

International Standard



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Lifts on ships — Specific requirements

Ascenseurs de navires — Exigences particulières

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8383 was prepared by Technical Committee ISO/TC 178, *Lifts, escalators, passenger conveyors*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Lifts on ships — Specific requirements

0 Introduction

The attention of users of this International Standard is drawn to the need to ensure compliance with such statutory requirements, rules and regulations as may be applicable to any individual ship. Special consideration shall be given to lift safety codes. If such codes do not exist, reference should be made to the relevant classification society.

1 Scope and field of application

This International Standard lays down specific requirements for the design, installation and inspection of lifts on ships.

2 References

International Convention for the Safety of Life at Sea, 1974, (SOLAS 1974) with Amendments.

IEC Publication 92, *Electrical installations in ships*.

3 Definitions

For the purpose of this International Standard, the following definitions apply.

3.1 lift: Lifting equipment for passengers and crew or other persons, that is permanently installed in a ship, serves defined landing levels, and comprises an enclosed car running between rigid guides, the dimensions and means of construction of which permit access of persons.

3.2 trunk: Lift well or hoistway.

3.3 trap: Horizontally positioned shutter on car roof.

3.4 hatch: Horizontally or vertically positioned shutter (door) in the trunk.

4 General operating requirements

4.1 Lift installations shall be capable of operating under the following conditions inherent to the ship:

a) Continuous vibrations: 2 mm peak to peak of frequency 0 to 25 Hz.

b) Rolling: $\pm 10^\circ$, period 10 s.

c) Pitching: $\pm 5^\circ$, period 7 s.

d) Heaving amplitude: $A \leq 3,8$, period 10 s, calculated by the formula

$$A = 3,8 - 0,01 (L - 250)$$

where L is the length of the ship, in metres, measured between the perpendiculars taken at extremities of the deepest sub-division loadline.

4.2 Lift installations shall be closed down if the specified values for the above conditions are exceeded and, during the period that they are closed down, shall be capable of resisting influences from the ship in accordance with IEC 92 and the specifications of the classification societies concerned.

4.3 It is recommended that the speed of lifts does not exceed 1 m/s. Higher speeds shall be approved by the responsible authorities.

5 Trunk

5.1 The lift trunk shall be entirely enclosed over all its height by means of a continuous solid enclosure.

5.2 The headroom and the pit shall permit a person in the trunk to be protected when the car is at its highest or lowest position.

For traction lifts, when the counterweight is resting on its fully compressed buffers, or, for positive drive lifts, when the car is stopped at its highest possible position, the free distance above the roof of the car shall be at least 0,75 m.

When the car is resting on its fully compressed buffers, the free distance between the pit floor and the underneath of the car floor shall be at least 0,50 m.

5.3 Only pipes and cables associated with the lift shall be installed in the trunk.

5.4 The construction shall comply with appropriate statutory requirements concerning fire protection of the trunk, including landing doors, escape hatch, etc.

See also Chapter II-2 Construction — Fire protection, fire detection and fire extinction in Amendments to the *International Convention for the Safety of Life at Sea, 1974*, (SOLAS 1974).

5.5 If two or more lifts are fitted in one trunk, the car and counterweight of each lift shall be separated from those of other lifts by means of sheet steel over the full height of the trunk; wire mesh is not permitted.

5.6 For lifts reserved for the crew, the headroom of the trunk shall be provided with an escape hatch of area at least 0,24 m² with a side length not less than 350 mm (see 10.6). This escape hatch shall open outwards.

5.7 The trunk shall be fitted with a fixed ladder or pole steps over its entire height, giving access to landing doors and to the escape hatch, if any, in the headroom (see 5.6).

5.8 The trunk shall not be used as part of the ventilation ducting, but shall be ventilated by an independent system.

5.9 Travelling cables inside the trunk shall be protected against damage. The protection can be made by an internal smooth metal trough, the width of which shall permit passage of the free hanging loop of the travelling cable and which shall be provided with a slot having round edges, permitting the free passage of the cables coming from the lift car.

5.10 The trunk shall be protected against ingress of water and spray.

6 Landing doors

6.1 Landing doors shall be fitted with devices which prevent them from opening and slamming induced by ship movement.

6.2 Deck areas at entrances to lifts shall be slip-resistant.

6.3 Landing doors shall not be located with direct access to machinery spaces or hazardous areas where special requirements apply (see clause 11).

6.4 Landing entrances shall comply with the following dimensional requirements:

- height measured from deck level: 2 000 mm min.
- height measured from sill (coaming): 1 600 mm min.
- width for passenger lifts: free clearance not less than 800 mm.

6.5 All landing doors shall be provided with an emergency unlocking device.

7 Car and counterweight

7.1 Car entrances shall have full door(s) fitted with devices which prevent them from opening and slamming induced by ship movement.

7.2 Cars shall be fitted with at least one handrail.

7.3 Cars shall be fitted with slip-resistant flooring.

7.4 The car roof shall have an escape trap of area at least 0,24 m² with a side length not less than 350 mm (see 10.3 and 10.4).

7.5 Cars and counterweights shall be guided over their full travel including possible overtravel. Guide rails shall be of rigid steel and fixed in such a manner that deflection does not exceed 3 mm under operation as defined in 4.1.

7.6 Cars and counterweights shall be fitted with a guidance medium independent of the normal guide shoes. This can be achieved by an independently fixed steel plate which will locate onto the guide rails in the event of primary guidance failure.

7.7 Counterweights shall be constructed from steel or equivalent strength material.

7.8 Filler weights shall be securely clamped in position within steel frames. Concrete fillers in counterweights are not permitted.

7.9 In case of rope failure, or other suspension failure, the car shall be stopped and held by a means laid down in relevant regulations (see clause 0); the counterweight shall be stopped and held by means of safety gear.

7.10 Traction drive lifts shall incorporate a device to cause the lift to stop and keep it stopped when

- a) a start is initiated, but the lift machine does not rotate;
- b) the car (or counterweight) is stopped in downward movement by an obstacle which causes the ropes to slip on the driving sheave (traction).

The device shall function within a time which does not exceed the smaller of the following values:

- a) 45 s,
- b) time for travelling the full travel plus 10 s, with a minimum of 20 s if the full travel time is less than 10 s.

This device shall not affect either the inspection operation or the electric recall operation, if any.

8 Machines

8.1 The electric equipment for the lift shall comply with appropriate statutory requirements and the requirements of IEC Publication 92. As lifts are considered as essential auxiliaries, the machines shall be supplied by circuits which are not subject to load shedding.

8.2 The lift shall be equipped with manual means of operation, allowing the car to be moved to the landing easiest to reach in the event of failure of the power supply. The manual effort required to move the car shall not exceed 400 N.

9 Control and safety circuits

9.1 Sufficiently visible notices or signals shall permit persons in the car to know at which landing the lift has stopped.

9.2 In all cars, a telephone extension or an intercommunication system shall be permanently installed and connected to a permanently manned area.

9.3 All cars shall be equipped with an alarm system which ensures audible and visual signals to a permanently manned area. The alarm circuit shall be fed from the emergency supply as provided for in IEC Publication 92 or from a special self-contained source.

9.4 The car, the trunk and the lift machine room shall be equipped with emergency lighting which automatically switches on in case of failure in the main power network. This emergency lighting shall be fed from the emergency source as provided for in IEC Publication 92.

10 Means of escape

10.1 In case of emergency, it must be possible to rescue ship's passengers from the car. The crew shall be able to escape from the car and the trunk by their own resources.

10.2 A ladder shall be provided for entering the car through an emergency trap in the car roof (see 7.4). The ladder shall be kept in a watchkeeping room or a room to which only competent persons have access.

10.3 The escape trap (see 7.4) in cars for passengers only shall be fitted with a mechanical latch-lock with a handle on the outside only.

10.4 The escape trap (see 7.4) in cars for crew only shall be fitted with a mechanical latch-lock with a handle on both inside and outside.

10.5 Opening of escape traps referred to in 10.3 and 10.4 shall break the safety circuit and thereby cause the car to stop; the safety circuit shall remain broken until the escape trap is closed. Resumption of the service shall be possible only after manual and intentional resetting of the circuit on the roof of the car.

10.6 For lifts reserved for the crew, a fixed ladder or similar device shall be provided in the car. The trunk shall be fitted with an escape hatch (see 5.6). The opening of the escape hatch shall be possible from the inside without a key. From the outside, opening shall be possible only by means of a special key placed in a box in the immediate vicinity of the hatch accessible in case of emergency, for instance, a break glass to open box, when exit from the trunk leads to an area accessible to passengers.

Opening of the escape hatch shall break the safety circuit which shall remain broken until the hatch is closed. Resumption of the service shall be possible only after manual and intentional resetting of the circuit.

10.7 Notices in at least two relevant languages and pictographs describing the escape routine shall be fixed in the following locations:

- a) inside the car;
- b) on the car roof;
- c) inside the trunk, adjacent to every exit;
- d) in the lift machine room.

11 Areas presenting risks of explosion

For all installations adjacent to or within hazardous areas, for example cargo pump room lifts, it is essential to make reference to the appropriate classification society, national safety codes and national maritime authorities.

12 Maintenance and inspection

12.1 At the time of delivery of the installation, the manufacturer shall hand over to the contractor a detailed description of the installation, including its method of functioning, with drawings, electrical and hydraulic diagrams and guidelines for maintenance.

12.2 Each lift shall be tested and thoroughly inspected before being brought into use and after repair work and important modifications.

The inspection should preferably be carried out at 12 month intervals, but at intervals not exceeding 18 months unless rules from classification societies and other rules, as referred to under clause 0, require otherwise.

12.3 The maintenance operations shall be carried out by authorized lift maintenance personnel.

12.4 The basic characteristics of the lift shall be recorded in a register or file drawn up, at the latest, at the time the installation is brought into service. This register or file shall be kept up-to-date and shall comprise a register of inspections, tests and maintenance.

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