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

Navires et technologie maritime — Engins de mise à l'eau des embarcations de sauvetage sous bossoirs

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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 15516 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 4, *Outfitting and deck machinery*.

This first edition cancels and replaces ISO 6067:1985, which has been technically revised.

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Introduction

This International Standard which forms a code of practical interpretation and amplification of the requirements of the CONVENTION FOR THE SAFETY OF LIFE AT SEA (SOLAS), deals with both winches and davits for lifeboats to provide an identical basis for design, manufacture and acceptance of Launching appliances for davit-launched lifeboats for use by ship-owners, shipbuilders and appropriate organizations.

This International Standard incorporates and revises the requirements of ISO 6067 and, as such, replaces ISO 6067 in its entirety. Launching appliances for free-fall lifeboats are not covered by this standard because of their different methods of launching, recovery and stowage. Considering the convenience in practice, this standard specifies some values, such as the minimum speed of recovering light-loaded lifeboats by power (when necessary) and the recovery speed of unpowered winch, which are not required by SOLAS but have been given in ISO 6067. This International Standard is also applicable to launching appliances for fast rescue boats on ro-ro passenger ships.

This International Standard is mainly based on AMENDMENTS from 1983 to 1996 to SOLAS 1974 and IMO RESOLUTIONS and protocols concerned, especially MSC.47(66) AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA 1974, MSC.48(66) INTERNATIONAL LIFE-SAVING APPLIANCE CODE and MSC.81(70) LIFE-SAVING APPLIANCE TEST.

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

1 Scope

This International Standard specifies the requirements of performances, design, construction, safety, maintenance and test of launching appliances for davit-launched lifeboats.

This International Standard is applicable to launching appliances for davit-launched lifeboats as well as launching appliances for davit-launched rescue boats on every kind of sea-going ship, including launching appliances for fast rescue boats on ro-ro passenger ships, but is not applicable to launching appliances for free-fall lifeboats. This International Standard is also a reference for similar appliances on inland ships.

NOTE Every provision in this standard, unless expressly stated otherwise, is also applicable to launching appliances for davit-launched rescue boats.

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2 Normative references

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.

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

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

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

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

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

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

3 Terms and definitions

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

3.1
non-loaded boat
lifeboat or rescue boat fully equipped without persons

NOTE Hereinafter, both lifeboat and rescue boat are referred to as boat.

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3.2
light-loaded lifeboat
lifeboat fully equipped and loaded by crew.

NOTE The number of crew members is provided by design and is at least 2 persons, each having an average mass of 75 kg.

3.3
fully loaded lifeboat
boat fully equipped and loaded with a full complement of persons

3.4
boat davit
main structure of the launching appliance and its fittings, including loose gears, hanging-off pendants, lashings, bowsing, tricking gears, etc.

3.5
loose gear
parts and assemblies withstanding loads during hoisting boat

EXAMPLES falls, blocks, suspension chains, links, padeyes, shackles, hooks, swivel, fastenings and other non-structural fittings which bear loads during launching and recovery of boats

3.6
lifeboat winch
boat winch used for launching and recovering the lifeboat

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3.7
rescue boat winch
boat winch used for launching and recovering the rescue boat

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NOTE Hereinafter, lifeboat winch and rescue boat winch are referred to as winch.

3.8
maximum working load
load to the launching appliance during launching the maximum weight of fully loaded boats which can be assigned to this launching appliance

3.9
maximum recovering load
load to the launching appliance during recovering the maximum weight of boats which can be assigned to this launching appliance

NOTE For lifeboats, the weight of light-loaded lifeboats.
For rescue boats, the weight of fully-loaded boats.
For lifeboats which are also rescue boats, the weight of a non-loaded boat plus the weight of its rescue boat complement of persons (minimum 6 persons).

3.10
lightest launching load
load to the launching appliance during launching the lightest weight of non-loaded boats which can be assigned to the launching appliance

3.11
maximum working load of winch
maximum load held by the falls at the winch drum, during launching and recovering the boat

3.12
hoisting load of winch
load held by the falls at the winch drum when a launching appliance hoists the maximum recovering load

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3.13
maximum governing load
a load held by the falls at the winch drum when a launching appliance lowers the maximum weight of fully loaded boats which is applicable to it

3.14
fleet angle
angle between the direction of the fall winding off the drum and the perpendicular plane of the drum axis

4 Classification and composition

A launching appliance generally consists of a davit in combination with a winch.

4.1 Composition of davit

A davit is generally composed of arms, frames, loose gears and other attachments, etc.

4.2 Classification of davit

The basic construction type of davit is mainly classified as a gravity davit and mechanical stored-power davit according to the way to turn out davit arms, including other construction types of davits which comply with the requirements of this International Standard.

4.3 Classification of winch

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The basic types of winch are mainly classified as below (including other construction types of davits which comply with the requirements of this International Standard).

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4.3.1 Winches can be classified as

a) unpowered winch, or

b) powered winch.

The power of a winch can be electrical, hydraulic or pneumatic. Unpowered winches do not apply to rescue boats.

4.3.2 Winches can also be classified according to purpose as

a) a lifeboat winch,

b) a rescue boat winch, or

c) the winch for both lifeboats and rescue boats. This winch has the performance of both a) and b).

5 Requirements

5.1 Performance

5.1.1 Launching of boat

5.1.1.1 A launching appliance shall be capable of safely lowering a non-loaded boat and a fully loaded boat against a trim of up to 10° and a list of up to 20° either way.

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5.1.1.2 Notwithstanding the requirement of 5.1.1.1, the launching appliances for oil tankers, chemical tankers and gas carriers with a final angle of heel greater than 20° shall be capable of lowering non-loaded boats and fully loaded boats at the final angle of heel on the lower side of the ship, taking into consideration the final damaged waterline of the ship.

5.1.1.3 A launching appliance shall not depend on any means other than gravity or stored mechanical power which is independent of the ship power supplies to launch the boat it serves.

5.1.1.4 A launching appliance shall be capable of lowering and halting boats in a controlled manner, and the speed at which the boat is lowered into the water shall conform to Table 1.

Table 1

Boat condition	**Lowering speed of boats** m/s	
Fully loaded boat	low limit	$S = 0{,}4 + 0{,}02H$ where S is the lowest limit of lowering speed; H is the height in meters from davit head to the waterline with the ship at the lightest seagoing condition;
	S	S is the 1, when $H > 30$, or the value required by the Administration.
	high limit	1,3 or the value required by the Administration
		1,0 only for fast rescue boat launching appliances
Non-loaded boat	low limit	0,7S (for a rescue boat with its weight less than 550 kg. This shall be to the satisfaction of the Administration)
	high limit	1,0 or the value required by national administrations
NOTE The davit is supposed to be in the embarkation state when calculating H.		

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5.1.1.5 For the launching appliances for lifeboats on cargo ships of 20 000 tons and upwards and launching appliances for rescue boats on all ships, it is taken into account that boats shall be capable of being safely launched into water with the ship making headway at speeds of up to 5 knots in calm water.

5.1.2 Recovery of boats

5.1.2.1 A launching appliance shall be capable of recovering a light-loaded lifeboat or a fully loaded rescue boat by power from water to stowed position under ship conditions of even keel. Every rescue boat launching appliance shall be fitted with a powered winch.

5.1.2.2 The speed of recovering boat by power (when necessary) shall conform to Table 2.

Table 2

Boat state	**Speed of recovering boat by power** m/s
fully loaded rescue boat	$\geqslant 0{,}3$
light-loaded lifeboat	$\geqslant 0{,}05$
fully loaded fast rescue boat	$\geqslant 0{,}8$

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5.1.2.3 Every powered winch shall also be fitted with a hand gear capable of recovering light-loaded lifeboat or fully loaded rescue boat from water to stowed position.

5.1.2.4 The recovering speed for unpowered winch of lifeboat shall be not less than 0,005 m/s.

5.1.3 Stowage of boats

5.1.3.1 A launching appliance shall serve only one boat. The stowed boat shall always be in a state of continuous readiness for launching boats.

5.1.3.2 A launching appliance shall be so designed that boats can be embarked on and launched directly from the stowed position, only if the launching appliance is carried on passenger ships where boats may be embarked on from either the stowed position or the embarkation deck, but not from both places.

5.1.3.3 A launching appliance shall be so designed and arranged that it is convenient for people to embark. Arrangement for rescue boat embarkation and recovery shall allow for safe and efficient handling of a stretcher case.

5.1.4 Operation of launching appliances

5.1.4.1 A launching appliance may be actuated by one person on the ship's deck, and the boat shall always be visible to the person during operating.

5.1.4.2 There shall be a function such that a launching appliance can be remotely actuated to lower the boat from a position within the boat and without a person remaining on the ship's deck.

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5.1.4.3 A launching appliance shall, as far as practicable, remain effective when operated in icy conditions.

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5.1.4.4 The launching appliance for a fast rescue boat shall be fitted with a device to dampen the forces due to interaction with the wave when the fast rescue boat is launched or recovered. The device shall include a flexible element to soften shock forces and a damping element to minimize oscillations.

5.1.4.5 The winch for a fast rescue boat shall be fitted with an automatic high-speed tensioning device which prevents the fall from going slack in all sea-state conditions in which the fast rescue boat is intended to operate.

5.2 Design and construction

5.2.1 Materials

5.2.1.1 The materials for launching appliances shall not be damaged during stowage throughout the air temperature range – 30 °C to + 65 °C.

5.2.1.2 Materials exposed to weather shall be rot-proof, corrosion-resistant, deterioration-resistant, and not be unduly affected by seawater. Painting, zinc-plating and other safeguarding may be adopted.

5.2.1.3 Structural members shall be made of shipbuilding plates with satisfactory formability and weldability characteristics.

5.2.1.4 Grey cast-iron or similar fragile materials should be avoided. Winch gears should be made of machine-cut steel, bronze or other suitable materials.

5.2.2 Safety factor

Loose gears, structural members and all other fittings used in connection with launching equipment shall be designed with a factor of safety on the basis of the maximum load assigned, and the ultimate strength of the materials used for construction, in accordance with Table 3.

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