INTERNATIONAL STANDARD

ISO 11812

Second edition
2020-07

Small craft — Watertight or quick-draining recesses and cockpits

Petits navires — Cavités et cockpits étanches ou rapidement autovideurs

Reference number
ISO 11812:2020(E)

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Published in Switzerland

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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.

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 noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation of 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 WTO principles in the Technical Barriers to Trade (TBT), see Foreword - Supplementary information.

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

This second edition cancels and replaces the first edition (ISO 11812:2001), which has been technically revised.

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

— systematic usage of the general term "recess" instead of "cockpit";

— introduction of the concept of recess open to the sea and recess with reduced risk of flooding;

— clarification of requirements;

— clarification of requirements on engine ventilation openings installed in recesses;

— implementation of multi-bottom recesses or recesses with a foot-basin in the main core of the standard;

— deletion of "major head losses" (friction in drain pipes) as their effect was very small, but this made the calculation much more complex;

— improved data for "minor head losses" (local losses) to correspond to common practice;

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Small craft — Watertight or quick-draining recesses and cockpits

1 Scope

This document specifies watertightness, draining time and sill heights requirements for watertight and quick-draining recesses and cockpits in small craft of up to 24 m load line length (see Reference [1]).

Recesses located in elevated parts of the craft are covered by this document.

This document does not specify requirements for the size, the shape and the location of recesses or cockpits. It only considers draining by gravity, and not by pumping or other methods.

It only considers normal operation of the craft, but unattended craft recess issues are out of scope.

This document does not guarantee that the water contained in a watertight or quick-draining recess or cockpit will not affect the stability and buoyancy of the craft, which are covered by ISO 12217 (all parts):2015.

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 8666:2016[1)], *Small craft — Principal data*

ISO 9093-1:1994[1)], *Small craft — Seacocks and through-hull fittings — Part 1: Metallic*

ISO 9093-2:2002[1)], *Small craft — Seacocks and through-hull fittings — Part 2: Non-metallic*

ISO 12216:2020, *Small craft — Windows, portlights, hatches, deadlights and doors — Strength and watertightness requirements*

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*

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/

1) Under revision.

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3.1
design category
description of the sea and wind conditions for which a craft is assessed to be suitable

Note 1 to entry: The design categories are defined in ISO 12217 (all parts):2015.

Note 2 to entry: The definitions of design categories are in line with the European Recreational Craft Directive 2013/53/EU.

3.2
sailing craft
craft for which the primary means of propulsion is by wind power, having a reference sail area $A_S \geq 0{,}07(m_{LDC})^{2/3}$, expressed in metres squared, where m_{LDC} is the mass of the craft in the maximum load condition, expressed in kilograms

Note 1 to entry: The reference sail area, A_s, is defined in ISO 8666:2016.

3.3
non-sailing craft
craft for which the primary means of propulsion is other than by wind power, having a reference sail area $A_S < 0{,}07(m_{LDC})^{2/3}$, expressed in metres squared, where m_{LDC} is the mass of the craft in the maximum load condition, expressed in kilograms

Note 1 to entry: The reference sail area, A_s, is defined in ISO 8666:2016.

3.4
reference waterline
W_L
level of the water on the hull in the fully loaded, ready-for-use condition

Note 1 to entry: The fully loaded, ready-for-use condition is defined in ISO 8666:2016.

3.5
heeled waterline
level of the water on the hull in the fully loaded, ready-for-use condition when the craft is inclined to:

— an angle of 7° for non-sailing craft and multihulls; or

— the level of the sheer line amidships or an angle of 30°, whichever is lower, for monohull sailing craft

Note 1 to entry: The fully loaded, ready-for-use condition is defined in ISO 8666:2016.

3.6
recess
volume open to the air that can retain water within the range of loading conditions and corresponding trims

EXAMPLE Cockpits, wells, open volumes or areas bounded by bulwarks or coamings.

Note 1 to entry: Where fitted with closure device(s) according to ISO 12216:2020, cabins, shelters or lockers are not recesses.

Note 2 to entry: A recess can be composed of several recesses connected together.

Note 3 to entry: Cockpits that are open to the sea are considered as recesses. Flush decks without bulwarks or coamings are not recesses.

3.7
cockpit
recess (3.6) intended for the accommodation of people

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3.8
watertight recess
recess (3.6) that satisfies the watertightness and *sill* (3.24) height requirements of this document, but not the drainage requirements

3.9
quick-draining recess
recess (3.6) with characteristics and draining capacity that satisfy all the requirements of this document for one or several design categories

Note 1 to entry: According to its characteristics, a recess can be considered as quick-draining for one design category, but not for a higher category.

Note 2 to entry: The term "quick-draining" has been chosen to differentiate from the common understanding term "self-draining", where water can be drained overboard in certain conditions, but without a specified draining speed, height of bottom or sill, etc.

3.10
recess open to the sea
recess (3.6) where the aft and/or side boundaries are open to the outside of the craft, with a *recess retention height* (3.21) equal to zero

Note 1 to entry: Figure C.1 c) gives an example of a recess open to the sea.

3.11
recess bottom
lowest surface of the *recess* (3.6), where water collects before being drained

Note 1 to entry: The recess bottom can have several levels.

3.12
recess bottom height
H_B
height of the *recess bottom* (3.11) above the waterline, the craft being upright, at rest and fully loaded

3.13
minimum recess bottom height
$H_{B\,min}$
minimum value of *the recess bottom height* (3.12) required by this document

3.14
single-bottom recess
recess (3.6) where the bottom has only one level

Note 1 to entry: A single-bottom recess fitted with a *foot basin* (3.31) is considered as a *multi-bottom recess* (3.15).

3.15
multi-bottom recess
recess (3.6) where the bottom has more than one level

3.16
bridge deck
area in the proximity of the *companionway* (3.23) opening and above the *recess bottom* (3.11), on which people normally step before entering the accommodation

3.17
interior
inside the craft's watertight envelope

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3.18
watertightness degree
degree of watertightness
capacity of an *appliance* (3.20) or fitting to resist ingress of water, according to the conditions of exposure to water

Note 1 to entry: See Table 1 for a definition of the four watertightness degrees.

Table 1 — Definitions of the degrees of watertightness

Degree of watertightness:	Definition
1 (waterproof)	Constructed to withstand continuous immersion Provides protection against the effects of continuous immersion in water
2 (watertight)	Constructed to prevent ingress of water Provides protection against the effects of temporary immersion in water
3 (weathertight)	Constructed to minimize seepage Provides protection against splashing water
4 (spraytight)	Provides protection against waterdrops falling at an angle of up to 15° from the vertical
NOTE Test procedures for watertightness degrees are provided in ISO 12216:2020.	

3.19
downflooding opening
opening in the hull or deck (including the edge of a recess) that might admit water into the interior or bilge of a craft, or into a recess

Note 1 to entry: Those excluded by ISO 12217 (all parts):2015 are not considered in this document.

3.20
appliance
device used to cover an opening in the hull, deck or superstructure of a craft

EXAMPLE Windows, portlights, hatches, deadlights, doors, sliding appliances, escape hatches, washboard, compass, ventilation grids, loudspeakers, engine control panel, etc.

Note 1 to entry: They can be fixed appliances or opening appliances.

3.21
recess retention height
h_C
height of water in a *recess* (3.6), when the craft is upright and at design trim assuming that all gates, doors or drainage openings are sealed, at which the overflow area is greater than 0,005 $L_H B_H$ (m^2)

Note 1 to entry: The design trim is in maximum load condition as defined in ISO 8666:2016.

Note 2 to entry: When h_c is less than 0,10 m, it is taken as equal to 0,0 m.

3.22
drain
outlet of the *recess* (3.6) enabling water contained to be discharged overboard by gravity

EXAMPLE A pipe discharging overboard above or below waterline; a part of the recess allowing direct discharge overboard; scuppers and freeing port.

3.23
companionway
opening intended for crew access to the accommodation and fitted with an opening *appliance* (3.20)

Note 1 to entry: The opening appliance can be a door, a hatch; vertical, horizontal, etc.

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Note 2 to entry: There can be several companionways.

3.24
sill
barrier above which water in the *recess* (3.6) can enter *companionway* (3.23) openings and downflood the craft

EXAMPLE Hatches of cockpit companionways.

3.25
fixed sill
sill (3.24) that is a fixed, integral and permanent part of the *recess* (3.6)

3.26
semi-fixed sill
opening *appliance* (3.20), movable but permanently installed on the craft that, when in place, constitutes a *sill* (3.24) higher than the fixed part of the sill

EXAMPLE Hatches, sliding sills, but excluding washboards.

Note 1 to entry: A lanyard is not regarded as a permanent attachment.

Note 2 to entry: Sliding or hinged doors are considered as a mobile part of a semi-fixed sill.

3.27
washboard
opening *appliance* (3.20) for *companionway* (3.23) openings made of several mobile boards sliding in a rabbet that, when closed, are stacked one on top of each other, and located above the *minimum sill height* (3.29)

Note 1 to entry: This is a frequent device on sailing monohulls; boards are added as the weather worsens.

3.28
sill height
h_S
minimum vertical distance from the top of the *sill* (3.24) to the closest part of the *recess* (3.6) bottom

Note 1 to entry: See Figure 1.

3.29
minimum sill height
$h_{S\,min}$
minimum value of the *sill height* (3.28) required by this document

3.30
recess volume
V_C
volume of water that can be contained in a *recess* (3.6) before discharge

Note 1 to entry: It is the maximum volume, considering any combination of movable coamings, etc., measured from the *recess bottom* (3.11) up to the *recess retention height* (3.21), assuming that all opening *appliances* (3.20) and *drains* (3.22) are closed.

3.31
foot basin
specific *recess* (3.6) that satisfies the requirements of 10.3 of this document, located between a recess and a *companionway* (3.23) opening, and having a lower bottom than the surrounding recess

4 Symbols

Table 2 gives the main symbols used in this document, with their meaning and unit.

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