed in safety. The distance between the last port of call in the country in which the voyage begins and the final port of destination as well as the return voyage shall not exceed 600 miles.

**Survival craft** is a craft capable of sustaining the lives of persons in distress from the time of abandoning the ship.

**The final port of destination** is the last port of call in the scheduled voyage at which the ship commences its return voyage to the country in which the voyage began.

**Thermal protective aid** is a bag or suit made of waterproof material with low thermal conductivity intended for restoring the body core temperature of the person being immersed in cold water.

**Water entry angle** is the angle between the horizontal and the keel of a free-fall lifeboat when it first enters water after falling from the certificated height of installation.

### 1.3 SCOPE OF SURVEY

**1.3.1** General provisions for the procedure of survey of the life-saving appliances and arrangements, their manufacturing and service, as well as the requirements for the technical documentation to be submitted to the Register for review and provisions concerning documents issued by the Register for the life-saving appliances and arrangements are given in the General Regulations for the Classification and Other Activity and in Part I "Survey Regulations".

Except cases prescribed by [1.3.5](#) and [1.3.6](#) the life-saving appliances and arrangements required by this Part shall be approved by the Register.

**1.3.2** Before giving approval to life-saving appliances and arrangements the Register shall be verified that

**.1** such life-saving appliances and arrangements comply with IMO resolution MSC.488(66) "International Code for Life-Saving Appliances" as amended (hereinafter referred to as the LSA Code) and / or the applicable requirements of the Rules;

**.2** life-saving appliances arrangements have successfully passed the tests of such life-saving appliances and arrangements in accordance with the provisions of such IMO resolutions of IMO resolution MSC.81(70) "Revised Recommendation on Testing of Life-Saving Appliances" considering the amendments introduced by IMO resolutions MSC.200(80), MSC.226(82), MSC.274(85), MSC.295(87), MSC.321(89), MSC.323(89), MSC.378(93), MSC.427(98), MSC.472(101), IMO circular MSC.1/Circ.1347 as amended and also IACS UI SC244 (Rev.1 Corr.1 2015) (the document is available at the IACS website: [www.iacs.org.uk](http://www.iacs.org.uk)).

**1.3.3** Prior to approval of the life-saving appliances or arrangements of the new type, the Register shall provide that such appliances and arrangements:

**.1** provide, at least, the equivalent level of safety to the requirements of this Part of the Rules;

**.2** have successfully passed the engineering analysis, evaluation and approval in compliance with the requirements of [1.3.11](#).

**1.3.4** Procedures adopted by the Register for approval shall also include the conditions whereby approval would continue to be valid or it would be withdrawn.

**1.3.5** Before accepting life-saving appliances and arrangements that have not been previously approved by the Register, the Register shall be satisfied that life-saving appliances and arrangements comply with the requirements of this Part.

**1.3.6** Life-saving appliances required by this Part for which detailed specifications are not included in this Part of the Rules shall be to the satisfaction of the Register.

**1.3.7 Production tests.**

The Register requires life-saving appliances to be subjected to such production tests that are necessary to ensure that the life-saving appliances are manufactured complying to the same standards have been applied to the approved prototype.

**1.3.8** The technical documentation on life-saving appliances and arrangements to be submitted to the Register for approval shall be as follows.

**1.3.8.1** On lifeboats and rescue boats the following shall be submitted:

**.1** specification (hull, machinery and electrical equipment) including calculations of strength, stability, unsinkability, carrying capacity (the number of persons), volume of buoyancy, calculations of protective means and compressed air system, heel of equipment;

**.2** lines drawing;

**.3** longitudinal and transverse sections with indication of arrangement of the air cases or compartments, their volume and material;

**.4** drawing of the launching and recovery appliance including launching/recovery strops for lifeboat launched by free-fall, with the use of falls and for rescue boat which is not a lifeboat (arrangement, securing and strength calculations);

- .5 drawing of the steering gear;
  - .6 general arrangement plan with indication of stowage of equipment and accommodation of persons;
  - .7 diagram of protective foldable cover (canopy);
  - .8 shell expansion for metal lifeboats;
  - .9 documents on welded joints testing;
  - .10 sailing rig, if available;
  - .11 drawings of the propulsion unit and the shafting including calculations drawings of driving engine, bed and protective casing, fuel tank as well as electric equipment circuit diagram and choice of accumulator batteries;
  - .12 test programme;
  - .13 drawing of survival craft towing arrangements (location, securing and strength calculation);
  - .14 drawing showing safety belts fitted to boat;
  - .15 drawings of air support and water spray systems;
  - .16 documents on marking.
- 1.3.8.2** On rigid liferafts the following shall be submitted:
- .1 specification of the liferaft including the strength calculations of the liferaft, its towing and launching and recovery arrangements, volume of deck area and carrying capacity (number of persons), as well as draught; heel of equipment;
  - .2 general arrangement plan (construction of liferaft and main dimensions) with indication of stowage of equipment and accommodation of persons;
  - .3 test programme;
  - .4 documents on marking.
- 1.3.8.3** On inflatable liferafts the following shall be submitted:
- .1 specification of the liferaft including the strength calculations of the towing and launching and recovery arrangements, volume of buoyancy, deck area and carrying capacity (number of persons), as well as draught; heel of equipment;
  - .2 general arrangement plan (construction of lifeboat and main dimensions with indication of accommodation of persons, stowage of equipment, location of fittings and valves), container drawing;
  - .3 arrangement diagram, drawings and calculations of pressure vessels, fittings and valves of automatic gas inflation system, electric lighting circuit;
  - .4 test programme;
  - .5 documents on marking.
- 1.3.8.4** On lifejackets and lifebuoys, immersion suits and thermal protective aids the following shall be submitted:
- .1 specification;
  - .2 drawing and calculation of pressure vessels, fittings and valves of automatic gas inflation system in the case of inflatable lifejackets and immersion suits;
  - .3 general view drawing (construction, material and equipment);
  - .4 test programme;
  - .5 documents on marking.
- 1.3.8.5** On items of equipment of life-saving appliances the following shall be submitted:
- .1 specification;
  - .2 general view drawing (construction, material and equipment);
  - .3 test programme;
  - .4 documents on marking.
- 1.3.8.6** On launching appliances the following shall be submitted:
- .1 specification (no stamp of approval is needed);
  - .2 general view drawing (construction, material and equipment);
  - .3 documents on welded joints testing;



- .4 strength calculation and diagrams of forces;
- .5 test programme;
- .6 documents on marking.

**1.3.8.7** On winches and mechanical drives of launching appliances the following shall be submitted:

- .1 specification;
- .2 general view drawing (construction, material and parts with dimensions);
- .3 documents on welded joints testing;
- .4 strength calculation;
- .5 test programme;
- .6 documents on marking.

**1.3.9** The following items are subject to survey by the Register during manufacture:

- .1 lifeboats and rescue boats;
- .2 liferafts (inflatable and rigid);
- .3 lifebuoys;
- .4 lifejackets;
- .5 immersion and anti-exposure suits;
- .6 thermal protective aids;
- .7 marine evacuation systems;
- .8 launching appliance winches;
- .9 engines of lifeboats and rescue boats;
- .10 line-throwing appliances;
- .11 means of rescue;
- .12 self-igniting lights of lifebuoys;
- .13 self-activating smoke signals of lifebuoys;
- .14 lifeboat searchlights;
- .15 launching appliances of lifeboats, liferafts and rescue boats;
- .16 containers for inflatable liferafts;
- .17 release mechanism of lifeboats, liferafts and rescue boats including launching/recovery strops for lifeboat launched by free-fall, with the use of falls and for rescue boat which is not a lifeboat;
- .18 hydrostatic release units;
- .19 embarkation ladders;
- .20 lights of lifeboats, liferafts and lifejackets;
- .21 buoyant rescue quoits with buoyant line;
- .22 parachute flares, hand flares and buoyant smoke signals;
- .23 manual bailing pumps of lifeboats;
- .24 food rations;
- .25 watertight receptacles with fresh water;
- .26 sea-activated power sources for lights of lifejackets, liferafts and for lifebuoy self-igniting lights;
- .27 items of equipment and parts of life-saving appliances and arrangements. Survey by the Register consists only of review and approval of technical documentation.

**1.3.10** Equipment of ships with life-saving appliances and arrangements shall be effected under survey by the Register.

**1.3.11 Alternative design and arrangements.**

**1.3.11.1 General.**

**1.3.11.1.1** Life-saving appliances and arrangements may deviate from the requirements of this Part of the Rules, provided that such alternative design and arrangements satisfy the intent of these requirements and provide the equivalent level of safety to the Rules.

**1.3.11.1.2** When alternative design or arrangements deviate from the prescriptive requirements of the Rules, an engineering analysis, evaluation and approval of such design and arrangements shall be carried out in compliance with the present Chapter.

**1.3.11.2** Engineering analysis.

The engineering analysis shall be prepared on the basis of the Guidelines on Alternative Design and Arrangements (refer to IMO circular MSC.1/Circ.1212 as amended) and submitted to the Register for review. In this case, it is not required to comply with the provisions of 7.3 of the above Circular regarding the provision of a report on the applied Alternative Design solution to IMO. It shall include, at least, the following elements:

.1 determination of the ship type and appropriate life-saving appliances and arrangements;

.2 identification of the prescriptive requirement(s), from which the life-saving appliances and arrangements will deviate;

.3 identification of the reason of the proposed design deviation from the prescriptive requirements, taking into account its compliance with other technical standards recognized by the Register;

.4 determination of the performance criteria for the ship and appropriate life-saving appliances and arrangements considered in the relevant prescriptive requirement(s);

.4.1 performance criteria shall provide the level of safety not lower than the relevant prescriptive requirements contained in [Sections 1 – 5](#) of the Rules;

.4.2 performance criteria shall be subject to quantitative analysis and measurement;

.5 detailed description of the alternative design and arrangements, including a list of the assumptions used in the design and any proposed operating limitations and conditions;

.6 technical justification demonstrating that the alternative design and arrangements satisfy the safety performance criteria; and

.7 risk assessment based on identification of possible failures and hazards associated with the proposal.

**1.3.11.3** Evaluation of the alternative design and arrangements.

**1.3.11.3.1** The engineering analysis required in [1.3.11.2](#) shall be evaluated and approved by the Register.

**1.3.11.3.2** Copies of the documents approved by the Register, indicating that the alternative design and arrangements comply with the Rules, shall be provided on board.

**1.3.11.4** Re-evaluation under the changed conditions.

**1.3.11.4.1** If the assumptions and operating limitations indicated in the description of the alternative design and arrangements are changed, then under the changed conditions engineering design shall be carried out and approved by the Register.

## 2 REQUIREMENTS FOR ALL TYPES OF SHIPS

### 2.1 COMMUNICATIONS

#### 2.1.1 Radio life-saving appliances.

##### 2.1.1.1 Two-way VHF radiotelephone apparatus.

At least three two-way VHF radiotelephone apparatus shall be provided on every passenger ship and on every cargo ship of 500 gross tonnage and upwards. At least two two-way VHF radiotelephone apparatus shall be provided on every cargo ship of 300 gross tonnage and upwards but less than 500 gross tonnage.

##### 2.1.1.2 Search and rescue locating devices.

At least one search and rescue locating device shall be carried on each side of every passenger ship and of every cargo ship of 500 gross tonnage and upwards. At least one search and rescue locating device shall be carried on every cargo ship of 300 gross tonnage and upwards but less than 500 gross tonnage.

Search and rescue locating devices shall be stowed in such locations that they can be rapidly placed in any survival craft other than the liferaft or liferafts required by [4.1.1.4](#). Alternatively, one search and rescue locating device shall be stowed in each survival craft other than those required by [4.1.1.4](#).

On ships carrying at least two search and rescue locating devices and equipped with free-fall lifeboats one of the search and rescue locating devices shall be stowed in a free-fall lifeboat and the other located in the immediate vicinity of the navigation bridge so that it can be utilized on board and ready for transfer to any of the other survival craft.

**2.1.1.3** Every cargo ship of under 300 gross tonnage, non-propelled ship with people on board towed or pushed at sea, or intended for the prolonged anchorage outside the port water area and roads, as well as ships not engaged in international voyages shall be fitted with one search and rescue locating device and two sets of two-way VHF radiotelephone apparatus.

##### 2.1.2 Distress flares.

Not less than 12 rocket parachute flares shall be carried and stowed on or near the navigation bridge.

Notwithstanding the above, ships with a restricted navigation area (**R2**, **R2-RSN**, **R2-RSN (4,5)**, **R3-RSN** and **R3**), not making international voyages, shall be supplied with at least 6 parachute flares.

##### 2.1.3 On-board communications and alarm systems.

**2.1.3.1** Emergency means comprised of either fixed or portable equipment or both shall be provided for two-way communications between emergency control stations, muster and embarkation stations and strategic positions on board.

**2.1.3.2** A general emergency alarm system complying with the requirements of [6.3.1](#) shall be provided and shall be used for summoning passengers and crew to muster stations and to initiate the actions included in the muster drill. The system shall be supplemented by either a public address system complying with the requirements of [6.3.2](#) or other suitable means of communication. Entertainment sound systems shall automatically be turned off when the general emergency alarm system is activated.

**2.1.3.3** The general emergency alarm system shall be audible throughout all the accommodation and normal crew working spaces. On passenger ships, the system shall also be audible on all open decks.

**2.1.3.4** On ships fitted with a marine evacuation system communication between the embarkation station and the platform or the survival craft shall be ensured.

##### 2.1.4 Public address systems on passenger ships.

**2.1.4.1** In addition to the requirements of [2.1.3.2](#), all passenger ships shall be fitted with a public address system.

**2.1.4.2** The public address system shall be clearly audible above the ambient noise in all spaces, prescribed by [6.3.2.1](#), and shall be provided with an override function controlled from one location on the navigation bridge and such other places on board as deemed necessary, so that all emergency messages will be broadcast if any loudspeaker in the spaces concerned has been switched off, its volume has been turned down or the public address system is used for other purposes.

**2.1.4.3** On passenger ships constructed on or after 1 July 1997 the following shall be carried out:

**.1** the public address system shall have at least two loops of the low surface flame spread cable which shall be sufficiently separated throughout their length and have two separate and independent amplifiers; and

**.2** the public address system and its performance standards shall be approved by the Register;

**.3** all rooms and spaces of each main fire zone shall comply with the requirements [2.1.4.3.1](#).

**2.1.4.4** The public address system shall be connected to the emergency source of electrical power required by Part XI "Electrical Equipment" of the Rules for the Classification.

**2.1.4.5** Ships constructed before 1 July 1997 which are already fitted with the public address system approved by the Register which complies substantially with those required by [2.1.4.2](#), [2.1.4.4](#) and [6.3.2.1](#) are not required to change their system.

## 2.2 PERSONAL LIFE-SAVING APPLIANCES

### 2.2.1 Lifebuoys.

#### 2.2.1.1 Lifebuoys shall be :

.1 so distributed as to be readily available on both sides of the ship and as far as practicable on all open decks extending to the ship's side; at least one shall be placed in the vicinity of the stern;

.2 so stowed as to be capable of being rapidly cast loose, and not permanently secured in any way.

**2.2.1.2** At least one lifebuoy on each side of the ship shall be fitted with a buoyant lifeline equal in length to not less than twice the height at which it is stowed above the waterline in the lightest seagoing condition, or 30 m, whichever is the greater.

**2.2.1.3** Not less than one half of the total number of lifebuoys shall be provided with self-igniting lights; not less than two of these shall also be provided with self-activating smoke signals and be capable of quick release from the navigation bridge; lifebuoys with lights and those with lights and smoke signals shall be equally distributed on both sides of the ship and shall not be the lifebuoys provided with lifelines in compliance with the requirements of [2.2.1.2](#).

**2.2.1.4** Each lifebuoy shall be marked in block capitals of the Roman alphabet with the name and port of registry of the ship.

**2.2.1.5** Lifebuoys fitted with both self-igniting lights and lifelines intended to provide pilotage shall be taken into account when considering the minimum number and placement of lifebuoys on board in accordance with the requirements of [3.2.1](#), [4.2.1](#) or [5.1.3.2](#) of the Rules.

### 2.2.2 Lifejackets.

#### 2.2.2.1 For every person on board the ship a lifejacket shall be provided and, in addition:

.1 for passenger ships on voyages less than 24 h, a number of infant jackets equal to at least 2,5 % of the number of passengers on board shall be provided;

.2 for passenger ships on voyages 24 h or greater, infant lifejackets shall be provided for each infant on board;

.3 a number of lifejackets suitable for children equal to at least 10 % of the number of passengers on board or more as may be required to provide one lifejacket for each child;

.4 a sufficient number of lifejackets shall be provided for persons on watch as well as for use at remotely located survival craft stations. The lifejackets carried for persons on watch shall be stowed on the bridge, in the engine control room and at any other manned watch station;

.5 if the adult lifejackets provided are not designed to fit persons weighing up to 140 kg and with a chest girth of up to 1750 mm, a sufficient number of suitable accessories shall be available on board to allow them to be secured to such persons;

.6 the requirements of [2.2.2.1.1](#) and [2.2.2.1.2](#) are applicable to all passenger ships.

**2.2.2.2** Lifejackets shall be so placed as to be readily accessible and their position shall be plainly indicated. Whether, due to the particular arrangement of the ship the lifejackets provided in compliance with the requirements of [2.2.2.1](#) may become inaccessible, alternative provisions shall be made to the satisfaction of the Register which may include an increase in the number of lifejackets to be carried on board.

**2.2.2.3** If the lifejackets are not distributed between all the persons on the ship the stowage in one place of more than 20 pieces is not permitted.

**2.2.2.4** The lifejackets used in totally enclosed lifeboats, except free-fall lifeboats, shall not impede entry into the lifeboat or seating, including operation of the seat belts in the lifeboat.

**2.2.2.5** Lifejackets selected for free-fall lifeboats, and the manner in which they are carried or worn, shall not interfere with entry into the lifeboat, occupant safety or operation of the lifeboat.

**2.2.3 Immersion suits and anti-exposure suits.**

**2.2.3.1** An immersion suit or an anti-exposure suit of an appropriate size, shall be provided for every person assigned to crew the rescue boat or assigned to the marine evacuation system party. If the ship is constantly engaged in warm climates where thermal protection is unnecessary, this protective clothing need not be carried (region between 30°N and 30°S).

**2.2.3.2** Immersion suits shall be stowed on the ship in accordance with the manufacturer's instructions. As far as practicable a special room shall be provided for drying and airing of wetted immersion suits as well as for minor repairing them in accordance with the manufacturer's instructions.

## **2.3 ARRANGEMENT OF SURVIVAL CRAFT**

**2.3.1** Lifeboats and liferafts for which approved launching appliances are required shall be stowed as close to accommodation and service spaces as possible.

**2.3.2** Muster stations shall be provided close to the embarkation stations. Each muster station shall have sufficient clear deck space to accommodate all persons assigned to muster at that station, but at least 0,35 m<sup>2</sup> per person.

**2.3.3** Muster and embarkation stations shall be readily accessible from accommodation and work areas.

**2.3.4** Muster and embarkation stations shall be adequately illuminated by lighting supplied from the emergency source of electrical power required by Sections 9 and 19, Part XI "Electrical Equipment" of the Rules for the Classification and Construction of Sea-Going Ships.

**2.3.5** Alleyways, stairways and exits giving access to the muster and embarkation stations shall be lighted. Such lighting shall be capable of being supplied by the emergency source of electrical power required by Sections 9 and 19, Part XI "Electrical Equipment" of the Rules for the Classification and Construction of Sea-Going Ships. In addition to and as part of the markings required in 8.5.5, Part III "Equipment, Arrangements and Outfit" of the Rules for the Classification, muster stations, routes to them, location of life-saving appliances and arrangements shall be indicated with the symbols given in IMO resolution A. 1116(30) as amended.

**2.3.6** Davit-launched and free-fall launched survival craft muster and embarkation stations shall be so arranged as to enable stretcher cases to be placed in survival craft.

**2.3.7** An embarkation ladder extending, in a single length, from the deck to the waterline in the lightest seagoing condition under all conditions of trim of up to 10° and a heel of up to 20° either way shall be provided at each embarkation station or at every two adjacent embarkation stations for survival craft launched down the side of the ship. However, the Register may permit such ladders to be replaced by approved devices to afford access to the survival craft when waterborne, provided that there shall be at least one embarkation ladder on each side of the ship.

Embarkation ladders may not be provided for cargo and passenger ships of less than 500 gross tonnage as well as for fishing ships of less than 45 m in length where the liferafts to be boarded from the deck located at height at least 2 m (less than 1,5 m for passenger ships) above the waterline in the lightest seagoing condition and on the ships where the lifeboats are launched from the stern by the method of freefall launching.

**2.3.8** Where necessary, means shall be provided for bringing the davit-launched survival craft against the ship's side and holding them alongside so that persons can be safely embarked.

**2.3.9** Launching stations shall be in such positions as to ensure safe launching of the survival craft having particular regard to clearance from the propeller and steeply overhanging portions of the hull and so that, as far as possible, survival craft, except survival craft specially designed for free-fall launching, can be launched down the straight side of the ship.

If positioned forward, they shall be located abaft the collision bulkhead in a sheltered position and, in the respect it is necessary to give special consideration to the strength of the launching appliance.

## 2.4 STOWAGE OF SURVIVAL CRAFT

**2.4.1** Each survival craft shall be stowed:

**.1** so that the survival craft nor its stowage arrangements will interfere with the operation of any other survival craft or rescue boat at any other launching station;

**.2** for ships of 500 gross tonnage and upwards, as near the water surface as is safe and practicable and, in the case of a survival craft other than a liferaft intended for throw-overboard launching, in such a position that the survival craft in the embarkation position is not less than 2 m above the waterline with the ship in the fully loaded condition under unfavorable conditions of trim of up to 10° and heel up to 20° either way, or to the angle at which the ship's weather deck edge becomes submerged, whichever is less;

**.3** in a state of continuous readiness so that two crew members can carry out preparations for embarkation and launching in less than 5 min;

**.4** fully equipped as required by this Part;

**.5** as far as practicable, in a secure and sheltered position and protected from damage by fire and explosion.

In particular, survival craft on oil tankers, other than the liferafts required by [4.1.1.4](#), shall not be stowed on or above a cargo tank, slop tank, or other tank containing explosive or hazardous cargoes.

**2.4.2** Lifeboats for lowering down the ship's side shall be stowed as far forward of the propeller as practicable. On cargo ships of 80 to 120 m in length each lifeboat shall be so stowed that the after end of the lifeboat is not less than its length forward of the propeller.

On cargo ships of 120 m in length and upwards and passenger ships of 80 m in length and upwards, each lifeboat shall be so stowed that the after end of the lifeboat is not less than 1,5 times the length of the lifeboat forward of the propeller. Where necessary, the ship shall be so arranged that lifeboats, in their stowed positions, are protected from damage by heavy seas.

**2.4.3** Lifeboats shall be stowed attached to launching appliances.

**2.4.4** Every liferaft shall be stowed with its painter permanently attached to the ship.

**2.4.5** Each liferaft or group of liferafts shall be stowed with a float-free arrangement so that each floats free and, if inflatable, inflates automatically when the ship sinks.

**2.4.6** Liferafts shall be so stowed as to permit manual release of one raft or container at a time from their securing arrangements.

**2.4.7** Requirements of [2.4.4](#) and [2.4.5](#) do not apply to liferafts required by regulation [4.1.1.4](#).

**2.4.8** Davit-launched liferafts shall be stowed within reach of the lifting hooks, unless some means of transfer is provided which is not rendered inoperable within the limits of trim and heel prescribed in [2.4.1.2](#) or by ship motion or power failure.

**2.4.9** Liferafts intended for throw-overboard launching shall be so stowed as to be readily transferable for launching on either side of the ship unless liferafts, of the aggregate capacity required by [4.1.1](#) to be capable of being launched on either side, are stowed on each side of the ship.

**2.4.10** Posters or signs shall be provided on the survival craft or in the vicinity of them and their launching controls and shall:

**.1** illustrate the purpose of controls and the procedures for operating the appliance and give relevant instructions or warnings;

**.2** be easily seen under emergency lighting conditions;

**.3** use symbols in accordance with the recommendations of IMO resolution A.1116 (30) as amended.



## 2.5 STOWAGE OF RESCUE BOATS

### 2.5.1 Rescue boats shall be stowed:

- .1 in a state of continuous readiness for launching is not more than 5 min, and if the inflated type, in a fully inflated condition at all times;
- .2 in a position suitable for launching and recovery;
- .3 so that neither the rescue boat nor its stowage arrangements will interfere with the operation of any survival craft at any other launching station;
- .4 in compliance with the requirements of [2.4](#), if they are also lifeboats.

### 2.5.2 Conditions for exemption from the carriage of a rescue boat.

2.5.2.1 If requirements of this Chapter are met, carriage of rescue boats may be exempted on:

- .1 harbor, roadstead and coastal cargo ships under 500 gross tonnage (considering [4.1.3.2](#)) as well as on tugs under 500 gross tonnage and of less than 30 m in length regardless of navigation area;
- .2 passenger ships under 30 m in length considering [3.1.2.4](#) and not engaged in international voyages;
- .3 fishing vessels of less than 75 m in length considering [5.1.1.4.2](#).

2.5.2.2 Exemption from the carriage of a rescue boat may be granted if applicable provisions of [2.5.2.3 — 2.5.2.7](#), [3.1.2.4](#), [4.1.3.2](#) and [5.1.1.4.2](#) as well as the following conditions are met:

- .1 provided level of safety is equal to the level with carried rescue boat;
- .2 ship has sufficient maneuverability (circulation and return to the MOB place according to the methodology in [2.5.2.6](#)), possibility of safe approach to the man overboard and ship positioning for his/her recovery onboard;
- .3 ship is fitted with appliances to recover the person from water such as:  
cargo handling gear equipped with a special net, basket or cradle, provided the special net, basket or cradle, as well as the cargo handling gear meet the requirements in 5.8 of the Rules for the Cargo Handling Gear of Sea-Going Ships with outreach located in easy-to-access place, ready for use and designed for static load at least 200 kg;  
means of rescue that meets the requirements of [6.21](#);  
rescue net that meets the requirements of [6.4](#).
- .4 fixed arrangements for towing of liferafts and lifeboats (reels, winches, etc.) and buoyant rope with length ensuring conditions of safe towing, but not less than 50 m, with sea anchor of sufficient strength to tow liferafts and lifeboats, shall be provided on board the ship.

2.5.2.3 Assessment criteria for exemption from the carriage of a rescue boat are specified in Appendix 2. The estimated time for water exposure shall be considered as the main criterion for efficiency comparison between primary (with the use of a rescue boat) and alternative means.

2.5.2.4 When assessing the possibility for ships specified in [2.5.2.1](#) to exempt from carrying a rescue boat, the ship shall fit for realization of main functions of the rescue boat: detection, MOB retrieval and delivery of a person on board.

2.5.2.5 In accordance with [3.1.2.3](#), [4.1.2](#) and [5.1.1.4.2](#) where a ship carries a lifeboat complying with the requirements of 6.19, carriage of a rescue boat is not required.

2.5.2.6 Methodology for calculation of ship' manoeuvring characteristics.

- .1 estimated time for rescue operation concerning the return of a ship to the MOB place shall not exceed 5 min. The estimated time  $t_m$  may be extended (but not more than 10 min) if it can be documented that when a ship operates in the specified waters in the worst navigation period, minimum sea water temperature exceeds 10 °C.

.2 estimated time in minutes is determined by formula:

$$t_m = \frac{S}{V_{av} \cdot 0,514 \cdot 60} \quad (2.5.2.6.2-1)$$

where  $V_{av}$  = a mean manoeuvring speed, in knots, determined by the formula:

$$V_{av} = V_0 \cdot (1 - 0,0117 \cdot \alpha) \quad (2.5.2.6.2-2)$$

where  $\alpha$  = hard-over angle ( $\alpha = 35^\circ$  when putting the rudder on one side),  
 $V_0$  = speed before manoeuvring, in knots,

$S$  = full distance traveled to the return to the MOB place, in m, being determined by formula:

$$S = 4,5 \cdot D_T \quad (2.5.2.6.2-3)$$

where  $D_T$  = tactical circulation diameter (distance between ship's centre line before circulation and after changing the heading to  $180^\circ$ ), in meters, being determined by the formulae:

for ship in load condition:

$$D_T = 0,263 \cdot L \cdot (C_b \cdot B / L)^{-1,14}$$

for ship in ballast condition:

$$D_T = 0,353 \cdot L \cdot (C_b \cdot B / L)^{-1,08},$$

where  $B$  = ship breadth, in m;  
 $C_b$  = block coefficient of the ship;  
 $L$  = ship length, in meters.

**2.5.2.7** When taking the decision on exemption from the carriage of a rescue boat, the following documents shall be submitted to the Register for review:

.1 for agreement — engineering analysis of evaluation of the alternative design which contains design substantiation of time for a rescue operation regarding return of the ship to the MOB place developed by the methodology in [2.5.2.6](#) with the description of safe approach to the survivor, ship positioning for his/her retrieval, instruction for safe recovery (including unconscious person).

.2 for approval — projects involving outfitting/minor conversion/modernization related to the installation of required additional equipment (if applicable).

## **2.6 STOWAGE OF MARINE EVACUATION SYSTEMS**

**2.6.1** The ship's side shall not have any openings between the embarkation station of the marine evacuation station and the sea level in the lightest sea-going condition. This means no openings, be they permanent openings, recessed promenades or temporary openings such as shell doors, windows or ports. Also the means shall be provided to protect the system against any ship extensions.

On passenger ships in the said area windows and side scuttles may be allowed if complying with the requirements of 2.2.4.4, Part VI "Fire Protection" of the Rules for the Classification.

On cargo ships in the area of stowage of the marine evacuation system only the windows and side scuttles of non-opening type may be installed.

**2.6.2** Marine evacuation systems shall be in such positions as to ensure safe launching having particular regard to clearance from the propeller and steeply overhanging positions of the hull and so that, as far as practicable, the system can be launched down the straight side of the ship.

**2.6.3** Each marine evacuation system shall be stowed so that neither the passage nor platform nor its stowage or operational arrangements will interfere with the operation of any other life-saving appliance at any other launching station.

**2.6.4** Where appropriate, the ship shall be so arranged that the marine evacuation systems in their stowed positions are protected from damage by heavy seas.

## 2.7 SURVIVAL CRAFT LAUNCHING AND RECOVERY ARRANGEMENTS

**2.7.1** Unless in the present Part of the Rules expressly provided otherwise, launching and embarkation appliances shall be provided for all survival craft except liferafts which are:

**.1** boarded from a position on deck less than 4,5 m above the waterline in the lightest sea-going condition and which have a mass of not more than 185 kg;

**.2** boarded from a position on deck less than 4,5 m above the waterline in the lightest seagoing condition and which are stowed for launching directly from the stowed position under unfavourable conditions of trim of up to 10° and heel of up to 20° either way;

**.3** carried in excess of the survival craft for 200 per cent of the total number of persons on board the ship and which have a mass of not more than 185 kg;

**.4** carried in excess of the survival craft for 200 % of the total number of persons on board the ship, are stowed for launching directly from the stowed position under unfavourable conditions of trim of up to 10° and heel of up to 20° either way;

**.5** provided for use in conjunction with a marine evacuation system and stowed for launching directly from the stowed position under unfavourable conditions of trim of up to 10° and heel of up to 20° either way.

**2.7.2** Each lifeboat shall be provided with an appliance which is capable of launching and recovering the lifeboat.

In addition there shall be provision for hanging-off (attaching) the lifeboat to free the release gear for maintenance.

**2.7.3** Launching and recovery appliances shall be such that the appliance operator on the ship is able to observe the survival craft at all times during launching and for lifeboats during recovery.

**2.7.4** Only one type of release mechanism shall be used for similar survival craft carried on board the ship.

**2.7.5** Preparation and handling of survival craft at any one launching station shall not interfere with the prompt preparation and handling of any other survival craft or rescue boat at any other launching station.

**2.7.6** Falls, where used, shall be long enough for the survival craft to reach the water with the ship in its lightest seagoing condition, under unfavourable conditions of trim of up to 10° and heel of up to 20° either way.

**2.7.7** During preparation and launching the survival craft, its launching appliance and the area of water into which it is to be launched shall be adequately illuminated by lighting supplied from the emergency source of electrical power required by Sections 9 and 19, Part XI "Electrical Equipment" of the Rules for the Classification.

**2.7.8** Means shall be available to prevent any discharge of water onto survival craft during abandonment.

**2.7.9** If there is a danger of the survival craft being damaged by the ship's stabilizer wings, means shall be available, powered by an emergency source of power, to bring the stabilizer wings inboard. In this case indicators of the position of the stabilizer wings operated by an emergency source of power shall be available on the navigation bridge.

**2.7.10** If the lifeboats are installed on the ship, a davit span shall be provided, fitted with not less than two lifelines of sufficient length to reach the water with the ship in the lightest seagoing condition, under unfavourable conditions of trim up to 10° and heel not less than 20° either way. The breaking strength of lifelines, as a whole, shall be at least 17 kN. Their rated diameter is not less than 20 mm.

**2.7.11** Launching appliances shall be installed on the open parts of the deck so that the lifeboats and rescue boats are stowed 3° inside from a vertical line drawn through a point of intersection of the boat deck with the side of the ship. If the launching appliances are mounted on the 'tween deck, then no parts of the launching appliance, life and rescue boats shall extend beyond the shell plating of the ship.

**2.7.12** Sets of davits shall be so stowed that the distance between two davits was equal to that between the sling hooks of the lifeboat. Where this requirement cannot be complied with, a 3° deviation to either side from the vertical line in the longitudinal direction may be allowed.

**2.7.13** Lifeboat tackle falls shall be evenly wound on the winch drum. Where the falls run through fixed sheaves, a maximum deviation of the rope from the sheave central plane shall not exceed 8° for grooved drums and 4° for smooth drums.

## **2.8 RESCUE BOAT EMBARKATION, LAUNCHING AND RECOVERY ARRANGEMENTS**

**2.8.1** The rescue boat embarkation and launching arrangements shall be such that rescue boat can be boarded and launched in the shortest time.

**2.8.2** If the rescue boat is one of the ship's lifeboats, the embarkation arrangements and launching station shall comply with the requirements of [2.3](#).

**2.8.3** Launching arrangements shall comply with the requirements of [2.7](#). All rescue boats shall be capable of being launched, where necessary utilizing painters, with the ship making headway at speeds up to 5 knots in calm water.

**2.8.4** Recovery time of the rescue boat shall be not more than 5 min in moderate sea conditions when loaded with its full complement of persons and equipment. If the rescue boat is also a lifeboat, this recovery time shall be possible when loaded with its lifeboat equipment and the approved rescue boat complement of at least six persons.

**2.8.5** Rescue boat embarkation and recovery arrangements shall allow for safe and efficient handling of a stretcher case. Foul weather recovery strops shall be provided for safety if heavy fall blocks constitute a danger.

## **2.9 LINE-THROWING APPLIANCES**

**2.9.1** All ships shall be equipped with line-throwing appliances having four projectiles and four lines each.

**2.9.2** The ships not engaged on international voyages of 25 m in length and above shall be equipped with line-throwing appliances having not less than two projectiles and two lines each.

**2.9.3** Ships of less than 25 m in length not engaged in international voyages as well as the roadstead and harbour ships may be exempted from carriage of line-throwing appliances.

### 3 REQUIREMENTS FOR PASSENGER SHIPS

#### 3.1 SURVIVAL CRAFT AND RESCUE BOATS

##### 3.1.1 Survival craft.

**3.1.1.1** Passenger ships engaged in voyages which are more than 200 miles from a port or place where passengers and crew can safely take refuge shall carry:

.1 lifeboats on each side of such aggregate capacity as will accommodate not less than 50 % of the total number of persons on board. On agreement with the Register it may be permitted the substitution of lifeboats by liferafts of equivalent total capacity provided that there shall never be less than sufficient lifeboats on each side of the ship to accommodate at least 37,5 % of the total number of persons on board. The liferafts shall be served by launching appliances equally distributed on each side of the ship; and

.2 in addition, liferafts of such aggregate capacity as will accommodate at least 25 % of the total number of persons on board. These liferafts shall be served by at least one launching appliance on each side which may be those provided in compliance with the requirements of [3.1.1.1.1](#) or equivalent approved appliances capable of being used on both sides of the ship. However, stowage of these liferafts need not comply with the requirements of [2.4.8](#).

**3.1.1.2** Passenger ships not engaged in voyages specified in [3.1.1.1](#) shall carry:

.1 lifeboats equally distributed, as far as practicable, on each side of the ship and of such aggregate capacity as will accommodate at least 30 % of the total number of persons on board and liferafts of such aggregate capacity that, together with the lifeboat capacity, the survival craft will accommodate the total number of persons on board. The liferafts shall be served by launching appliances equally distributed on each side of the ship; and

.2 in addition, liferafts of such aggregate capacity as will accommodate at least 25 % of the total number of persons on board. These liferafts shall be served by at least one launching appliance on each side which may be those provided in compliance with the requirements of [3.1.1.2.1](#) or equivalent approved appliances capable of being used on both sides of the ship. However, stowage of these liferafts need not comply with the requirements of [2.4.8](#).

**3.1.1.3** All survival craft required to provide for abandonment by the total number of persons on board shall be capable of being launched with their full complement of persons and equipment after all persons have been assembled, with lifejackets donned within a period of time not exceeding 30 min from the time the abandon ship signal is given.

**3.1.1.4** In lieu of meeting the requirements of [3.1.1.1](#), [3.1.1.2](#) passenger ships of less than 500 gross tonnage where the total number of persons on board is less than 200, may comply with the following:

.1 they shall carry on each side of the ship liferafts of such aggregate capacity as will accommodate the total number of persons on board;

.2 unless the liferafts required by [3.1.1.4.1](#) can be readily transferred for launching on either side of the ship, additional liferafts shall be provided so that the total capacity available on each side will accommodate 150 % of the total number of persons on board;

.3 if the rescue boat required by [3.1.2.2](#) is also a lifeboat, its capacity may be included in the aggregate capacity required by [3.1.1.4.1](#), provided that the total capacity of survival craft available on each side of the ship is at least 150 % of the total number of persons on board;

.4 in the event of any one survival craft being lost or rendered unseaworthy, there shall be sufficient survival craft available for use on each side, including any which are stowed in a position providing for easy side-to-side transfer at a single open deck level, to accommodate the total number of persons on board.



**3.1.1.5** A marine evacuation system or systems may be substituted for the equivalent capacity of liferafts and launching appliances required by paragraphs [3.1.1.1](#) and [3.1.1.2](#).

**3.1.1.6** Passenger ships of coastal navigation under 30 m in length (of 200 gross tonnage and below) engaged on voyages at a distance not more than 12 miles from the land shall carry liferafts of such aggregate capacity as will accommodate 100 % of the total number of persons on board.

**3.1.2 Rescue boats.**

**3.1.2.1** Passenger ships of 500 gross tonnage and over shall carry at least one rescue boat on each side of the ship.

**3.1.2.2** Passenger ships of less than 500 gross tonnage shall carry at least one rescue boat.

**3.1.2.3** A lifeboat may be accepted provided that it and its launching and recovery arrangements also comply with the requirements for a rescue boat.

**3.1.2.4** Passenger ships under 30 m in length may be exempted from the requirement to carry a rescue boat provided their dimensions and manoeuvrability, vicinity of search and rescue services and hydrometeorological conditions in the area of navigation do not dictate necessary fulfilment of this requirement and provided the provisions of [2.5.2](#) are met.

**3.1.3 Marshalling of liferafts.**

**3.1.3.1** The number of lifeboats and rescue boats that are carried on passenger ships shall be sufficient to ensure that in providing for abandonment by the total number of persons on board not more than six liferafts need be marshalled by each lifeboat or rescue boat.

**3.1.3.2** The number of lifeboats and rescue boats that are carried on passenger ships engaged in short international voyages shall be sufficient to ensure that in providing for abandonment by the total number of persons on board not more than nine liferafts need be marshalled by each lifeboat or rescue boat.

### 3.2 PERSONAL LIFE-SAVING APPLIANCES

#### 3.2.1 Lifebuoys.

**3.2.1.1** A passenger ship shall carry not less than the prescribed number of lifebuoys complying with the requirements of [2.2](#).

Length of ship, m	Minimum number of lifebuoys
Under 60	8
60 and under 120	12
120 and under 180	18
180 and under 240	24
240 and over	30

**3.2.1.2** notwithstanding the requirements of [2.2.1.3](#), passenger ships under 60 m in length shall carry not less than six lifebuoys provided with self-igniting lights.

#### 3.2.2 Lifejackets.

**3.2.2.1** In addition to the lifejackets required by [2.2.2](#) every passenger ship shall carry lifejackets for not less than 5 % of the total number of persons on board. These lifejackets shall be stowed in conspicuous place on deck at muster stations.

**3.2.2.2** Where lifejackets for passengers are stowed in staterooms which are located remotely from direct routes between public spaces and muster stations, the additional lifejackets for these passengers required by [2.2.2.2](#), shall be stowed either in the public spaces, the muster stations, or on direct routes between them. The lifejackets shall be stowed so that their distribution and donning does not impede orderly movement to muster stations and survival craft embarkation stations.

#### 3.2.3 Lifejacket lights.

On passenger ships each lifejacket shall be fitted with a light.

#### 3.2.4 Immersion suits and thermal protective aids.

**3.2.4.1** Passenger ships shall carry for each lifeboat on the ship at least three immersion suits and, in addition, one thermal protective aid for every person to be accommodated in the lifeboat and not provided with an immersion suit. These immersion suits and thermal protective aids need not be carried:

- .1 for persons to be accommodated in totally or partially enclosed lifeboats;
- .2 if the ship is constantly engaged in voyages in warm climates where thermal protective aids are unnecessary (region between 30°N and 30°S).

### 3.3 SURVIVAL CRAFT AND RESCUE BOAT EMBARKATION ARRANGEMENTS

**3.3.1** On passenger ships, survival craft embarkation arrangements shall be designed for:

- .1 all lifeboats to be boarded and launched either directly from the stowed position or from an embarkation deck but not both;
- .2 davit-launched liferafts to be boarded and launched from a position immediately adjacent to the stowed position or from a position to which, in compliance with the requirements of [2.4.8](#), the liferaft is transferred prior to launching.

**3.3.2** Rescue boat embarkation arrangements shall be such that the rescue boat can be boarded and launched directly from the stowed position with the number of persons assigned to crew the rescue boat on board. Notwithstanding the requirements of [3.3.1](#) if the rescue boat is also a lifeboat and the other lifeboats are boarded and launched from an embarkation deck, the arrangements shall be such that the rescue boat can also be boarded and launched from the embarkation deck.

#### **3.3.3 Stowage of survival craft.**

The stowage height of a survival craft on a passenger ship shall take into account the requirements of regulation [2.4.1.2](#), the escape provisions of Part III "Equipment, Arrangements and Outfit" of the Rules for the Classification and Construction of Sea-Going Ships, the size of the ship, and the weather conditions likely to be encountered in its intended area of operation. For a davit-launched survival craft, the height of the davit head with the survival craft in embarkation position, shall, as far as practicable, not exceed 15 m above the waterline when the ship is in its lightest sea-going condition.

#### **3.3.4 Muster stations.**

Every passenger ship shall comply with the requirements of [2.3](#) and, in addition, have passenger muster stations which shall:

- .1 be in the vicinity of, and permit ready access for the passengers to, the embarkation stations unless in the same location;
- .2 have ample room for marshalling and instruction of the passengers, but at least 0,35 m<sup>2</sup> per passenger.

### 3.4 ADDITIONAL REQUIREMENTS FOR RO-RO PASSENGER SHIPS

**3.4.1** These requirements apply to all ro-ro passenger ships.

Ro-ro passenger ships constructed:

.1 on or after 1 July 1998 shall comply with the requirements of [3.4.2.3](#), [3.4.2.4](#), [3.4.3.1](#) to [3.4.3.3](#), [3.4.4](#) and [3.4.5](#);

.2 on or after 1 July 1986 but before 1 July 1998 shall comply with the requirements of [3.4.5](#) not later than the first periodical survey after 1 July 1998 and with the requirements of [3.4.2.3](#), [3.4.2.4](#), [3.4.3](#) and [3.4.4](#) not later than the first periodical survey after 1 July 2000;

.3 before 1 July 1986 shall comply with the requirements of [3.4.5](#) not later than the first periodical survey after 1 July 1998 and with the requirements of [3.4.2.1](#) to [3.4.2.4](#), [3.4.3](#) and [3.4.4](#) not later than the first periodical survey after 1 July 2000;

.4 before 1 July 2004 shall comply with the requirements of [3.4.2.5](#) not later than the first survey carried out on or after 1 July 2004.

#### **3.4.2 Liferrafts.**

**3.4.2.1** The ro-ro passenger ships' liferafts shall be served by marine evacuation systems (MES) or launching appliances equally distributed on each side of the ship.

**3.4.2.2** Every liferaft on ro-ro passenger ships shall be provided with float-free arrangements.

**3.4.2.3** Every liferaft on ro-ro passenger ships shall be fitted with a boarding ramp.

**3.4.2.4** Every liferaft on ro-ro passenger ships shall be either canopied reversible liferaft or self-righting liferaft. Alternatively, the ship may carry self-righting or reversible liferafts, in addition to its normal complement of liferafts of such aggregate capacity as will accommodate at least 50 % of the persons not provided with seats in lifeboats. This additional liferaft capacity is determined on the basis of the difference between the total number of persons on board and the number of persons provided with seats in lifeboats.

**3.4.2.5** Liferrafts on ro-ro passenger ships shall be fitted with search and rescue locating devices: one search and rescue locating device for four liferafts.

Search and rescue locating device shall be attached inside a liferaft so that its antenna is located 1 m above the water surface when a liferaft is inflated except that on the canopied reversible liferafts the search and rescue locating device shall be located so that it could be easily installed and be accessible for people onboard liferaft. Each search and rescue locating device shall be fit for its manual installation when a liferaft is inflated.

Containers of liferafts fitted with the search and rescue locating device shall be clearly marked.

#### **3.4.3 Fast rescue boats.**

**3.4.3.1** At least one of the rescue boats on a ro-ro passenger ship shall be a fast rescue boat.

**3.4.3.2** Each fast rescue boat shall be served by a launching appliance. When approving these launching appliances, it shall be taken into account that the fast rescue boat is intended to be launched and recovered even under severe adverse weather conditions.

**3.4.3.3** At least two crews of each fast rescue boat shall be trained and drilled regularly, including all aspects of rescue, handling, manoeuvring, operating these craft in various conditions and righting them after capsizing.

**3.4.3.4** In the case where the arrangement or size of a ro-ro passenger ship, constructed before 1 July 1997, is such as to prevent the installation of the fast rescue boat required in [3.4.3.1](#), the fast rescue boat may be installed in place of an existing lifeboat which is accepted as a rescue boat or, in the case of the ship constructed prior to 1 July 1986, a boat for use in an emergency, provided that all of the following conditions are met:

.1 the fast rescue boat installed is served by a launching appliance complying with [3.4.3.2](#);

.2 the capacity of the lifeboat lost by the above substitution is compensated by the installation of liferafts capable of carrying at least an equal number of persons served by the lifeboat replaced;

.3 the above liferafts are served by the existing launching appliances or MES.

**3.4.4 Means of rescue.**

**3.4.4.1** Each ro-ro passenger ship shall be equipped with efficient means of rescue complying with the requirements of [6.1](#).

**3.4.4.2** The means of transfer of survivors to the ship may be part of a MES, or part of a system intended for rescue purposes.

**3.4.4.3** If the slide of a MES is intended to provide the means of transfer of survivors to the deck of the ship, the slide shall be equipped with handlines or a ladder to aid in climbing up the slide.

**3.4.5 Lifejackets.**

Notwithstanding the requirements in [2.2.2](#) and [3.2.2](#), a sufficient number of lifejackets shall be stowed in the vicinity of muster stations so that passengers do not have to return to their cabins to collect their lifejackets.

**3.4.6 Helicopter landing and pick-up areas.**

**3.4.6.1** All ro-ro passenger ships shall be provided with a helicopter pick-up area.

**3.4.6.2** Ro-ro passenger ships of 130 m in length and upwards, constructed on or after 1 July 1999, shall be provided with a helicopter landing area.

## 4 REQUIREMENTS FOR CARGO SHIPS

### 4.1 SURVIVAL CRAFT AND RESCUE BOATS

#### 4.1.1 Lifeboats and liferafts.

##### 4.1.1.1 Cargo ships shall carry:

.1 on each side of the ship one or more lifeboats of such aggregate capacity as will accommodate the total number of persons on board;

.2 in addition, one or more inflatable or rigid liferafts of a mass of less than 185 kg or stowed in a position providing for easy side-to-side transfer at a single open deck level, and of such aggregate capacity as will accommodate the total number of persons on board. If the liferaft or liferafts are not of a mass of less than 185 kg or stowed in a position providing for easy side-to-side transfer at a single open deck level, the total capacity available on each side shall be sufficient to accommodate the total number of persons on board.

##### 4.1.1.2 In lieu of meeting the requirements of [4.1.1.1](#), cargo ships may carry:

.1 one or more lifeboats capable of being free-fall launched over the stern of the ship of such aggregate capacity as will accommodate the total number of persons on board;

.2 in addition, on each side of the ship one or more liferafts of such aggregate capacity as will accommodate the total number of persons on board. The liferafts on at least one side of the ship shall be served by launching appliances.

4.1.1.3 In lieu of meeting the requirements of [4.1.1.1](#) or [4.1.1.2](#), cargo ships of less than 85 m in length other than oil tankers, chemical tankers and gas carriers may comply with the following:

.1 they shall carry on each side of the ship one or more liferafts of such aggregate capacity as will accommodate the total number of persons on board;

.2 unless the liferafts required by [4.1.1.3.1](#) are of a mass of less than 185 kg and stowed in a position providing for easy side-to-side transfer at a single open deck level, additional liferafts shall be provided so that the total capacity available on each side will accommodate 150 % of the total number of persons on board;

.3 if the rescue boat required by [4.1.2](#) is also a lifeboat, it may be included in the aggregate capacity required by [4.1.1.3.1](#), provided that the total capacity of lifeboats and liferafts available on each side is sufficient to accommodate at least 150 % of the total number of persons on board;

.4 in the event of any one survival craft being lost or rendered unserviceable, there shall be sufficient survival craft available for use on each side, including any which are of a mass of less than 185 kg and stowed in a position providing for easy side-to-side transfer at a single open deck level, to accommodate the total number of persons on board.

4.1.1.4 Cargo ships where the horizontal distance from the extreme end of the stem or stern of the ship to the nearest end of the closest survival craft is more than 100 m shall carry, in addition to the liferafts required by [4.1.1.1.2](#) and [4.1.1.2.2](#) a liferaft stowed as far forward or aft, or one as far forward and another as far aft, as is reasonable and practicable. Such liferaft or liferafts may be securely fastened so as to permit manual release and need not be of the type which can be launched from an approved launching device.

4.1.1.5 All survival craft required to provide for abandonment by the total number of persons on board, with the exception of the survival craft referred to in [2.7.1.1](#), shall be launched with their full complement of persons and equipment within a period of 10 min. from the time the abandon ship signal is given.

4.1.1.6 Chemical tankers and gas carriers emitting toxic vapours or gases instead of totally enclosed lifeboats shall have lifeboats with a self-contained air support system.

**4.1.1.7** Oil tankers, chemical tankers and gas carriers carrying cargoes having a flashpoint not exceeding 60 °C (closed cup test) instead of totally enclosed lifeboats shall have fire-protected lifeboats.

**4.1.1.8** Notwithstanding the requirements of [4.1.1.1](#), bulk carriers as defined in 1.1.1, Part I "Classification" of the Rules for the Classification and Construction of Sea-Going Ships constructed generally with single deck, topside tanks and hopper side tanks in cargo spaces shall comply with the requirements of [4.1.1.2](#).

**4.1.1.9** Ships mentioned in [4.1.1.6](#) and [4.1.1.7](#) of less than 85 m in length and not engaged in international voyages may carry only one lifeboat of such capacity as will accommodate 100 % of the persons on board, if the launching appliance is fitted providing the lifeboat launching from either side of the ship.

**4.1.1.10** Harbour, roadstead and coastal ships, except for oil tankers, chemical tankers and gas carriers, shall carry one or several liferafts of sufficient aggregate capacity to accommodate 100 % of the persons on board.

In summer in these ships the liferafts may be replaced by the lifebuoys for 100 % of the persons on board; in this case the lifebuoys required in [4.2.1.1](#) may be included. This replacement shall be substantiated with regard to the area of navigation.

**4.1.2 Rescue boats.**

Cargo ships shall carry at least one rescue boat. A lifeboat may be accepted as a rescue boat, provided that it and its launching and recovery arrangements also comply with the requirement for a rescue boat.

**4.1.3** Cargo ships under 500 gross tonnage:

**.1** may carry rescue boats under 3,8 m but not less than 3,3 m in length. At that a rescue boat under 3,8 m in length shall be capable of carrying at least four seated persons and a person lying;

**.2** harbor, roadstead and coastal ships (**R3**) as well as tugs under 500 gross tonnage and under 30 m in length regardless of their navigation area may be exempted from the requirement of [4.1.2](#), provided their dimensions and manoeuvrability do not dictate necessary fulfillment of this requirement and provided the provisions of [2.5.2](#) are met.

## 4.2 PERSONAL LIFE-SAVING APPLIANCES

### 4.2.1 Lifebuoys.

4.2.1.1 Cargo ships shall carry not less than the prescribed number of lifebuoys complying with the requirements of [2.2.1](#).

Length of ship, m	Minimum number of lifebuoys
Under 30	4
30 and under 100	8
100 and under 150	10
150 and under 200	12
200 and over	14

4.2.1.2 Self-igniting lights for lifebuoys on tankers required by [2.2.1.3](#) shall be of an electric battery type.

### 4.2.2 Lifejacket lights.

On cargo ships each lifejacket shall be fitted with a light complying with the requirements of [6.3.3](#).

### 4.2.3 Immersion suits.

4.2.3.1 An immersion suit of the appropriate size complying with the requirements of [6.4](#) shall be provided for every person on board. However, for ships other than bulk carriers, as defined in 1.1.1, Part I "Classification" of the Rules for the Classification and Construction of Sea-Going Ships, constructed generally with single deck, topside tanks and hopper side tanks in cargo spaces, these immersion suits need not be required if the ship is constantly engaged on voyages in warm climates where the immersion suits are unnecessary (region between 30°N and 30°S).

4.2.3.2 If a ship has any watch or work stations, which are located remotely from the place or places where immersion suits are normally stowed, additional immersion suits of the appropriated size shall be provided at these locations for the number of persons normally on watch or working at those locations at any time.

4.2.3.3 Immersion suits shall be so placed as to be readily accessible and their position shall be clearly indicated.

4.2.3.4 The immersion suits required by this paragraph may be used to fulfil the requirement of [2.2.3.1](#).

4.2.3.5 Cargo ships of restricted area of navigation **R3** (harbour, roadsted and coastal navigation) not engaged in international voyages need not be provided with immersion suits.



### **4.3 SURVIVAL CRAFT EMBARKATION AND LAUNCHING ARRANGEMENTS**

**4.3.1** Cargo ship survival craft embarkation arrangements shall be so designed that lifeboats can be boarded and launched directly from the stowed position and davit launched liferafts can be boarded and launched from a position immediately adjacent to the stowed position or from a position to which the liferaft is transferred prior to launching in compliance with the requirements of [2.4.8](#).

**4.3.2** Except in the case of a free-fall lifeboat, on cargo ships of 20 000 gross tonnage and upwards, lifeboats shall be capable of being launched with the ship making headway at speeds up to 5 knots in calm water, utilizing painters, where necessary.

**4.3.3** On cargo ships, as defined in [4.1.1.3](#) where no launching appliances complying with [2.7.1](#) are provided for liferafts, the embarkation stations of liferafts shall be provided on each side with embarkation ladders.

#### 4.4 REMOTELY LOCATED LIFERAFTS

**4.4.1** The present requirements shall be applied to cargo ships contracted for construction on or after 1 January 2014.

**4.4.1.1** Liferafts required by [4.1.1.4](#) shall be regarded as "remotely located liferafts" with regard to [2.2.2.1.4](#).

**4.4.1.2** The area where these remotely located survival liferafts are stowed shall be provided with:

**.1** a minimum number of 2 lifejackets and 2 immersion suits;

**.2** adequate means of illumination complying with [2.7.7](#), either fixed or portable, which shall be capable of illuminating the liferaft stowage position as well as the area of water into which the liferaft shall be launched. Portable lights, when used, shall have brackets to permit their positioning on both sides of the ship;

**.3** in ships contracted for construction or conversion before 1 January 2023<sup>1</sup>, the self-contained battery-powered lamps (i.e. luminaires) may be accepted as means of illumination for complying with [2.7.7](#). Such lamps shall be capable of being recharged from the ship's main and emergency source of electrical power, and shall be stowed under charge. When disconnected from the ship's power, the lamp shall give a minimum duration of 3 h of undiminished performance. The lamps shall comply with the requirements of [6.1.2](#). The lamps (i.e. luminaires) shall meet the requirements of IP 55<sup>2</sup>;

in ships contracted for construction or conversion on or after 1 January 2023<sup>1</sup> the self-contained battery-powered lamps (i.e. luminaires) may be accepted as means of illumination for complying with [2.7.7](#). Such lamps shall be capable of being recharged from the ship's main and emergency source of electrical power. When disconnected from the ship's power, the lamp shall give a minimum duration of 3 h of undiminished performance. The lamps shall comply with the requirements of [6.1.2](#). The lamps (i.e. luminaires) shall meet the requirements of IP 55<sup>2</sup>.

The batteries for the subject lamps shall comply with the requirements in 13.1.5 — 13.1.7 of Part XI "Electrical Equipment" of the Rules for the Classification and Construction of Sea-Going Ships irrespective of whether the expiry date is marked by the manufacturer or not;

**.4** an embarkation ladder or other means of embarkation enabling descent to the water in a controlled manner as per [2.3.7](#). A knotted rope shall not be acceptable for this purpose.

**4.4.1.3** With regard to the distance between the embarkation station and stowage location of the remotely located liferafts (refer to [4.4.1.1](#)), the embarkation station shall be so arranged that the requirements of [2.4.1.3](#) can be satisfied.

**4.4.1.4** Exceptionally, the embarkation station and stowage position of the liferaft (remotely located liferafts) may be located on different decks provided the liferaft can be launched from the stowage deck using the attached painter to relocate it to the embarkation ladder positioned on the other deck (traversing a stairway between different decks with the liferaft carried by crew members is not acceptable).

**4.4.1.5** Notwithstanding [4.4.1.2](#), where the exceptional cases mentioned in [4.4.1.4](#) exist, the following provisions shall be applied:

**.1** the lifejackets and the immersion suits required by [4.4.1.2.1](#) may be stowed at the embarkation station;

**.2** for ships contracted for construction or conversion before 1 January 2023<sup>1</sup>: the area of water where the liferaft to be embarked shall be provided with adequate means of illumination complying with [4.4.1.2.2](#);

<sup>1</sup> In the absence of a contract — refer to 4.3 of Part II "Technical documentation" of the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships.

<sup>2</sup> Refer to Appendix 9 to Section 10, Part IV "Technical Supervision during Manufacture of Products" of the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships.

for ships contracted for construction or conversion on or after 1 January 2023<sup>1</sup>: the liferaft stowage position, embarkation station and the area of water where the liferaft to be embarked shall be provided with adequate means of illumination complying with [4.4.1.2.2](#)

**.3** the embarkation ladder or other means of embarkation as required by [4.4.1.2.3](#) may be stowed at the embarkation station; and

**.4** the painter shall be long enough to reach the relevant embarkation station.

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<sup>1</sup> In the absence of a contract — refer to 4.3 of Part II "Technical documentation" of the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships.

## 5 REQUIREMENTS FOR OTHER TYPES OF SHIPS

### 5.1 FISHING VESSELS

#### 5.1.1 Lifeboats, liferafts and rescue boats.

**5.1.1.1** Each fishing vessel shall carry at least two survival craft.

**5.1.1.2** Fishing vessels of 75 m in length and over shall carry:

**.1** on each side, the lifeboats, or of sufficient aggregate capacity to accommodate the total number of persons on board;

**.2** the rescue boat. A lifeboat may be used as a rescue boat, provided that it and its launching and recovery arrangements also comply with the requirements for a rescue boat and its launching appliances.

**5.1.1.3** In lieu of meeting the requirements of [5.1.1.2.1](#) fishing vessels of 75 m in length and over, if comply with additional subdivision requirements and damage stability criteria to those stipulated by 1.1.1.3 and 3.4 of Part V "Subdivision" of the Rules for the Classification and Construction of Sea-Going Ships and criteria of increased structural fire protection, additional to those stipulated in 2.5 of Part VI "Fire protection" of the Rules for the Classification and Construction of Sea-Going Ships, may carry on each side lifeboats or liferafts of sufficient aggregate capacity to accommodate at least 50 % of the persons on board, in this case, additional liferafts for at least 50 % of the total number of persons on board and the justification that such a decrease of the number of survival craft and their capacity will not compromise the safety level required by [5.1.1.2.1](#).

**5.1.1.4** Fishing vessels of less than 75 m shall carry:

**.1** on each side, the lifeboats or liferafts of sufficient aggregate capacity to accommodate the total number of persons on board;

**.2** the rescue boat. The lifeboat may be accepted as a rescue boats provided that it and arrangements ensuring its lifting and lowering, comply with the requirements for a rescue boat and its launching device. The ship may be exempted from carriage of a rescue boat, provided it carries any other survival craft or appliances for rescuing persons from water, which shall be used in rescue operations and provided the provisions of [2.5.2](#) are met. Means of rescue that meets the requirements of [6.2.1](#) or a cargo handling gear equipped with a special net, basket or cradle, provided the special net, basket or cradle, as well as the cargo handling gear meet the requirements in 5.8 of the Rules for the Cargo Handling Gear of Sea-Going Ships or rescue net that meets the requirements of 6.2.3.

**5.1.1.5** In lieu of meeting the requirements of [5.1.1.4.1](#) fishing vessels of less than 45 m in length may carry the lifeboats or liferafts of sufficient aggregate capacity to accommodate at least 200 % of the total number of persons on board. In this case, the aggregate capacity of the survival craft being launched from either side of the vessel shall be sufficient to accommodate at least the total number of persons on board.

**5.1.1.6** Fishing vessels of less than 45 m in length may carry rescue boats less 3,8 m in length, but not less than 3,3 m in length. In this case, a rescue boat of less than 3,8 m in length shall be capable of carrying at least four seated persons and a person laying.

**5.1.1.7** In lieu of meeting the requirements of [5.1.1.2.1](#), [5.1.1.4.1](#) or [5.1.1.5](#), fishing vessels may carry one or more lifeboats capable of being launched over the stern of the vessel of sufficient aggregate capacity to accommodate the total number of persons on board, in addition, they may carry liferafts of sufficient aggregate capacity to accommodate the total number of persons on board.

**5.1.1.8** The number of lifeboats and rescue boats that are carried on a fishing vessel shall be sufficient to ensure that in providing for abandonment by the total number of persons on board not more than nine liferafts need be marshalled by each lifeboat or rescue boat.

**5.1.1.9** Arrangement of survival craft and rescue boats shall comply with the requirements of [2.4](#) and [2.5](#).

**5.1.2 Personal life-saving appliances.**

**5.1.2.1** Fishing vessels shall be provided with life-jackets and immersion suits as required for cargo ships.

**5.1.2.2** Fishing vessels shall carry not less than the prescribed number of lifebuoys complying with the requirements of [2.2.1](#):

Length of ship, m	Minimum number of lifebuoys
75 and over	8
45 and over, but less than 75	6
less than 45	4

**5.1.3 Radio life-saving appliances.**

**5.1.3.1** Two-way VHF radiotelephone apparatus:

**.1** every fishing vessel shall be provided with at least three sets of two-way VHF radiotelephone apparatus;

**.2** in fishing vessels of less than 45 m in length the number of sets of two-way VHF radiotelephone apparatus may be reduced to two provided that only one survival craft is required to provide for abandonment of the fishing vessel from one side by the total number of persons on board.

**5.1.3.2** Survival craft search and rescue locating device:

**.1** at least one survival craft search and rescue locating device shall be carried on each side of every fishing vessel. Survival craft search and rescue locating device shall be stowed in such location that it can be rapidly placed in any survival craft. Alternatively one survival craft search and rescue locating device shall be stowed in each survival craft;

**.2** every fishing vessel of less than 45 m in length shall be provided with at least one survival craft search and rescue locating device.

## 5.2 SPECIAL PURPOSE SHIPS

**5.2.1** Ships carrying onboard not more than 60 persons shall be provided with survival craft as required for cargo ships other than oil tankers.

**5.2.2** Ships carrying onboard more than 60 persons shall be provided with survival craft as required for passenger ships engaged in the international voyages which are not short international voyages.

**5.2.3** Ships mentioned in [5.2.1](#) may be provided with survival craft in accordance with [5.2.2](#), provided that they comply with the requirements of the Rules for the subdivision of ships carrying more than 60 persons onboard.

**5.2.4** Despite the requirements of [5.2.2](#) sail training ships carrying more than 60 persons may be provided with survival craft in accordance with [3.1.1.5](#) instead of [3.1.1.1](#), if they are also provided with at least two rescue boats in accordance with [3.1.2.1](#).

**5.2.5** The requirements of [1.1.5](#), [3.1.1.2](#), [3.1.1.3](#), [4.1.1.6](#), [4.1.1.7](#) are not applied to special purpose ships.

**5.2.6** In lieu of meeting the requirements of [5.2.1](#) – [5.2.4](#), special purpose ships constructed before 13 May 2008 may meet the following requirements:

**.1** ships carrying onboard not more than 50 special personnel shall be provided with survival craft as required for cargo ships other than tankers;

**.2** ships mentioned in [5.2.6.1](#) and complying with the requirements of the Rules for the subdivision of ships carrying more than 50 special personnel onboard may be provided with survival craft in accordance with [5.2.6.3](#);

**.3** ships carrying onboard more than 50 special personnel shall be provided with survival craft as required for passenger ships engaged in the international voyages which are not short international voyages;

**.4** notwithstanding the requirements of [5.2.6.3](#), sail training ships whether mechanically self-propelled or not and irrespective of their gross tonnage, carrying more than 50 special personnel (trainees) may be provided with survival craft in accordance with [3.1.1.4](#) instead of [3.1.1.1](#), if they are provided with at least one rescue boat in accordance with [3.1.2.2](#) and additionally carry one immersion suit for each person on board, unless davits are provided for launching the liferafts or the ship is constantly engaged in warm climates where thermal protection is unnecessary, this protective clothing need not be carried (region between 30°N and 30°S);

**.5** where the term "passenger" is used, it shall be read to mean "special personnel".

### **5.3 BERTH-CONNECTED SHIPS**

**5.3.1** Berth-connected ships under 30 m in length shall be provided with at least two lifebuoys on each deck, and berth-connected ships of more than 30 m in length – with at least four lifebuoys on each deck.

**5.3.2** Each lifebuoy shall be fitted with a buoyant lifeline in length equal to not less than twice the distance measured between the lifebuoy and the waterline or 30 m, whichever is greater.

**5.3.3** The list of life-saving appliance of the berth-connected ships which are intended to be operated not in the immediate vicinity of the shore shall comply with [4.1.1.3](#) and [4.1.2](#).

## **6 REQUIREMENTS FOR LIFE-SAVING APPLIANCES**

### **6.1 GENERAL REQUIREMENTS FOR LIFE-SAVING APPLIANCES**

**6.1.1** Unless expressly provided otherwise or unless, in the opinion of the Register having regard to the particular voyages on which the ship is constantly engaged, other requirements are appropriate, all life-saving appliances prescribed in this section shall comply with the LSA Code and/or applicable requirements of these Rules:

**6.1.2** The life of life-saving appliances which are subject to deterioration with age shall be determined. Such life-saving appliances shall be marked with a means for determining their life or the date by which they must be replaced. Permanent marking with a date of expiry is the preferred method of establishing the period of acceptability. Batteries not marked with a date of expiry may be used if they are replaced annually, or in the case of a secondary battery (accumulator), if the condition of the electrolyte can be readily checked. In case of pyrotechnic lifesaving appliances, the date of expiry shall be indelibly marked on the product.

**6.1.3** The materials used for manufacturing the life-saving appliances and arrangements shall comply with the requirements of Part XIII "Materials"; the welded structures shall be made in accordance with the requirements of Part XIV "Welding" of the Rules for the Classification. Possibility of using the materials not covered by the requirements of Part XIII "Materials" of the Rules for the Classification for manufacturing the metal structure components shall be considered by the Register in each particular case after submitting sufficient technical justification of their possible use. The justification shall confirm provision of the specified safety level of the structures. Survey of these materials by the Register shall be performed in compliance with the requirements in 2.4.1.3 of Part III "Technical Supervision during Manufacture of Materials of the Rules" of the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships, as well as with the requirements of the normative documents specified in the technical documentation subject to approval on the item of use of the materials under consideration.

**6.1.4** Chains and ropes (wire, natural fibre and synthetic fibre) shall comply with the requirements of Part XIII "Materials" of the Rules for the Classification, while blocks, shackles, swivels, screw stretchers and other removable components shall comply with the requirements of the Rules for the Cargo Handling Gear of Sea-Going Ships.

**6.1.5** Winches for launching appliances shall meet the applicable requirements of 6.1, Part IX "Machinery" of the Rules for the Classification, while their electric drives shall meet the requirements of 5.9, Part XI "Electrical Equipment" of the Rules for the Classification.



## 6.2 SPECIAL REQUIREMENTS FOR LIFE-SAVING APPLIANCES

### 6.2.1 Means of rescue.

**6.2.1.1** The means of rescue shall provide for the safe transfer of persons, including helpless persons, from the water level to the deck of the ship.

**6.2.1.2** The means of rescue shall provide an area of at least 9 m<sup>2</sup> at water level and have sufficient lighting from the ship deck.

**6.2.1.3** The means of rescue shall be one of the following.

**6.2.1.3.1** A marine evacuation system complying with the requirements of the LSA Code providing a suitable floating platform, with a ladder or other means to ascend to the deck for able-bodied persons, and a mechanically powered means to safely hoist persons lying down. If an inclined passage of a marine evacuation system is intended to provide the means of transfer from the platform to the deck of the ship for able-bodied persons, the inclined passage shall be provided with suitable handholds or portable ladder with steps having an efficient non-slip surface.

**6.2.1.3.2** A device equipped with the floating platform shall meet the following requirements:

**.1** the floating platform shall be fitted with lifelines securely becketed around the inside and outside of the liferaft;

**.2** the davit-launched floating platform shall be capable of withstanding when loaded with its full complement of persons and equipment, a lateral impact against the ship's side at an impact velocity of not less than 3,5 m/s and also a drop into the water from a height of not less than 3 m without damage that will affect its function;

**.3** the floating platform shall be provided with means for bringing it alongside the embarkation deck and holding the platform securely during embarkation of persons;

**.4** the equipment of the floating platform shall consist of one buoyant rescue quoit, attached to not less than 30 m of buoyant line;

**.5** the floating platform shall be of a highly visible colour, and shall be protected against damage when moving against the ship's side;

**.6** the floating platform shall be fitted with a boarding ramp, capable of supporting a person weighing 100 kg sitting or kneeling or not holding onto any other part of the platform, to enable persons to board the platform from the sea;

**.7** the platform shall be fitted with self-draining arrangements;

**.8** adequate means shall be provided for pulling the platform to the side of the vessel;

**.9** one knife of the non-folding type having a buoyant handle attached by a lanyard and stowed in a pocket on the exterior of the canopy near the point at which the painter is attached to the platform;

**.10** a special arrangement shall be fitted to close the gap between the loaded device and deck when the rescued persons board the ship;

**.11** in order not to be confused with rafts, it shall be clearly marked to prevent this;

**.12** measures shall be provided to prevent people from falling from the device during its impact on the side of the ship.

**6.2.1.3.3** In addition, in the case of using the inflatable floating platform, the device shall meet the following additional requirements

**.1** the main buoyancy chambers of the platform shall be divided into not less than two separate compartments, each inflated through a non-return inflation valve on each compartment. The buoyancy chambers shall be so arranged that in the event of any one of the compartments being damaged or failing to inflate, the intact compartments shall be able to support afloat the number of persons, each having a mass of 82,5 kg, which the liferaft is permitted to accommodate, seated in their normal positions with positive freeboard over the liferaft's entire periphery.

**.2** the floating platform shall be capable of being inflated by one person. The platform shall be inflated with a nontoxic gas. The inflation system, including any relief valves installed in compliance with 6.9.2.4 shall be approved by the Register. Inflation shall be completed within a period of 1 min at an ambient temperature of between 18 °C and 20 °C and within a period of 3 min at an ambient temperature of –30 °C. After inflation the platform shall maintain its form when loaded with its full complement of persons and equipment.

The pressure vessels used in an automatic gas inflation system shall be approved by the Register or other competent body.

The gas inflation system shall be quickly actuated by means of a manual control;

**.3** each inflatable compartment shall withstand a pressure equal to 3 times the working pressure and shall be prevented from reaching a pressure exceeding twice the working pressure either by means of relief valves or by a limited gas supply. Means shall be provided for fitting the topping-up pump or bellows which are part of the supply of life rafts along with a set of repair accessories for sealing punctures in the buoyancy chambers so that the working pressure can be maintained.

**.4** each inflatable floating platform shall be marked with the following data:

manufacturer's name or trade mark;

serial number;

date of manufacture (month and year);

name of approving authority approved the platform;

and the number of persons it is permitted to carry;

name and place of servicing station where it was last serviced;

**.5** number of persons it is permitted to accommodate over each entrance in characters not less than 100 mm in height of a colour contrasting with that of the liferaft;

**.6** launching instructions;

**.7** also each platform shall be marked with: name and port of registry of the ship where it has to be fixed to. The method of marking shall ensure the replacement of information about the ship at any time without opening the container.

**.8** In addition to the above requirements, the platform intended for use with a hook or line suspended descender shall be capable of withstanding:

of sufficient strength to withstand a load of 4 times the mass of its full complement of persons and equipment at an ambient temperature of 20±3 °C with all relief valves inoperative;

of sufficient strength to withstand a load of 1,1 times the mass of its full complement of persons and equipment at an ambient temperature of –30 °C with all relief valves operative;

**.9** if a rigid container of a floating platform to be launched by a launching appliance provided shall be so secured that the container or parts of it are prevented from falling into the sea during and after inflation and launching of the contained liferaft.

**6.2.1.3.4** Or, in the case of using the inflatable rigid platform, the device shall meet the following additional requirements

**.1** the buoyancy of the rigid platform shall be provided by approved inherently buoyant material placed as near as possible to the periphery of the platform. The buoyant material shall be low flame spread or be protected by a relevant coating;

**.2** the rigid platform intended for use with an approved launching appliance, when suspended from its lifting hook or bridle, shall withstand a load of 4 times the mass of its full complement of persons and equipment;

**.3** each rigid platform shall be marked with the following data:

manufacturer's name or trade mark;

serial number;

date of manufacture (month and year);

name of approving authority approved the platform;

number of persons permitted to accommodate, inserted in characters not less than 100 mm in height of a colour contrasting with that of the platform;  
maximum permitted height of stowage above waterline depending on drop-test height;  
launching instructions.

**6.2.1.3.5** The platform shall be serviced by a launching appliance with a powered winch motor capable of raising the loaded device from the water to the deck of the ship with the total number of persons for which it is approved as a means of rescue at a rate of not less than 0,3 m/s. A safety device shall be fitted to prevent over stressing the launching appliance. Additionally, the device shall comply with the following:

**.1** the launching appliance shall ensure the safe launch and recovery of the platform with full equipment and the full number of people under adverse conditions of trim fore and aft up to 10 ° and roll up to 20 ° on any side;

**.2** for oil tankers, chemical tankers and gas carriers with a final angle of heel greater than 20° calculated in accordance with Part V "Subdivision" of the Rules for the Classification shall be capable of operating at the final angle of heel on the lower side of the ship taking into consideration the final damaged waterline of the ship;

**.3** the launching appliance of the boat does not need to be fitted with stored mechanical power provided that:

manual hoisting from the stowed position and turning out to the embarkation position is possible by one person;

the force on the crank handle does not exceed 160 N at the maximum crank radius of 350 mm; and

means having sufficient strength such as bousing line are provided for bringing the platform against the ship's side and holding it alongside so that persons can be safely embarked;

**.4** each launching appliance shall be so constructed that a minimum amount of routine maintenance is necessary. All parts requiring regular maintenance by the ship's crew shall be readily accessible and easily maintained;

**.5** the launching appliances and its attachments other than winches shall be of sufficient strength to withstand a factory static proof load test of not less than 2,2 times the maximum working load;

**.6** structural members and all blocks, falls, padeyes, links, fastenings and all other fittings used in connection with launching equipment shall be designed with a factor of safety on the basis of the maximum working load assigned and the ultimate strength of the materials used for construction. A minimum factor of safety of 4,5 shall be applied to all structural members including winch structural components and a minimum factor of safety of 6 shall be applied to falls, suspension chains, links and blocks;

**.7** each launching appliance shall, as far as practicable, remain effective under conditions of icing;

**.8** a launching appliance shall be capable of recovering the platform;

**.9** the floating platform launching appliances shall be provided with foul weather recovery strops for recovery where heavy fall blocks constitute a danger.

**6.2.1.3.6** A means of rescue approved in compliance with the requirements of [1.3.3](#).

## 6.3 GENERAL ALARM AND PUBLIC ADDRESS SYSTEM

### 6.3.1 General emergency alarm system.

**6.3.1.1** The general emergency alarm system shall be capable of sounding the general emergency alarm signal consisting of seven or more short blasts followed by one long blast on the ship's whistle or siren and additionally on an electrically operated bell or klaxon or other equivalent warning system, which shall be powered from the ship's main supply and the emergency source of electrical power required by Sections 9 and 19, Part XI "Electrical Equipment" of the Rules for the Classification, as appropriate. The system shall be capable of operation from the navigation bridge and, except for the ship's whistle, also from other strategic points.

The alarm shall continue to function after it has been triggered until it is manually turned off or is temporarily interrupted by a message on the public address system.

**6.3.1.2** The minimum sound pressure levels for the emergency alarm tone in interior and exterior spaces shall be 80 dB(A) and at least 10 dB(A) above ambient noise levels existing during normal equipment operation with the ship underway in moderate weather.

**6.3.1.3** The sound pressure levels at the sleeping position in cabins and in cabin bathrooms shall be at least 75 dB(A) and at least 10 dB(A) above ambient noise levels.

**6.3.1.4** With the exception of bells, audible signals shall have a signal frequency between 200 and 2500 Hz. The sound pressure level shall be measured within the 1/3-octave band about the fundamental frequency and in no case shall exceed 120 dB(A).

### 6.3.2 Public address system.

**6.3.2.1** The public address system shall be a loudspeaker installation enabling the broadcast of messages into all spaces where crew members or passengers, or both, are normally present, and to muster stations. Such spaces may not include under deck passageways, bosun's lockers, hospitals, pump rooms. It shall allow for the broadcast of messages from the navigation bridge and such other places on board the ship. It shall be installed with regard to acoustically marginal conditions and not require any action from the addressee. It shall be protected against unauthorized use.

**6.3.2.2** With the ship underway in normal conditions, the minimum sound pressure levels for broadcasting emergency announcements shall be:

**.1** in interior spaces 75 dB(A) and at least 20 dB(A) above the speech interference level (with respect to cabin/state rooms, the above sound pressure levels shall also be attained during sea trials);

**.2** in exterior spaces 80 dB(A) and at least 15 dB(A) above the speech interference level.

**6.3.2.3** Where an individual loudspeaker has a device for local silencing, an override arrangement from the control station(s), including the navigation bridge, shall be provided.

## **6.4 RESCUE NETS**

**6.4.1** The rescue nets shall be clearly marked with approval information, as well as an indication of any operational restrictions, such as:

the type of ship on which the ship rescue net can be applied;

allowable installation height of the ship rescue net;

permissible operating conditions;

the number of people allowed for a one-time independent lifting along the net;

an indication of the need for sufficient lighting from the ship deck at the net location.

**6.4.2** The net shall be of sufficient strength to withstand a factory static proof load test of not less than 2,2 times the maximum working load.

**6.4.3** The net cells shall withstand a static load test of at least 165 kg.

**6.4.4** The net shall ensure the possibility of independent lifting of able-bodied persons to the deck.

**6.4.5** The net shall be arranged in such a way as to ensure the safe recovery of exhausted or unconscious person from the water.

**6.4.6** The net shall be capable of safely boarding a casualty on a stretcher.

**6.4.7** It is allowed to lift only one exhausted or unconscious person or an injured person on a stretcher at a time.

**6.4.8** If the net is used in conjunction with assistive devices or devices to meet the requirements of [6.4.5](#) and [6.4.6](#), it shall be indicated in the technical documentation. At the same time, in the event of a power failure, it shall be possible to continue lifting a person to a safe position.

When using manual lifting, the force at the running end of the fall shall not exceed 310 N or 160 N on the handle or lever.

**6.4.9** If the rescue net is used as a part of the means of rescue that meets the requirements of [6.2.1.3.6](#), a technical analysis shall be submitted in accordance with the requirements of [1.3.11.2](#)

## DECISION-MAKING ALGORITHM FOR THE POSSIBILITY OF EXEMPTION FROM THE CARRIAGE OF A RESCUE BOAT

### 1 EVALUATION CRITERIA FOR THE POSSIBILITY OF EXEMPTION FROM THE CARRIAGE OF A RESCUE BOAT

**1.1** Evaluation criteria for the possibility of exemption from the carriage of a rescue boat shall apply to ships specified in [2.5.2.1](#) of these Rules.

**1.2** Evaluation criteria for the possibility of exemption from the carriage of a rescue boat are related to the possibility to perform its functions (recovery of survivors from water and towing of liferafts) by alternative means. Exemption from the rescue boat may be granted if one of the following conditions is met:

**.1** recovery of survivors and towing of liferafts shall be performed by the ship itself at the equal level of safety related to the time for rescue operations (refer to [2](#)) and rescue method (refer to [3](#)).

**.2** the ship is fitted with a lifeboat which complies with the requirements of [6.19](#).

**1.3** The estimated allowable time for a man being in water shall be considered as the main criterion for efficiency comparison between primary (with the use of a rescue boat) and alternative (with the use of the ship itself) means.

**1.4** The duration of rescue operation of a man overboard is affected by the following factors:

**.1** manoeuvrability of the ship;

**.2** weather conditions (temperature, sea state, wind, etc.);

**.3** experience and training level of the crew;

**.4** area of accident;

**.5** rescue method;

**.6** possibility of assistance by other ships.

**1.5** The leading cause of people's death in water is the loss of heat. The volume of heat lost by the organism depends on the following factors: water temperature, duration of water exposure, thermal insulation properties of clothes, physical and psychological state of a person, motion activity of a person.

**1.6** In order to perform the second task of the rescue boat — to muster and tow lifeboats and liferafts, — the ship shall be fitted with fixed arrangements for towing of liferafts and lifeboats (reels, winches, etc.) and buoyant rope not less than 50 m in length, with sufficient strength to tow liferafts and lifeboats.

### 2 EVALUATION OF CONDITIONS FOR PERSON SURVIVAL IN WATER

**2.1** The sea water temperature is an important factor defining reaction of the human organism. For a person provided with a personal life-saving appliance, danger to life at low water temperature remains. Influence of hypothermia on the person depending on water temperature and in-water duration is presented in a general form in [Fig. 2.1](#).

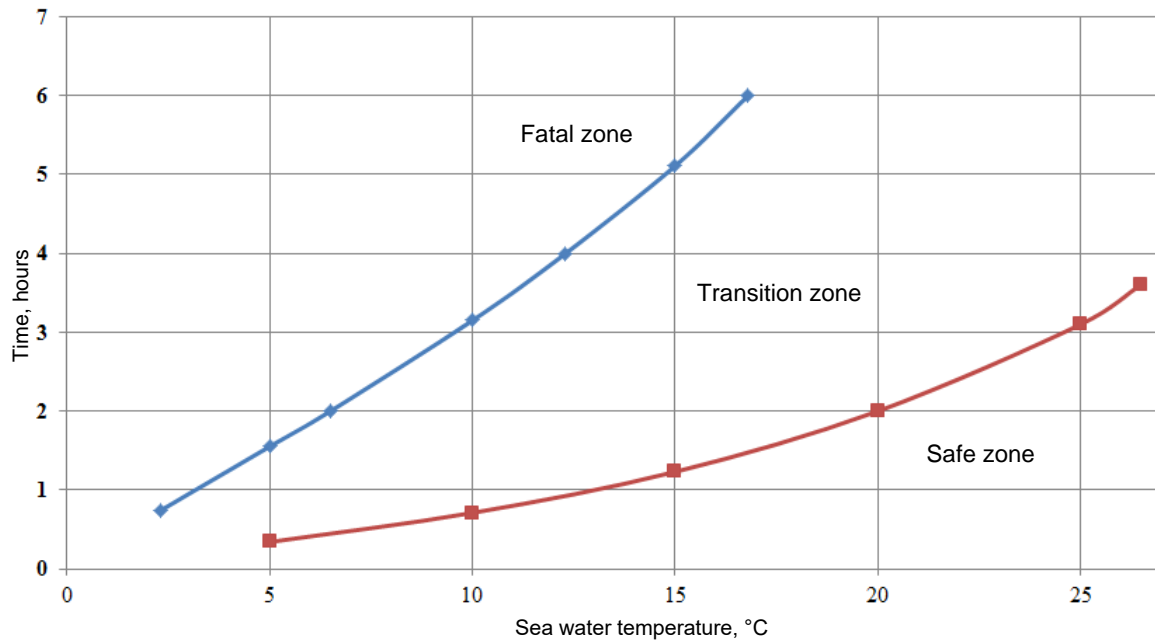


Fig. 2.1

**2.2** Maximum possible duration of a rescue operation is determined based on the analysis of water temperature in the areas where the ship is operated within the navigation period. [Table 2.1](#) contains reference data on allowable time for person being in water without any consequences if special clothing is unavailable.

Table 2.1

**Allowable time for a person being in water at different temperatures**

Water temperature, °C	Time in hours (without special clothing and appliances) up to:		Method for being in water	Allowable time, min
	loss of consciousness	Probable death		
10	0,25–0,5	0,25–1,5	Swimming without lifejacket	3–5
10–12	0,5–1	1–2	Swimming in lifejacket	10
13–15	2–4	6–8	Being in static condition and wearing lifejacket	20
16–18	2–4	6–8	Wearing lifejacket (the knees are drawn up to the chest)	30
19–21	3–7	8–10	Group of people being in water and wearing lifejackets closely squeezed to each other	40
26	12	Safe		-

**3 RESCUE METHODS AND ARRANGEMENTS**

**3.1** Procedure for rescue operation "man overboard".

**3.1.1** When a person falls overboard, the ship shall generate "man overboard" alarm. Ship control shall be switched to the manual mode and a manoeuvre shall be commenced; herewith life buoy with self-igniting light and self-activating smoke signal shall be thrown,

a person in water shall be surveyed.

**3.1.2** When choosing primary manoeuvre to return to the MOB place, the ship's master shall be guided by weather condition, visibility from the ship and possibility to stop.

**3.1.3** The ship shall perform a manoeuvre to approach the survivor considering due-time stop of the ship from the windward side.

**3.1.4** When recovering the survivor, the following shall be prepared:  
stretchers;  
arrangements to lift the person on board;  
ship's hospital.

**3.2** Arrangements for recovery of persons from water.

**3.2.1** Where a rescue boat is not available to recover a person from water, other equipment and arrangements may be used including ship's cargo handling gears. A person figured at water may be recovered by different methods:

**.1** lifebuoys with attached line – if the person is not far from the ship providing that he/she steadily remains afloat, can swim and grip the lifebuoy or line himself/herself;

**.2** from the lifeboat – it allows to reach the person staying with long distance from the ship. This method requires special skills because lifeboats are low-maneuvred that makes the approach in distress difficult even at light seas;

**.3** by means of inflatable liferaft on line. This method is applied if it is impossible to launch the boat on water. The liferaft launched from the windward side due to its windage rapidly drifts to the MOB place and after embarkation, it is pulled alongside the ship using the line;

**.4** by using means of rescue and rescue nets;

**.5** by means of outreached derricks and crane booms and mounted horizontally, perpendicularly to the ship's centre line. They act like a boom where rescue strops with knotted ropes and lifting nets can be attached.

**3.3** Methods and arrangements to marshal survival craft on water.

**3.3.1** Organization of rescue operation starts from determination of coordinates of the accident. Sea anchors are installed in order to reduce wind drift from the survival craft. Drift speed of the survival craft ( $v_{dr}$ ), in knots, is determined considering the wind speed ( $v_{wind}$ ) by the formula:

for survival craft without anchor:

$$v_{dr} = 0,0715 \cdot v_{wind} - 2,1 \cdot 10^{-3}$$

with sea anchor:

$$v_{dr} = 0,0334 \cdot v_{wind} + 2,2 \cdot 10^{-3}$$

with enhanced ballast system:

$$v_{dr} = 0,044 \cdot v_{wind} - 5,0 \cdot 10^{-5}$$

with sea anchor, canopy is not installed:

$$v_{dr} = 0,0231 \cdot v_{wind} - 3,1 \cdot 10^{-3}$$

Wind speed of force on the Beaufort scale, in m/s, may be obtained by the following formula:

$$v_{wind} = 0,836 \cdot B_{B.S}^{3/2}$$

where  $B_{B.S}$  is the force on the Beaufort scale.



Dependency diagram of drift speed of the survival craft on wind speed is represented in [Fig. 3.3.1](#).

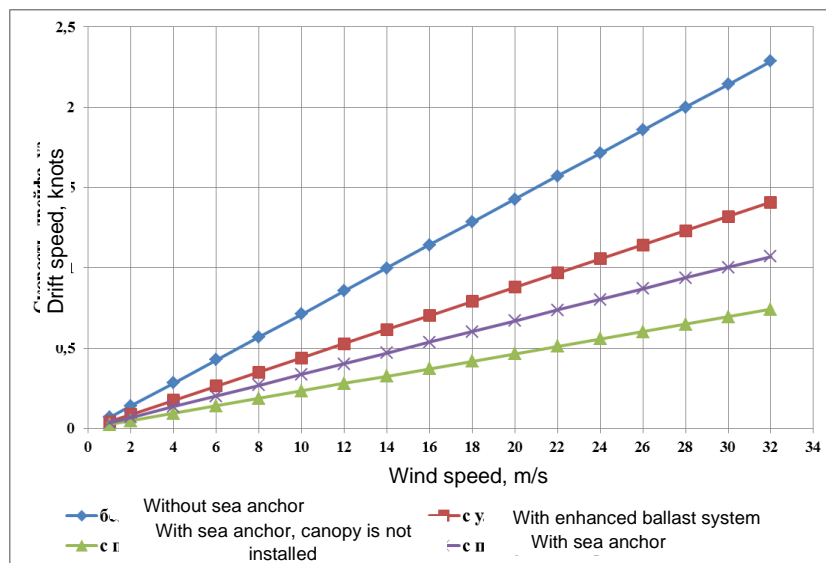


Fig. 3.3.1

**3.3.2** Distance between survival craft shall be sufficient to avoid their collisions in waves; as a rule, this distance shall not be less than 12 m.

#### 4 DECISION-MAKING ALGORITHM FOR THE POSSIBILITY OF EXEMPTION FROM THE CARRIAGE OF THE RESCUE BOAT

**4.1.1** Algorithm for possibility substantiation to apply alternative designs that provide exemption from the carriage of a rescue boat, may be presented as follows:

**4.1.1.1** Determination to which reviewed nomenclature the ship formally relates (harbor, roadstead and coastal cargo ships under 500 gross tonnage, passenger ships under 30 m in length and fishing vessels of less than 75 m in length).

**4.1.1.2** Determination of water area where the ship is operated. Assessment of rescue facilities of the water area: number, features, installation of life-saving appliances and their delivery. Response time, dimensions of the covered water area, critical time for survivor's recovery.

**4.1.1.3** Assessment of the possibility to use the ship as a rescue boat:

.1 assessment of sufficient manoeuvrability of a ship – time for circulation and return to the place, possibility of safe approach to the survivor and positioning of ship for recovery of a person;

.2 check of availability on board the ship of arrangements for person recovery, convenience of their arrangement and deployment speed;

.3 consideration of weather conditions (wind, sea state, current), their influence on the possibility to recover the person onboard and duration;

.4 assessment of physiological possible time of water exposure.

**4.1.1.4** Assessment of the possibility to use a lifeboat as a rescue boat for compliance with the requirements of [6.19](#) for a rescue boat.

Register of Shipping

**Rules for the Equipment of Sea-Going Ships**  
**Part II**  
**Life-Saving Appliances**

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