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Ships and marine technology — Life-saving appliances and arrangements — Means of recovery of persons

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Foreword

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This document was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 1, *Maritime safety*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Regulation 17–1 in Chapter III of the 1974 International Convention for Safety of Life at Sea (SOLAS 1974), as amended, requires ship-specific plans and procedures for recovery of persons from the water, considering the Guidelines for the development of plans and procedures for recovery of persons from the water (MSC.1/Circ.1447).

This document has been developed to provide specific performance and test requirements for recovery devices and systems and to assist stakeholders when preparing the ship-specific plans and procedures for recovery of persons from the water. This document can also be applied to recovery devices and systems on ships which do not fall within the scope of chapter III of the SOLAS Convention such as, but not limited to, those referenced in Resolution MSC.346(91).

Ships and marine technology — Life-saving appliances and arrangements — Means of recovery of persons

1 Scope

This document specifies requirements for the general performance, materials, stowage, marking and testing of recovery devices and systems, including specific appliances. It also specifies requirements for the manufacturer concerning production, type approvals, instructions for use and accompanying documentation.

It is intended to assist in the selection of ship-specific recovery devices suitable for the purpose of safely recovering persons from the water or from survival craft.

2 Normative references

The following reference documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

The 1974 International Convention for the Safety of Life at Sea (SOLAS 1974), as amended

IMO Resolution MSC.48(66), International Life Saving Appliances (LSA) Code, as amended

IMO Assembly resolution A.658(16), Use and fitting of retro-reflective materials on life-saving appliances

IMO resolution MSC.81(70), Revised recommendation on testing of life-saving appliances, as amended

IMO resolution A.520(13), Code of practice for the evaluation, testing and acceptance of prototype novel life-saving appliances

3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
person(s) in water
PIW
one or more persons in a state of distress in the water being the object of the recovery operation

3.2
recovery device
device for one phase of *person in water (PIW)* (3.1) recovery, e.g. reaching out to PIW, securing PIW in, or lifting/hoisting PIW on board the vessel

3.3
recovery system
recovery device (3.2) for more than one phase of *person in water (PIW)* (3.1) recovery, including at least the securing in and the lifting/hoisting phases

3.4
reaching out device
recovery device (3.2) designed to reach out to a *person in water (PIW)* (3.1) from a vessel

EXAMPLE Lifeline, crane boom, boat, etc.

3.5
securing recovery device
recovery device (3.2) designed to secure *person in water (PIW)* (3.1) in before the lifting/hoisting phase of PIW recovery

EXAMPLE Net, bag, stretcher, basket, platform, cage, etc.

3.6
lifting
person in water (PIW) (3.1) lifting phase by manually-operated lifting devices

3.7
hoisting
person in water (PIW) (3.1) lifting phase by mechanically-operated lifting devices

3.8
manually operated, adj.
type of operation which is not mechanical

3.9
mechanically operated, adj.
type of operation which is executed with power such as hydraulic or electrical machine power, air compression or pyrotechnic

3.10
lifting height
distance from the surface of the water to the recovery deck in the vessel's lightest seagoing condition, including rail or bulwark height where applicable

3.11
rescue craft
power driven waterborne vehicle helmed by trained rescue persons, dedicated to recover *person in water (PIW)* (3.1)

3.12
close range rescue craft
CRRC
small one or two person *rescue craft* (3.11) for close range operation, typically a personal water craft with a platform at the stern with freeboard close to water

3.13
recovery cycle time
time it takes to operate one cycle of *person in water (PIW)* (3.1) recovery, from the fully operational mode through recovery operation to fully operational mode

3.14
safe working load
SWL
maximum permissible load determined after testing according to the relevant regulations

4 General requirements

4.1 Based on risk assessment, the ship specifics and the number of crew, the vessel shall have plans and procedures for recovery of person(s) from the water, and be equipped with suitable device(s) to recover a PIW in a horizontal or deckchair position.

4.2 Information and instruction documents related to the recovery devices and systems shall be made available by the manufacturer for the crew, the company managers, the representatives of the Administration or the organizations authorised by the Administration to study and/or inspect.

These documents shall include the following:

1) list of dedicated recovery devices and systems on board, their location and, when applicable,

2) file with information and instruction material for each dedicated PIW recovery device and system on board.

4.3 Devices or systems for reaching out, securing and lifting/hoisting shall comply with this document.

4.4 The fitting and servicing of recovery devices or systems covered by this document shall be done in accordance with the manufacturers' instructions by companies or persons properly trained and familiar with the devices and systems.

5 Requirements for general performance, material, stowage and marking

5.1 Performance requirements

To ensure a safe recovery of persons, the recovery device or system shall meet the following performance requirements:

1) it shall ensure a safe transfer of person(s) under dynamic conditions;

2) it shall protect the persons against a risk of injury from impact with the vessel's side or other structures including the recovery device or system itself;

3) it shall be designed for rescue in a horizontal or deckchair position;

4) it shall ensure that persons in the water can be simply secured, and prevented from dropping or sliding out of the recovery appliance during the lifting/hoisting phase;

5) it shall provide a minimum buoyancy of 100 N for each person when intended for support of persons in water;

6) it shall be usable with a crane;

7) it shall be of sufficient strength to enable a safe recovery when fully loaded (safety factor of 6);

8) if it is to be used in conjunction with a shipboard launching appliance or another shipboard appliance, such launching appliances shall meet the applicable requirements of SOLAS 1974 and the LSA Code;

9) it shall have a launching time of not more than 5 min; and

10) any storage bag, case or carrying container shall, when applicable, be self-draining and not trap water.

5.2 Material/suitability for the environment

To ensure a safe recovery of persons the recovery device or system shall meet the following material and environment requirements:

1) be manufactured using materials suitable for use in the marine environment;

2) be constructed with proper workmanship and materials for the purpose;

3) be equipped with suitable means for controlling, fixing alongside, bowsing, etc. as required, including protecting from the vessel's side, propeller and other appendages as necessary;

4) bot be damaged in stowage throughout the air temperature range of −30 °C to +65 °C;

5) if it is likely to be immersed in seawater during its use, operate throughout the seawater temperature range of −1 °C to +30 °C;

6) be rot-proof, corrosion-resistant and not unduly affected by seawater, oil or fungal attack;

7) be resistant to deterioration, if exposed to sunlight;

8) when fitted with a reaching out line, control lines, lifting lines or distance (attachment) lines, the lines shall be of buoyant material;

9) be of a highly visible colour on all parts above water-level to assist detection;

10) be fitted with retro-reflective material to assist detection according to IMO (resolution A.658(16), as it may be amended;

11) when it is to be used in a seaway, be capable of satisfactory operation in that environment;

12) as applicable, be provided with electrical short-circuit protection to prevent damage or injury; and

13) when intended for carriage to the recovery deck, weigh not more than 20 kg per person required to carry it, including the carrying bag, case or carrying container.

5.3 Stowage, marking

To ensure a safe recovery of persons, the recovery device or system shall meet the following stowage and marking requirements:

1) be clearly marked with its maximum capacity in the number of persons it is designed for, based on a mass of 82,5 kg per person;

2) if installed at a fixed location, be installed as far forward of the vessel's screws or thrusters as practical;

3) be safely stowed and in a state of readiness for immediate use;

4) be clearly marked with certification identity and any operational restrictions; and

5) if it is movable, be stored at conspicuous place and be easily transferrable to its places of likely use.

6 Functional requirements for specific PIW recovery devices or systems

6.1 General

Specific PIW recovery devices or systems shall meet the general requirements of Clauses 4 and 5 in addition to the requirements for the appropriate category given in this Clause.

6.2 Requirements for reaching out devices in the form of lifelines

Reaching out recovery devices (lifelines) shall;

1) be of a diameter of not less than 8 mm;

2) be of non-kinking buoyant line;

3) be with a breaking strength of not less than 5 kN;

4) be equipped with buoyant throw-load and chest loop at the outer end;

5) be of minimum length 30 m plus the lifting height when used manually and minimum 50 m plus lifting height when used with mechanically operated throwing device; and

6) enable throwing the device with reasonable accuracy at least 20 m distance on flat ground when manually thrown, and 50 m when thrown with mechanically operated throwing device.

6.3 Requirements for manually operated recovery systems

Manually operated securing and lifting/hoisting systems shall enable lifting only one person at a time from water, or a floating object, for example with lifting lines, block and tackle or winch.

When equipped with a manually operated reaching out device, the device shall meet the requirements of 6.2.

6.4 Requirements for light mass recovery lifting booms

A light mass recovery lifting boom reaching 1 m to 2 m abeam of the vessel side midship, with a lifting hand gear in the form of block and tackle and/or winch, may be allowed for lifting one person at a time over a maximum of 10 m lifting height above water. It shall have a minimum SWL of 250 kg for lifting. There shall be no dangerous outstanding obstacles on the vessel side where the recovery lifting boom is to be used.

The block and tackle or winch shall be equipped with a secure brake mechanism.

The boom shall be tested when fixed on the vessel to 6 times its SWL.

6.5 Requirements for recovery systems combining climbing, securing and lifting/ hoisting possibilities

Recovery systems combining climbing, securing and lifting/hoisting from water shall, when deployed, enable able-bodied persons in the water to step into the climbing device, secure themselves to the ships movement and climb on board or be ready to be lifted/hoisted on board in a deckchair or horizontal position.

The vertical length shall, as a minimum, be equal to the lifting height plus 2 m with an adverse list of 20 °. The upper end shall be secured to the vessel and the lower end shall be loaded allowing the end to sink into the water in a lowered position. The system shall stay vertical and spread out horizontally at the ships side when deployed, and be so arranged to prove easy to climb from water in adverse sea or weather conditions.

Each horizontal mesh section of the net structure shall hold a mass equal to 6 times the mass of 82,5 kg for each started 200 mm when measured from the centre of the joints, with joints as manufactured. See 8.3.5 and Figure 3.

Recovery devices combining climbing and lifting/hoisting from the water, designed for vessels with less lifting height than 2 m on the vessel in the lightest seagoing state, shall be a minimum of 1,2 m wide ±5 %. On vessels with more lifting height than 2 m, the securing device for horizontal or deckchair