INTERNATIONAL STANDARD

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Third edition
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Ships and marine technology — Embarkation ladders

Navires et technologie marine — Échelles d'embarcation

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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 5489 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 1, *Lifesaving and fire protection*.

This third edition cancels and replaces the second edition (ISO 5489:1986) of which it constitutes a complete revision in order to take into account new designs and manufacturing methods for embarkation ladders which have entered the market since 1986.

Introduction

This International Standard is intended to supplement existing International Maritime Organization (IMO) requirements for embarkation ladders. Since IMO instruments do not include specific requirements for prototype testing of embarkation ladders for approval, those tests included in this International Standard are in excess of the existing IMO requirements. The inclusion of these tests was considered necessary in order to provide a means of ensuring conformance of embarkation ladders with the performance requirements prescribed in IMO instruments and in this International Standard.

Ships and marine technology — Embarkation ladders

1 Scope

This International Standard specifies requirements for a ship's embarkation ladder that is provided to enable safe embarkation of waterborne survival craft along a vertical portion of the ship's hull. It is applicable to merchant ships required to carry embarkation ladders under Chapter III of the 1974 International Convention for the Safety of Life at Sea (SOLAS), as amended. National maritime safety administrations are urged to accept ladders complying with this International Standard on their ships, as complying fully with the requirements of SOLAS.

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.

ISO 209-1:1989, *Wrought aluminium and aluminium alloys — Chemical composition and forms of products — Part 1: Chemical composition*

ISO 877:1994, *Plastics — Methods of exposure to direct weathering, to weathering using glass-filtered daylight, and to intensified weathering by daylight using Fresnel mirrors*

ISO 1461:1999, *Hot dip galvanized coatings on fabricated iron and steel articles — Specifications and test methods*

3 Materials

3.1 Wooden parts

Each wooden part shall be made of a hardwood (e.g. ash, oak, elm, beech, teak or apitong) free from knots.

3.2 Side ropes

3.2.1 Each side rope shall be mildew-resistant manila rope or a spun thermoset polyester rope with a polypropylene core of a colour that contrasts with the spun polyester. Each side rope shall have a breaking strength of at least 24 kN, and a nominal diameter of 18 mm (57 mm circumference).

3.2.2 Alternative side ropes of synthetic material may be used if they:

a) meet the breaking strength and size requirements of 3.2.1;

b) are at least as resistant to elongation under load as the standard ropes described in 3.2.1;

c) have an exterior surface suitable for grasping with bare hands, similar to manila or spun polyester;

d) are of a thermosetting polymer, resistant to deterioration from ultraviolet light;

e) provide a visual indication of excessive wear, similar to the spun polyester/polypropylene construction described in 3.2.1.

3.3 Metallic materials

3.3.1 Each metal fastener shall be made of a material which is inherently corrosion-resistant, or treated to be corrosion-resistant.

3.3.2 Each ferrous metal part that is not of stainless steel, shall be coated in accordance with ISO 1461.

3.3.3 Each stainless steel part shall be of a marine grade alloy with a corrosion resistance at least equal to grade 316[1)].

3.3.4 Each aluminium part shall be 5254 or 5652 alloy, or other grade containing not more than 0,06 % copper, in accordance with ISO 209-1:1989.

3.3.5 Metals in contact with each other shall be galvanically compatible or insulated to prevent galvanic corrosion in a marine environment.

3.4 Mechanical fastening devices

Each mechanical fastening device securing a part of a ladder shall have a locking mechanism to prevent the device from loosening.

3.5 Plastic materials

Each plastic material shall be of a type that retains at least 30 % of its original tensile strength and at least 80 % of its original impact strength when subjected to the one year outdoor weathering test described in Method A of ISO 877:1994.

3.6 Quality of materials

Each part of a ladder shall be free of splinters, burrs, sharp edges, corners, projections or other defects that could injure a person using the ladder.

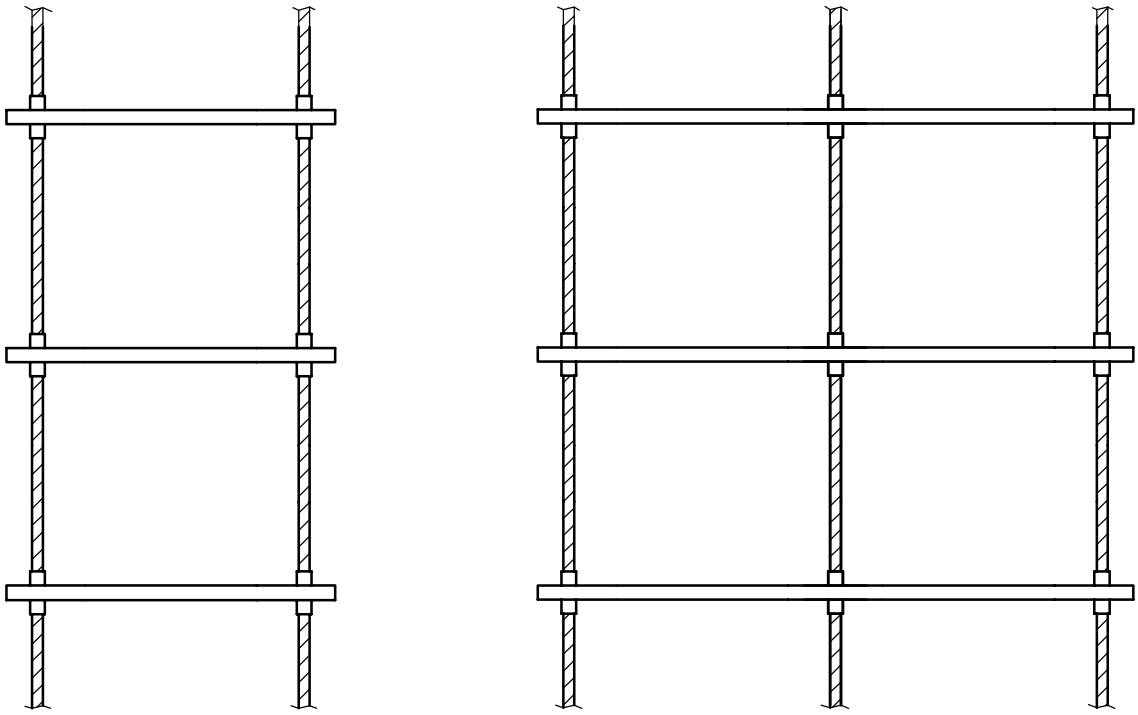
3.7 Rope seizing

Seizing, if used, shall consist of two- or three-ply marline of minimum breaking strength 800 N, or other suitable material of equivalent strength.

4 Construction

4.1 Each ladder shall have two side ropes on each side. Ladders may also be constructed as three-string ladders with a third set of ropes in the middle of the ladder as illustrated in Figure 1. In a three-string ladder, the third set of ropes shall meet the same requirements as the side ropes. Each step in the ladder shall be supported by each side rope.

1) See Iron & Steel Society (ISS) publication *Stainless Steels*, available from Iron & Steel Society, 186 Thorn Hill Road, Warrendale, PA 15090-7528, USA, or http://www.iss.org. The publication *Stainless Steels* is the trade name of a product supplied by the Iron & Steel Society. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by ISO of the product named. Equivalent products may be used if they can be shown to lead to the same results.



a) conventional

b) three-string

Figure 1 — Embarkation ladders

4.2 The side ropes shall

a) be continuous from the top of the ladder to the bottom;

b) not be painted or otherwise coated or covered.

4.3 Unless a special arrangement is needed for a custom installation, the ends of the side ropes shall be finished as follows.

a) The top end of one or both of the side ropes on each side shall terminate just above the top step in a single eye splice or thimble large enough to accommodate at least two passes of side rope.

b) The top end of one side rope on each side of the ladder shall extend at least 3 m beyond the top ladder step, or an extension service rope shall be fitted to each side rope eye splice or thimble by means of an eye splice or shackle, as shown in Figure 2. The diameter of an extension service rope shall be at least the diameter of the side ropes.

c) The side ropes shall not have fittings or form loops at the bottom of the ladder that can be used to attach additional ladder sections or tripping lines.

d) The ends of each side rope which do not terminate in a splice or fitting, shall be served or otherwise treated to prevent fraying.