SLOVENSKI STANDARD
oSIST prEN ISO 12216:2018

01-november-2018

Mala plovila - Okna, lopute, pokrovi in vrata - Zahteve za trdnost in odpornost proti vodi (ISO/DIS 12216:2018)

Small craft - Windows, portlights, hatches, deadlights and doors - Strength and watertightness requirements (ISO/DIS 12216:2018)

Kleine Wasserfahrzeuge - Fenster, Bullaugen, Luken, Seeschlagblenden und Türen - Anforderungen an die Festigkeit und Wasserdichtheit (ISO/DIS 12216:2018)

Petits navires - Fenêtres, hublots, panneaux, tapes et portes - Exigences de résistance et d'étanchéité (ISO/DIS 12216:2018)

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ICS:

47.080	Čolni	Small craft

oSIST prEN ISO 12216:2018 **en,fr,de**

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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

ICS: 47.080

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be Note d. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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:

— xxx xxxxxxx xxx xxxx

Introduction

Type text.

Identification of patent holders, if any.

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

1 Scope

This International Standard specifies technical requirements for windows, portlights, hatches, deadlights and doors on small craft of hull length up to 24 m, taking into account the type of craft, its design category, and the location of the appliance.

The appliances considered in this International Standard are only those that are critical for the craft's watertightness, i.e. those that could lead to flooding due to strength and/or watertightness,

Openings and non-opening devices fitted below Area I are excluded from the scope of this standard.

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 multiaxial impact behavior of rigid plastics — Part 1: Non-instrumented impact testing*

ISO 7823–1: —, *Poly(methyl methacrylate) sheets — Types, dimensions and characteristics — Part 1: Cast sheets*

ISO 8666 *Small craft — Principal data*

ISO 9094 *Small craft — Fire protection*

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

ISO 12215-5, *Small craft — Hull construction and scantlings — Part 5: Design pressures for monohulls, design stresses, scantlings determination*

ISO 12217 (all parts):2015, *Small craft — Stability and buoyancy assessment and categorization*

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*

EN ISO 15085 *Small Craft - Man overboard prevention and recovery*

3 Terms and definitions

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

3.1 General definitions of openings and their coverings

3.1.1
opening
cut-out in the shell of a craft e.g. hull, superstructures, etc.

NOTE to entry: An opening is usually covered by a glazing or an appliance, that may be fixed or opening.

3.1.2
opening clear dimensions
dimensions of an opening

3.2 Devices covering an opening

3.2.1
appliance
device made of a plate and its associated framing, opening and fixture systems, if relevant, used to cover an opening in the hull, deck or superstructure of a boat; it may be fixed or opening (detachable, hinged, sliding, folding, etc.)

EXAMPLE Windows, portlights, hatches, deadlights, doors, sliding appliances, escape hatches.

3.2.2
fixed appliance
Non opening appliance

3.2.3
opening appliance
appliance that can be opened

3.2.3.1
hinged appliance
opening appliance that is connected to its framing by hinges

3.2.3.2
sliding appliance
opening appliance which opens by sliding in line with its area, in any plan, where the plate either slides in a rabbet or a frame or is fixed in a sliding frame.

3.2.4
composite appliance
appliance system comprising closing appliances (portlights) situated within plates 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 equipped with stiffeners

3.3.3
non-stiffened plate
plate not equipped with stiffeners

3.3.4
unsupported dimensions of a plate
clear dimensions between the supports bearing the plate

NOTE 1 to entry: these dimensions may be different from the opening dimensions in the shell, because a plate can be fixed in a fixed or opening framing

NOTE 2 to entry: See annexes B and C.

3.3.5
glazing
plate that is transparent or translucent

3.4 Specific appliances

3.4.1
window
glazed appliance

3.4.2
portlight
specific window, closed or opening, generally located in the hull or transom below deck which, where openable is hinged and opens inwards

3.4.3
hatch
opening appliance, glazed or not glazed, used for access, lighting, inspection, ventilation, reach, located on any part of the shell.

3.4.4
fire escape hatch
hatch intended or dedicated to provide an exit for people and designated means of escape. See ISO 9094

3.4.5
multihull escape appliance
appliance allowing a viable means of escape in the event of inversion for multihulls vulnerable to inversion according to ISO 12217

Note 1 to entry: As this appliance is not normally totally immersed in the upright and inverted position, it is usually fitted below deck level on the hull side, nacelle or crossarm bottom, or transom.

3.4.6
Door
Closing appliance up to 45 degrees from the vertical intended to close a companionway opening

EXAMPLE Door open at sea, door not open at sea, hinged door, sliding door

3.4.7
deadlight
secondary watertight closure fitted to a opening window and which has to be fitted on the inside

3.4.8
Washboard
closing appliance for companionway opening made of several mobile boards that, when closed, are stacked one on top of each other

Note 1 to entry: This is a very frequent device on sailing monohulls.
Note 2 to entry: Boards are added as the weather worsens to constitute a higher sill.

3.5 Areas definition

3.5.1
appliance location area
area of the watertight envelope of the craft where the appliance is fitted.

Note 1 to entry: See annex A for sketches showing examples of appliance location areas.

3.5.2
area I: lower hull sides
part of the hull sides (and transom) situated above waterline, i.e. up the sheerline to its intersection with the weather deck (for decked craft), or the upper edge of the hull (for open craft or partially decked craft), but only to the following upper boundary:

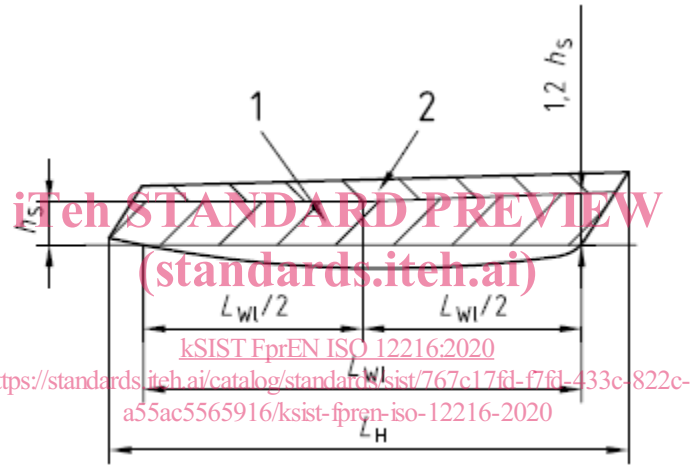
- a horizontal line located at the height h_S above waterline in the rear half of the waterline (see Figure 1);
- a sloped line having a height h_S at mid waterline, and a height $1{,}2h_S$ at the front end of the waterline, with
    - $h_S = LH/12$ for sailing monohulls,
    - $h_S = LH/17$ for motor boats, sailing catamarans and central hull of sailing trimarans.

Where h_S is limited as follows

Table 1 - Area 1 h_S Limits

Design category	h_S higher limit	h_S lower limit
A	No limit to formula	0,5 m
B	No limit to formula	0,4 m
C	0,75 m	0,3 m
D	0,40 m	0,2 m

Note 1 to entry: The outer hulls of sailing trimarans are considered to be entirely in Area I.



Key
1 Area I
2 Area II b

Figure 1 — Limits of Areas I and II b

3.5.3
Area II a:
area, other than Area I, where persons are liable to walk or step, such as decks, superstructures, cockpit soles, at an inclination of less than 25° to the horizontal in a longitudinal direction, and at an inclination of less than 50° to the horizontal in the transversal direction respectively for sailing monohulls, or 25° for multihulls.

3.5.4
area II b: Upper hull side
areas from the hull sides (and transom) not belonging to Area I.

Note 1 to entry: The following areas may be included if they correspond to the definition:

- transoms of all types of craft

- rear faces of transverse girders of multihulls when located above the waterline.

Note 2 to entry: Areas on which people may stand or step, even inadvertently, are part of Area II a.

EXAMPLE Top of sailboat coachroof on which one may stand or attend to sails.

Note 3 to entry: Superstructure areas on which people may not normally stand or step, are not part of Area II a, but Area III.

EXAMPLE Top of motorboat wheelhouse out of normal working deck areas.

3.5.5
area III: Deck and superstructures exposed areas
areas other than Area I or II

3.5.6
area IV: Deck and superstructure protected areas
parts of Area III protected from the direct impact of sea or slamming waves coming from front and side, and not located within LH/3 from the bow

EXAMPLE Cockpits, rear and side faces of superstructures.

Note 1 to entry: Areas other than the ones given in the example may be included in Area IV. The protection against impact from the sea shall be taken into account by the manufacturer.

3.6 Plate End-Connections

See annex B for sketches showing examples of types of plate end-connection.

3.6.1
semi-fixed plate
SF plate
plate fixed in a way to restrict deflection and prevent lateral movement at its boundaries

EXAMPLE Unframed or framed plate, if bolted and/or glued.

3.6.2
simply supported plate
SS plate
plate that can deflect at its boundaries and/or perform lateral movement

EXAMPLE Unframed plate, whether hinged or sliding, e.g. frameless sliding windows and hatches, including companionway sliding hatches, companionway ladderboards, frameless hinged windows.

3.6.3
flexibly connected plate
simply supported plate where the connection is achieved by an elastic support around the perimeter of the plate

Note 1 to entry: A car windscreen joint, shown in Figure B.3, is a flexibly connected plate where there is no overlap between the plate and its support, hence the plate may be pushed in the boat by the outside pressure.

3.7 Types of glass

3.7.1
annealed glass
sheet glass
glass as delivered directly from the fabrication cycle without subsequent treatment

Note 1 to entry: Usage of monolithic annealed glass is not allowed in this International Standard

3.7.2
thermally tempered glass
glass where better mechanical properties are obtained by thermal treatment

3.7.3
chemically reinforced glass
glass where better mechanical properties are obtained by chemical treatment

Note 1 to entry: Usage of monolithic chemically reinforced glass is not allowed in this International Standard

3.7.4
monolithic glass
glass consisting of one ply of glass

3.7.5
laminated glass
multi-layer sheet having glass as outer plies, where the inside plies are made of plastic inter-layers, plastic sheets, glass, or other glazing material

3.8 Watertightness

3.8.1
Watertightness of an appliance
capacity of an appliance or a fitting to prevent ingress of water inside the boat

3.8.2
degree of watertightness
capacity of an appliance or fitting to resist ingress of water, according to the conditions of exposure to water.