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Small craft — Windows, portlights, hatches, deadlights and doors — Strength and watertightness requirements

Petits navires — Fenêtres, hublots, panneaux, tapes et portes — Exigences de résistance et d'étanchéité

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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.

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This document was prepared by Technical Committee ISO/TC 188, *Small craft*.

This second edition cancels and replaces the first edition (ISO 12216:2002), which has been technically revised.

The main changes compared to the previous edition are as follows:

— new definitions (Clause 3);

— change in watertightness requirements (4.3.1);

— change of size allowance for glazing in the hull in area I (6.3.1.1);

— change in the requirements for the use of glass in area IIa appliances (6.3.2);

— new requirements for flush deck hatches (6.3.3);

— new requirements for multihull break out panels (6.3.8);

— new definition and requirements for prefabricated appliances (6.3.9);

— new requirements for simply supported plates (7.2.9 and 7.2.10);

— new direct calculation method for laminated glass plates (7.3);

— new advanced calculation method for strength requirements on certain types of non glazed plates (7.4);

— new requirements for pressure test (D.2.1);

— new requirements for watertightness test (D.2.2);

— new requirement for mechanical links test (Clause D.3);

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— change to method of separation test (D.4.3);

— new precalculated plate thickness tables (Annex F).

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Small craft — Windows, portlights, hatches, deadlights and doors — Strength and watertightness requirements

1 Scope

This document specifies technical requirements and test methods for windows, portlights, hatches, deadlights and doors on small craft with a length of hull, L_H, as defined in ISO 8666:2016, of up to 24 m. It takes into account the type of craft, its design category, and the location of the appliance.

The appliances considered in this document are only those that are critical for the craft's watertightness.

Openings and non-opening devices fitted below area I (see 3.5.2) are excluded from the scope of this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 6603-1:2000, *Plastics — Determination of puncture impact behaviour of rigid plastics — Part 1: Non-instrumented impact testing*

ISO 11336-1:2012, *Large yachts — Strength, weathertightness and watertightness of glazed openings — Part 1: Design criteria, materials, framing and testing of independent glazed openings*

ISO 11812:2020, *Small craft — Watertight cockpits and quick-draining cockpits*

ISO 12217-1:2015, *Small craft — Stability and buoyancy assessment and categorization — Part 1: Non-sailing boats of hull length greater than or equal to 6 m*

ISO 12217-2:2015, *Small craft — Stability and buoyancy assessment and categorization — Part 2: Sailing boats of hull length greater than or equal to 6 m*

ISO 12217-3:2015, *Small craft — Stability and buoyancy assessment and categorization — Part 3: Boats of hull length less than 6 m*

EN 356:1999, *Glass in building — Security glazing — Testing and classification of resistance against manual attack*

EN 1063:1999, *Glass in building — Security glazing — Testing and classification of resistance against bullet attack*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

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3.1 General definitions of openings and their coverings

3.1.1
opening
cut-out in the shell of a craft such as in the hull or superstructures

Note 1 to entry: An opening is usually covered by a glazing or an appliance, that can be fixed or opening.

3.1.2
clear opening dimensions
dimensions of the area within a structure or frame, through which objects or people may pass when the incorporated plate is disregarded

3.2 Devices covering an opening

3.2.1
appliance
device made of a *plate* (3.3.1) and its associated framing, opening (hingeing) and fixture systems, when included, used to cover an opening in the hull, deck or superstructure of a boat; it can be fixed or openable (detachable, hinged, sliding, folding, etc.)

EXAMPLE *Windows* (3.4.1), *portlights* (3.4.2), *hatches* (3.4.3), *deadlights* (3.4.7), *doors* (3.4.6), *sliding appliances* (3.2.5), escape hatches.

3.2.2
fixed appliance
non opening *appliance* (3.2.1)

3.2.3
opening appliance
appliance (3.2.1) that can be opened

3.2.4
hinged appliance
opening appliance (3.2.3) that is connected to its framing by hinges

3.2.5
sliding appliance
opening appliance (3.2.3) which opens by sliding in line with its area, in any plane, where the plate either slides in a rabbet or a frame or is fixed in a sliding frame

3.2.6
composite appliance
system comprising *appliances* (3.2.1) [e.g. *portlights* (3.4.2)] situated within *plates* (3.3.1) that are themselves affixed to the vessel by direct bonding or mechanical fastening

3.3 Plate of an appliance

3.3.1
plate
sheet of material, transparent or not, that is attached to the boat structure either directly or indirectly, fixed or opening

3.3.2
stiffened plate
plate (3.3.1) with associated structural stiffeners

3.3.3
non-stiffened plate
plate (3.3.1) not equipped with associated structural stiffeners

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