BRITISH STANDARD

BS ISO
22673:2008

Ships and marine technology — Launching appliances for free-fall lifeboats

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BSI
British Standards

National foreword

This British Standard is the UK implementation of ISO 22673:2008.

The UK participation in its preparation was entrusted by Technical Committee SME/32, Ships and marine technology — Steering committee, to Panel SME/32/-/4, Ships and marine technology — Outfitting and deck machinery.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 22673 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 4, *Outfitting and deck machinery*.

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Introduction

This International Standard forms a code of practical interpretation and amplification of the requirements of the convention for the Safety of Life at Sea (SOLAS), to provide an identical basis for design, manufacture and acceptance of launching appliances for free-fall lifeboats for use by ship-owners, shipbuilders and appropriate organizations.

This International Standard provides the design requirements for launching ramp length and angle. According to 6.1.4.7 of the LSA Code, the secondary launching appliance can use both the ship's main and emergency power supplies, so it is significant to admit the conviction that boat handling appliances can be independent of launching ramps. A simulated launching test and strip for inspection are supplemented in the test method. This International Standard includes requirements of lifeboat stowage, arrangement on board, inspection and maintenance because the launching appliances for free-fall lifeboats are closely related to ships.

This International Standard is mainly based on amendments to SOLAS 1974, dating from 1983 to 1996, and relevant IMO resolutions and protocols, especially Res.MSC.47(66)[1], Res.MSC.48(66)[2], Res.MSC.81(70)[3], Res.MSC.216(82)[4] and Res.MSC.218(82)[5]. This International Standard also refers to MSC/Circ.980[6], MSC/Circ.1205 and MSC/Circ.1206.

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Ships and marine technology — Launching appliances for free-fall lifeboats

1 Scope

This International Standard defines certain terms for launching appliances for free-fall lifeboats (hereinafter simply referred to as free-fall launching appliances) and specifies the requirements for design, construction, acceptance, examination, performance, operation and maintenance.

This International Standard is applicable to the launching appliances which use inclined ramps to launch free-fall lifeboats (hereinafter simply referred to as lifeboats) from ships and from offshore platforms.

2 Normative reference

The following referenced documents are indispensable for the application 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.

ISO 2944, *Fluid power systems and components — Nominal pressures*

ISO 3828, *Shipbuilding and marine structures — Deck machinery — Vocabulary and symbols*

ISO 4413, *Hydraulic fluid power — General rules relating to systems*

ISO 4414, *Pneumatic fluid power — General rules relating to systems*

ISO 15516 *Ships and marine technology — Launching appliances for davit-launched lifeboats*

IEC 60092 (all parts), *Electrical installations in ships*

IEC 60529:2001, *Degrees of protection provided by enclosures (IP Code)*

IMO LSA Code, *International Convention for the Safety of Life at Sea (SOLAS) 1974*

Marpol 73/78, *International Convention for the Prevention of Pollution From Ships, 1973*

MSC.1/Circ.1205, *Measures to prevent accidents with life-boats*

MSC.1/Circ.1206, *Guidelines for developing operation and maintenance manuals for life-boat systems*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 3828, ISO 15516, IMO LSA Code and the following apply.

3.1
maximum working load
load applied to the ramp or loose gear of a free-fall launching appliance when it launches the boat of the maximum all-up weight for which it is designed

3.2
maximum recovering load
load applied to the loose gear of a free-fall launching appliance in order to recover the non-loaded boat with the operating crew of the maximum all-up weight for which it is designed

NOTE The minimum operating crew compliment is three persons, their average mass being 75 kg.

3.3
lightest launching load
load applied to the ramp or loose gear of a free-fall launching appliance when it launches the non-loaded boat of the minimum all-up weight for which it is designed

3.4
maximum working load of winch
load applied to the exit end of the falls on the outmost layer at the winch drum of a free-fall launching appliance under any working condition

3.5
hoisting load of winch
load applied to the exit end of the falls on the outmost layer at the winch drum of a free-fall launching appliance when it hoists the maximum recovering load by means of its arms and falls

3.6
launching load of winch
load applied to the exit end of the falls on the outmost layer at the winch drum of a free-fall launching appliance when it launches the maximum working load by means of its arms and falls

3.7
lightest launching load of winch
load applied to the exit end of the falls on the outmost layer at the winch drum of a free-fall launching appliance when it launches the lightest launching load by means of its arms and falls

4 Performance

4.1 Free-fall launching of lifeboat (hereinafter simply frerred to as free-fall launching)

4.1.1 A free-fall launching appliance shall, by means of launching ramps, be capable of safe free-fall launching the fully-loaded boat (equivalent to maximum working load) and/or the non-loaded boat (equivalent to lightest launching load) from the stowed position, against a trim of up to 10° and a list of up to 20° either way, independent of any means other than gravity or stored mechanical power which, in turn, is independent of the ship's power supply. It shall also be capable of enabling the lifeboat to be effectively clear of the ship after entry into the water.

4.1.2 Notwithstanding the requirement of 4.1.1, a free-fall launching appliance for oil tankers, chemical tankers and gas carries with a final angle of heel greater than 20° calculated in accordance with MARPOL 73/78, shall be capable of free-fall launching of the fully-loaded boat or the non-loaded boat at the final angle of heel on the lower side of the ship taking into consideration the final damaged waterline of the ship. It shall also be capable of enabling the lifeboat to be effectively clear of the ship after entry into the water.

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4.1.3 A free-fall launching appliance shall be capable of simulating launching of the lifeboat stationed on the ramp, without allowing the lifeboat to fall into the water.

4.2 Recovery of lifeboat

A free-fall launching appliance shall be capable of recovering a non-loaded lifeboat with crew (equivalent maximum recovering load) by power, from the water to its stowed position under ship conditions of approximately even keel.

4.3 Controlled launching of lifeboat

Each free-fall launching appliance shall be provided with a secondary means of launching the fully-loaded boat and the non-loaded boat by means of arms and falls under control, against a trim of up to 2° and a list of up to 5° either way, from its stowed position, into the water. Such means can use the ship's main and emergency power supplies.

4.4 Stowage of lifeboat

4.4.1 A free-fall launching appliance shall be so designed and arranged that the distance from the lowest point on the lifeboat it serves, to the still water's surface does not exceed the lifeboat's free-fall certification height.

4.4.2 The lifeboat shall not only be held securely in its stowed position, but also be constantly in a ready-to-launch state so that two crew members can complete the preparation for embarkation and launching the lifeboat within 5 min.

4.5 Float-free launching of lifeboat

Where a free-fall launching appliance is designed to float free, the float-free release of the lifeboat from its stowed position shall be automatic.

5 Design and construction

5.1 General requirements

5.1.1 A free-fall launching appliance shall be constructed from materials that are not damaged in the air temperature range −30 °C to +65 °C.

5.1.2 Materials of a free-fall launching appliance which are exposed to the weather shall be resistant to deterioration and corrosion, or protected by galvanizing and other safeguarding means.

5.1.3 Equipment that is likely to be immersed in seawater such as hydrostatic release units and weak links shall operate in the seawater temperature range −1 °C to −30 °C.

5.1.4 The major structural members, such as ramps, arms, sheave racks, etc., shall be made from materials in the form of steel plates, tubes or profiled bar that meet the requirements for seagoing conditions and have the satisfactory weldability. Their minimum thickness shall be not less than 6 mm. The major structural members shall be designed with a factor of safety of not less than 4,5 on the basis of the maximum working load assigned and the ultimate strengths of the materials used for construction.

5.1.5 Loose gears, such as lifting beams, blocks, chains, links, shackles, hooks, padeyes, etc., shall not be made from cast and/or similar fragile materials. Loose gears shall be designed with a factor of safety of not less than 6 on the basis of the maximum working load assigned and the ultimate strengths of the materials used in connection with launching equipment.

5.1.6 Each free-fall launching appliance shall remain effective for life-saving under conditions of icing.

5.1.7 Each free-fall launching appliance shall be so constructed that only 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.

5.2 Construction

For the purpose of meeting the performance requirements as specified in 4.1 to 4.4, each free-fall launching appliance shall have four functions: *viz*, free-fall launching, recovering, controlled launching, lifeboat stowage. Therefore, the construction of a free-fall launching appliance shall consist of two major portions: the launching ramp and the boat recovery/launching appliance. The two portions are usually designed to be integrated into one unit, but sometimes can be designed to be constructed separately with independent performance. Notwithstanding the design, the four functions as mentioned above shall be provided with, and all relevant performances shall be in compliance with, the accorded requirements of this International Standard.

5.3 Launching ramp

5.3.1 The launching ramp shall be designed and arranged according to the parameters provided by the manufacturer of the lifeboat and certified by the approving authority in order to protect the occupants in the lifeboat from harmful acceleration forces resulting from free-fall launching, and to ensure the lifeboat's effective clearing of the ship after entry into the water.

With the ship on an even keel, the angle between the horizontal and the launch rail of the lifeboat in its launching position shall be equal to the certified launching ramp angle. This angle shall not be less than 30°.

With the ship on an even keel, the distance from the stern of the lifeboat in its launching position to the lower end on the ramp shall comply with the requirements of the certified launching ramp length.

5.3.2 The launching ramp shall be so designed and arranged that only one release hook is used to link the lifeboat to the launching ramp. The ramp shall also be provided with means to carry out simulated launching of the lifeboat.

5.3.3 A free-fall launching appliance shall be constructed so as to prevent sparking and/or incendiary friction during the launching of the lifeboat. Means such as rollers or sliding boards can be used on the launching ramp.

5.3.4 Against unfavourable conditions of trim of up to 10° and a list of up to 20° either way, a launching ramp shall have sufficient strength and rigidity to withstand and safely launch a lifeboat with the weight equivalent to 1,1 times its maximum working load, as well as to withstand a static test with the proof load equivalent to 2,2 times the maximum working load.

5.3.5 Where a launching ramp is designed to be adjustable, it shall be adjusted satisfactorily with the lifeboat it serves loaded to 1,2 times the maximum fully-loaded boat.

5.4 Arm

5.4.1 Against a trim of up to 2° and a list of up to 5° either way, an arm shall have sufficient strength and rigidity to safely launch a lifeboat with the weight equivalent to 1,1 times its maximum working load, as well as to withstand a static test with the proof load equivalent to 2,2 times the maximum working load at full outboard position.

5.4.2 An arm shall be so arranged that sufficient extension will be provided to protect the lifeboat from impact when it is used to recover a lifeboat at the full outboard position.

5.4.3 A free-fall launching appliance using falls and arms shall be so constructed that the arm can be moved from the inboard position to the outboard and the hook can be lowered favorably under the condition of no load.

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5.4.4 Where arms are recovered by power, limiting devices shall be fitted which will automatically cut off the power before the arms reach the stops in order to prevent overstressing the arms or falls, unless the winch system is designed to prevent such overstressing or shocks.

5.5 Winch

5.5.1 The winch brake of a free-fall launching appliance shall be capable of stopping the descent of any lifeboat intended at any time and holding it securely during the controlled launching of lifeboat. The winch brake shall be of sufficient strength to withstand a dynamic test with a proof load of not less than 1,1 times the maximum working load of the winch, as well as a static test with a proof load of not less than 1,5 times the maximum working load of the winch.

The winch brake used in lowering lifeboats by gravity shall be so designed as to be always applied unless the operator holds the brake control in the “off” position. The brake pads shall, where necessary, be protected from water and oil.

5.5.2 The winch drum shall be so designed and arranged that its nominal diameter shall be not less than 16 times the diameter of the falls. The number of layers of falls winding around the drum shall not exceed 3 unless a spooling device is fitted. The flange height of the drum shall always exceed the outmost fall layer by 1,5 times the diameter of the fall when the fall is fully and evenly wound around the drum.

In the case of a multiple drum winch, unless an efficient compensatory device is fitted, the falls shall be so arranged as to wind off the drums at the same rate when lowering, and to wind on to the drums evenly at the same rate when hoisting.

5.5.3 The transmission of winches shall be arranged with a closed enclosure so that only minimum daily maintenance is required. The gears and bearings of the transmission shall be well lubricated whenever the winch is left of 20°.

5.5.4 The winch power can be electrical, hydraulic, or pneumatic.

Electrical drives and control equipment shall conform to the requirements of the IEC 60092 series of standards. Deck mounted enclosures and motors shall conform to IP56 of IEC 60529:2001.

Hydraulic drives and control equipment shall conform to the requirements of ISO 4413. System nominal pressures shall be selected from ISO 2944, and the drive shall operate satisfactorily at a pressure 10 % below the selected nominal pressure.

Pneumatic drives and control equipment shall conform to the requirements of ISO 4414. System nominal pressures shall be selected from ISO 2944, and the drive shall operate satisfactorily at a pressure 10 % below the selected nominal pressures.

5.6 Loose gears

5.6.1 Lifting beams, chains, shackles and other loose gears can be used to connect falls to lifeboats when a free-fall launching appliance recovers or lowers lifeboats by means of the falls.

5.6.2 Falls shall be of rotation resistant and corrosion resistant steel wire rope. Falls shall be long enough to have at least 3 dead turns of rope remaining on the winch’s drum after the lifeboat is lowered from the stowed position into water with the ship in its lightest seagoing condition against an unfavorable trim of 2° and a list of 5°.

5.6.3 The sheave diameter at the bottom of the sheave groove shall be at least 12 times the diameter of the falls, and the depth of the sheave groove shall be at least 1,5 times the diameter of the falls. Means such as a sheave cover with a smaller clearance between the cover and the sheave shall be provided to keep the falls within the sheave at all times.

5.7 Lashing gears

5.7.1 A free-fall launching appliance shall be fitted with reliable lashing gears to preclude the moving or the accidental release of the lifeboat stowed under conditions of wave motion. The lashing gears shall be so arranged as to be released easily before boarding the lifeboat, or they shall be arranged so as not to interfere with the free-fall launching of the lifeboat.

5.7.2 A free-fall launching appliance shall be provided with means for hanging of the lifeboat to free the on-load release mechanism for maintenance and test.

5.8 Embarkation platform

A free-fall launching appliance shall be equipped with a platform and a ladder for boarding the lifeboat. The platform shall be designed such that a stretcher can be taken on to the lifeboat, through the platform.

5.9 Operation

5.9.1 The release mechanism shall be arranged so that at least two independent but interlocked actions from inside the lifeboat are required in order to free-fall launch the lifeboat from the launching ramp.

5.9.2 The launching mechanism shall be arranged so that when a lifeboat is recovered or launched by means of arms and falls, it may be actuated by one person from a position on the ship's deck or the platform, and the lifeboat shall be visible to the operator during the entire process.

5.9.3 Each free-fall launching appliance shall be provided with a poster or sign illustrating the procedures for operating the appliance and giving instructions or warnings clearly.

6 Test method

6.1 Test of winch

The test items, test loads, test methods and acceptance criteria are indicated in Table 1.

6.2 Test of loose gears

The test items, test loads, test methods and acceptance criteria are indicated in Table 2.

6.3 Test of launching appliance

6.3.1 The test items, test loads, test methods and acceptance criteria are indicated in Table 3 and Table 4.

6.3.2 The test of a launching appliance shall be carried out by means of the test pool and the test platform which can simulate actual shipboard conditions. The test load may be either actual lifeboats or simulated lifeboats which have the same weight and the same length of launch rail as the actual lifeboat. Where such test means cannot be provided, instead, the test items of Table 3 may be carried out with scale models, certified by an approved authority.

6.3.3 Where the launching ramps are designed to be adjustable, an adjusting test shall be carried out with the test load of 1,2 times the maximum working load on the ramp where the lifeboat is stowed, in addition to the normal test items of the launching ramps.

6.3.4 Where a free-fall launching appliance is driven by a hydraulic system, a pressure test of 1,5 times nominal pressure shall be carried out on the hydraulic system.

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6.3.5 Where a release mechanism for free-fall launching is arranged to be connected to the launching ramps, a tensile strength test of 6 times the working load for 5 min and an operating test of 2 times working load are required for the release mechanism before carrying out the prototype test of the free-fall launching appliance.

6.3.6 Where a launching appliance is fitted with limiting devices, the test for a limiting device shall be carried out to ensure that the power will be automatically cut off before the arms reach the stops.

Table 1 — Test of winch

Test item		Test load	Test method	Acceptance criteria
1	Operation test	No load	Run forward and backward, each direction for 5 min.	Smooth start and stop, easy operation. No abnormalities in temperature, noise, tension, oil pressure and braking.
		Lightest launching load of the winch	Hoist and lower the test load. Repeat 5 times.	
2	Hoisting test	Hoisting load of the winch	Hoist the test load up to approximately 10 m high. Carry out at least twice.	Smooth running, secure braking. The hoisting speed and input power comply with the design specification.
3	Lowering test	Launching load of the winch	Hang the test load at approximately 10 m high, and then release the brake to lower it, and apply the brake. Carry out at least twice.	Smooth running, secure braking. The lowering speed complies with the design specification.
4	Dynamic test of brake	1,1 times maximum working load of the winch	Lower the test load through a distance of at least 3 m, and then apply the brake abruptly when lowering speed reaches maximum. Carry out at least twice.	Brake works well. The drop of the test load shall be less than 1 m.
			Repeat the test, wetting the brake surface if the brake is to be exposed to the weather.	Brake works well. The drop of the test load could be a little bit more than 1 m.
5	Static test of brake	1,5 times maximum working load of the winch	Hang the test load to the fall from the outmost layer of the drum. Lower it through at least a complete revolution of the drum, and then apply the brake.	The test load can be held by the brake. No any evidence of damage.
6	Strip for inspection		Select the part under test.	No evidence of damage and excessive wear on any part.
NOTE The various tests should achieve a cumulative lowering distance of at least 150 m.				

Table 2 — Test of loose gears

Test item	Test load	Test method	Acceptance criterion
Static test	2,2 times maximum working load	Apply the test load for 5 min.	No permanent deformation or damage.

Table 3 — Test of free-fall launching

Test item		Test load	Simulated shipboard condition	Test method	Acceptance criteria
1	Test of free-fall launching light-loaded boats	Lightest launching load	List of 20°and foretrim of 10°	Activate release mechanism to allow the lifeboat to slide along the ramp and free-fall into the water.	Smooth launching, without failure.
2	Test of free-fall launching fully-loaded boats	Maximum working load	List of 20° and trim of 10°	Activate release mechanism to allow the lifeboat to slide along the ramp and free-fall into the water.	Favourable launching, no parts damaged.
3	Overload test of free-fall launching	1,1 times maximum working load	List of 20° and trim of 10°	Activate release mechanism to allow the lifeboat to slide along the ramp and free-fall into the water.	Favourable launching, no deformation or damage affecting performance of the ramp.
4	Static test of free-fall launching	2,2 times maximum working load	List of 20° and trim of 10°	Keep the test load or simulated lifeboat at the stowed position on the ramp for 5 min.	No deformation or damage affecting performance of the ramp.
5	Simulated launching test of free-fall launching	Maximum recovery load	Even keel	Activate release mechanism to allow the lifeboat free-fall down the ramp for a distance (depending on the manufacturer) without entry into the water.	Launching acceptable, no parts damaged.

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Table 4 — Test of controlled launching

Test item		Test load	Simulated shipboard condition	Test method	Acceptance criteria
1	Recovery test	Maximum recovering load	Even keel	Move the arm, without a load, from the full inboard position to the full outboard position and then lower the hook. Hoist the test load from the water and return it to the stowed position.	Running well without failure. No evidence of damage.
2	Test of controlled launching light-loaded boats	Lightest launching load	List of 5° and trim of 2°	Move the arm, with the test load, from the full inboard position to the full outboard position, and then lower the test load into the water using the controls.	Smooth launching, without failure.
3	Test of controlled launching fully-loaded boats	Maximum working load	List of 5° and trim of 2°	Move the arm, with the test load, from the full inboard position to the full outboard position, and then lower the test load into the water using the controls.	Launching easy. No parts damaged.
4	Dynamic test of controlled launching	1,1 times maximum working load	List of 5° and trim of 2°	Move the arm, with the test load, from the full inboard position to the full outboard position, and then lower the test load into the water using the controls. Apply the brake abruptly at the maximum lowering speed. Repeat at least twice.	No deformation or damage affecting performance of the ramp and the arm.
5	Static test of controlled launching	2,2 times maximum working load	List of 5° and trim of 2°	Hang the test load on the arm at the full outboard position for 5 min.	No deformation or damage affecting performance of the ramp and the arm.

7 Acceptance code

7.1 Prototype test

7.1.1 The prototype test shall be done in one of the following situations:

1) On the first time another model of the appliance is made or the same model but by another manufacturer.

2) When significant revisions have been made to structure, materials and operation process, which might affect the performance of the appliances.

3) When there is a great difference between the result of works production tests and the result of the last prototype test.

4) When the approval authorities require a prototype test.

7.1.2 The prototype test of winches and loose gears shall be carried out separately according to Table1 and Table 2 before the prototype test of free-fall launching appliances indicated in Table 3 and Table 4 is carried out.

7.2 Production test

7.2.1 Each free-fall launching appliance shall pass a works production test.

7.2.2 Before the production test of a free-fall launching appliance, loose gears shall be tested according to Table 2, and winches shall be tested according to item 1, item 4 and item 5 of Table 1.

7.2.3 The production test of a free-fall launching appliance shall be carried out according to item 1, item 4 and item 5 of Table 4.

8 Inspection and maintenance

8.1 Each free-fall launching appliance shall have a written maintenance manual which can be easily understood and clearly illustrated, including a checklist, maintenance and repair instructions, schedule of periodic maintenance, lubrication instructions, list of replaceable parts and all other pertinent information necessary.

8.2 The maintenance manual shall include at least the requirements given in 8.2.1 to 8.2.5.

8.2.1 A free-fall launching appliance shall be visually inspected at least once a week to ensure that it is ready for immediate use.

8.2.2 A free-fall launching appliance shall be inspected monthly to ensure that it is complete and in good order. At least once every three months, each free-fall launching appliance shall either free-fall launch the lifeboat it serves, with crew, into the water, or launch the lifeboat with or without the crew by means of falls and arms. At intervals of not more than six months, the lifeboat shall either be launched by free-fall, with crew, or simulated launching shall be carried out without entry into the water. Any problems found in the test shall be solved, and any damaged parts shall be repaired or replaced.

8.2.3 A free-fall launching appliance shall be subjected to an annual examination and maintenance according to the maintenance manual provided by the manufacturer. A dynamic test to the winch shall be carried out by launching the non-loaded boat and applying the brake abruptly when the boat has reached its maximum lowering speed.

8.2.4 A free-fall launching appliance shall be subject to a thorough examination within a minimum time period of once every 5 y. This inspection shall include, but not be limited to, the examinations for corrosion damage, deformation of structures, excessive tolerances, deformation and wear of loose gears, lubrication of moving parts, functionality of limiting devices, and hydraulic system. A dynamic test of the winch with a load of 1,1 times a fully-loaded boat shall be carried out in order to inspect all parts of the brake system. Any damaged parts found shall be repaired or replaced in accordance with the requirements of the maintenance manual.

8.2.5 Falls used in launching shall be inspected periodically with special regard for areas passing through sheaves, and renewed when necessary due to deterioration of the falls or at intervals of not more than 5 y, whichever is the earlier.

8.3 Any and all other requirements of inspection and maintenance in accordance with MSC.1/Circ.1205 and MSC.1/Circ.1206 shall be met if the Administration authority requires them.

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9 Marking

9.1 Marking shall be conspicuous, clear and corrosion-resistant and permanent.

9.2 Each free-fall launching appliance shall be marked with:

a) name of appliance;

b) model and serial number of appliance;

c) manufacturer's name and address;

d) nominal load for winch and nominal weight for fully loaded boat;

e) date of manufacture;

f) acceptance mark.

9.3 In addition to 9.2, each launching appliance shall also be marked with approval information.

9.4 The appliance which complies with this International Standard should be marked with “ISO 22673”.

Bibliography

[1] Res.MSC.47(66), *Amendments to the international convention for the safety of life at sea 1974*

[2] Res.MSC.48(66), *International life-saving appliance code*

[3] Res.MSC.81(70), *Revised recommendation on testing of life-saving appliance, as amended*

[4] Res.MSC.216(82), *Adoption of amendments to the International Convention for the safety of life at sea 1974, as amended*

[5] Res.MSC.218(82), *Adoption of amendments to the international life-saving appliance (LSA) code*

[6] MSC/Circ.980, *Standardized life-saving appliance evaluation and test report forms*

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