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Navires et technologie maritime — Systèmes d'évacuation en mer

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Foreword

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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 16706 was prepared by Technical Committee ISO/TC 8, *Ships and Marine Technology*, Subcommittee SC 1, *Lifesaving and Fire protection*.

Introduction

The International Convention for the Safety of Life at Sea (SOLAS), 1974 requires all life-saving appliances and arrangements to comply with the requirements of the LSA Code and to be tested in accordance with the recommendations of the IMO. The Revised recommendation on testing of life-saving appliances, as adopted by IMO Resolution MSC.81(70), prescribes in paragraph 12.2.2 and 12.3.2.2 the execution of a static load test to the structural attachment to the ship of a marine evacuation system. However this resolution does not refer to any specific calculation method for this test. This International Standard is intended to provide specifications for an appropriate calculation method for this test in order to facilitate consistent implementation by maritime Administrations when approving marine evacuation systems.

Ships and marine technology — Marine evacuation systems — Load calculations and testing

1 Scope

This International Standard specifies a calculation method for the application of a static load test to the structural attachment of marine evacuation systems to ships.

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.

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

The International Life-Saving Appliance (LSA) Code, as adopted by IMO Resolution MSC 48(66) as amended.

The Revised recommendation on testing of life-saving appliances, as adopted by IMO Resolution MSC.81(70) as amended.

The 2008 International Code of Intact Stability, 2008 (2008 IS Code), as adopted by IMO Resolution MSC.267(85) as amended.

3 Terms and definitions

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

3.1
marine evacuation system
is an appliance for the rapid transfer of persons from the embarkation deck of a ship to a floating survival craft.

3.2
passage
is an integral components of a marine evacuation system to provide for safe descent of persons of various ages, sizes and physical capabilities, wearing approved lifejackets, from the embarkation station to the floating platform or survival craft. The passage can be an inflatable or rigid slide, a vertical passage or any other arrangement providing the same function.

3.3
floating platform
is a floating platform at the end of a passage of a marine evacuation system providing a safe working area for the system operators and transitional accommodation for persons and embarkation to survival craft(s).

3.4
stowage container
is an arrangement providing means for stowing a marine evacuation system and so constructed as to withstand hard wear under conditions encountered at sea.

3.5
structural attachments
is any attachment of a marine evacuation system to the ship structure designed to withstand loads calculated in accordance with this standard. Such attachments may include blocks, falls, pad eyes, links, fastenings and all other fittings used for restraining the platform, if fitted, and survival craft(s) to the ships side during evacuation.

4 Load calculations

4.1 Load calculation

The load imposed by the maximum number and size of fully loaded liferafts for which the system is designed, attached to the loaded platform, if fitted, with the ship moving through the water at 3 knots against a head wind of force 10 on the Beaufort scale shall be calculated in accordance with the method in Annex A.

4.2 Additional loads

Where significant gravitational loads of the passage, floating platform, if fitted, or survival craft(s) are imposed to the structural attachments in the fully deployed condition of the marine evacuation system, these loads shall be added when performing the static load tests required

4.3 Load distribution

Where the loads calculated in 4.1 and 4.2 are shared by more than one structural attachment the calculated load for load testing of individual structural attachments may be reduced taking into consideration the distribution of loads in the scenario described in 4.1.

5 Load testing

5.1 Static load testing

All structural attachments of the MES shall be subjected to a static load of 2.2 times the maximum load calculated in accordance with 4. The load shall be applied to the structural attachments for a period of no less than 30 min.

5.2 Load test acceptance criteria

On completion of this test there shall be no evidence of significant deformation, signs of any fracture, stranding to its connections or any other damage as a result of this factory test.

Annex A
(normative)

Calculation method of maximum load

A.1 Maximum calculated load formula

$$F = F_W + R$$

where

F is the maximum calculated load (N),

F_W is the sum of wind forces on the slide or passage, floating platform and fully loaded liferafts with the maximum specification or quantity at a wind of force 10 on the Beaufort scale(N),

R is the drag on the floating platform and fully loaded liferafts with the maximum specification or quantity when they are dragged in water at a speed of 3 kn(N).

A.2 Calculation of wind force

The sum of wind forces F_W shall be calculated as the wind pressure P multiplied by the sum of exposed areas A of the marine evacuation system in the fully deployed condition.

$$F_W = P \cdot A$$

where

P is the wind pressure,

A is the exposed area.

A.2.1 Wind pressure

As specified in the 2008 IS Code the unit calculated wind pressure shall be taken as 504 N/m^2 as equivalent to the max wind speed of 28.4 m/s for a wind force of 10 on the Beaufort scale.

For the floating platform, if fitted, and survival craft(s) alternatively the values of wind pressure may be taken from Table 1:

Table 1 — Alternative wind pressures

h (m)	1	2	3	4	5	6 and over
P (N/m^2)	316	386	429	460	485	504

where

h is the vertical distance from the centre of the projected vertical area of the floating platform and/or survival craft(s) above the waterline, to the waterline; and