



**International  
Standard**

**ISO 11812**

**Small craft — Watertight or quick-  
draining recesses and cockpits**

**AMENDMENT 1**

*Petits navires — Cavités et cockpits étanches ou rapidement  
autovideurs*

*AMENDEMENT 1*

**Second edition  
2020-07**

**AMENDMENT 1  
2024-08**

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This document was prepared by Technical Committee ISO/TC 188, *Small craft*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 464, *Small Craft*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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# Small craft — Watertight or quick-draining recesses and cockpits

## AMENDMENT 1

### Foreword

Replace “The main changes compared to the previous edition are as follows:” with “The main changes are as follows (see also Annex D):”.

### Clause 1

Replace last sentence by the following:

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 12217-1, ISO 12217-2 and ISO 12217-3.

### Clause 2

Replace the seven references by the following:

ISO 8666, *Small craft — Principal data*

ISO 9093, *Small craft — Seacocks and through-hull fittings*

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

ISO 12217-1, *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, *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, *Small craft — Stability and buoyancy assessment and categorization — Part 3: Boats of hull length less than 6 m*

### 3.1

Replace Note 1 to entry by the following:

Note 1 to entry: The design categories are defined in ISO 12217-1, ISO 12217-2 and ISO 12217-3.

3.2

Replace Note 1 to entry by the following:

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

3.3

Replace Note 1 to entry by the following:

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

3.4

Replace Note 1 to entry by the following:

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

3.5

Replace Note 1 to entry by the following:

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

3.6

Replace Note 1 to entry by the following:

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

3.10

Replace the terminological entry by the following:

**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 so to not retain water in the recess, with:

- a *recess retention height* (3.21) equal to zero; or
- a draining section area of the recess greater than or equal to  $[0,05 V_C]$ , where  $V_C$  is the recess volume (3.30)

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

3.18, Table 1, footer

Replace the note by the following:

NOTE Test procedures for watertightness degrees are provided in ISO 12216.

3.19

Replace Note 1 to entry by the following:

Note 1 to entry: Those excluded by ISO 12217-1, ISO 12217-2 and ISO 12217-3 are not considered in this document.

3.21

Replace the terminological entry by the following:

**3.21  
recess retention height**

$h_C$   
height of a horizontal plane, measured from the recess bottom, below which the sum of open areas leading to the outside of the craft is greater than  $A_C/(L_H B_H)$ , where  $A_C$  is the area of the recess bottom, with all closing appliances closed when measuring the sum of these open areas

Note 1 to entry: Drains smaller than 25 mm in diameter or equal area are not part of this sum.

*Clause 4, Table 2*

Replace the content of the cell in line two, row two by the following:

Beam of hull as defined by ISO 8666

Replace the content of the cell in line three, row two by the following:

Freeboard amidships as defined by ISO 8666

Replace the content of the cell in line ten, row two by the following:

Length of hull as defined by ISO 8666

5.1

Replace the first list item by the following:

- the craft is in fully loaded, ready-for-use condition as defined in ISO 8666;

*5.2, Table 3, last row*

Replace the four references ISO 12216:2020 by ISO 12216.

*6.2, Table 4, NOTE 2*

Replace the note by the following:

NOTE 2 Additional requirements can be specified in other International Standards, such as ISO 12217-1, ISO 12217-2 and ISO 12217-3.

7.2

Replace the first two list items by the following:

- the craft is of a fully enclosed type in accordance with ISO 12217-1, ISO 12217-2 or ISO 12217-3;
- the recess is open to the sea, as specified in 3.10;

7.3

Delete the first paragraph and insert its content as a note after the second paragraph:

NOTE The sill height is the lowest height of the companionway, as specified in 3.28.

7.4

Replace the first two paragraphs by the following:

The minimum companionway sill height for quick draining recesses shall comply with Table 5. These requirements shall not apply to quick-draining recesses with a reduced risk of flooding.

7.4, Table 5

Replace the text above the table by the following:

Dimensions in metres

Replace the note in the table by the following:

NOTE The above requirements can be covered by other International Standards such as ISO 12217-1, ISO 12217-2 and ISO 12217-3.

Clause 8

Replace the three paragraphs by the following:

For quick-draining recesses, the minimum recess bottom height,  $H_{B \text{ min}}$ , above reference waterline, shall comply with Table 6.

For a single-bottom recess,  $H_B$  shall be measured at the centre of the surface of the bottom.

For a multi-bottom recess,  $H_B$  shall be measured at the centre of the surface of the lowest bottom.

Clause 8, Table 6

Replace the note in the table by the following:

NOTE Greater heights than these minimum values can be required to fulfil the maximum acceptable draining time in accordance with Clauses 9 and 10.

9.2.1

Replace the text of the subclause by the following:

The simplified drainage assessment method of 9.3.2 shall be used if the following conditions are fulfilled:

- the minimum passage dimension inside any part of these devices has at least a section of  $125 \text{ mm}^2$  (or a diameter of 12 mm);
- the total entry cross-section is at least 1,5 times the internal cross-section of the drain.

Otherwise the drainage assessment shall be performed in accordance with the full calculation method of Annex A or a test method.

To be used as drains, centreboard housings and other types of apertures, where fitted, shall comply with the following conditions:

- they are designed for this purpose;
- they fulfil the other relevant requirements of Clause 9.

9.2.3, last paragraph

Replace the last paragraph by the following:

Seacocks, through-hull fittings, and associated components shall comply with ISO 9093.

9.3.1

Replace the first paragraph by the following:

The drainage calculation principle of this document for quick-draining recesses shall be based on a maximum draining time approach.

Replace the third paragraph (below the note) by the following:

The draining time shall be the time elapsed to empty the recess between the retention height,  $h_C$ , and 0,1 m of the remaining water height.

Replace the second list item of the fifth paragraph by the following:

- a full calculation method, as defined in Annex A, which gives more accurate results;

Replace last paragraph by the following:

If the draining section of the recess is greater than or equal to  $0,05 V_C$ , this recess shall not require a draining time assessment.

9.3.2

Replace the first paragraph by the following:

The following calculation method shall apply to single level bottom recesses.

10.1

Insert the following paragraphs at the end of subclause 10.1:

Where a foot basin is replaced by a horizontal opening, the requirements of 10.3 shall apply instead of Clause 9.

In a multi-bottom recess, where the recess bottom level adjacent to the companionway is not the highest recess bottom level, the requirements of the draining calculations shall follow 10.3.2.

10.2

Replace the text of the subclause by the following:

**10.2.1 Draining calculation requirements**

To calculate the draining time of multi-bottom recess, the following step-by-step method shall apply:

- Step 1: Calculate the total volume,  $V_C$ , of the multi-bottom recess.
- Step 2: Calculate  $t_{max}$  related to  $V_C$  using Formula (1).
- Step 3: Calculate the time  $t_{ref1}$  to drain the volume  $V_1$  from  $h_C$  to the highest bottom level.
- Step 4: Define the sub-volumes  $V_n$  to drain for each remaining drainage system.
- Step 5: Calculate the draining times  $t_{refn}$  of each sub-volume  $V_n$  (see the method and relevant formulae in Clause A.3).

Where one of these sub-volumes  $V_n$  is open to the sea, no drainage calculation is required and  $t_{refn} = 0$ .

- Step 6: Calculate the sum of  $t_{refn}$ ; considering multiple sub-volumes draining at the same time, the longest draining time obtained shall be used in the draining time sum.

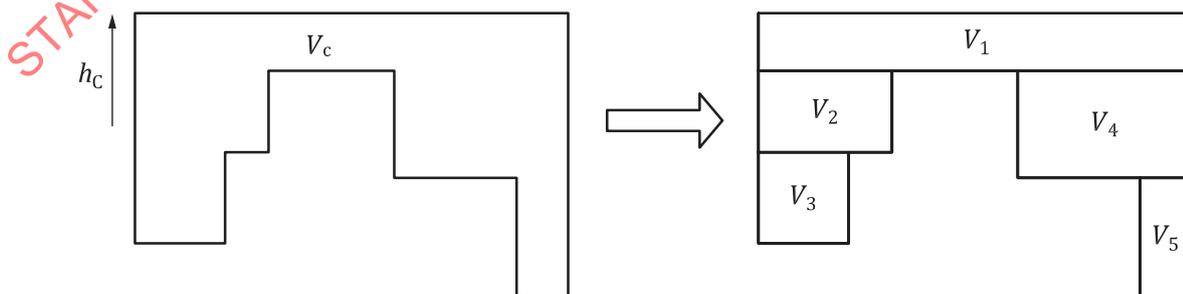
The maximum time elapsed to empty a multi-bottom recess from the retention height  $h_C$  to a level of 0,1 m of remaining water height shall be less than  $t_{max}$  calculated in step 2 of this process.

The remaining water height shall be calculated in the last sub-volume to drain.

**10.2.2 Example of draining calculation application**

Figure 3 provides an example of assessment for a multi-bottom level recess arrangement, where:

- a) the volume  $V_C$  is split into sub-volumes  $V_1, V_2, V_3, V_4$  and  $V_5$  according to the respective bottom levels;
- b)  $t_{ref1}, t_{ref2}, t_{ref3}, t_{ref4}$ , and  $t_{ref5}$  are the draining time of the respective sub-volumes  $V_1, V_2, V_3, V_4$  and  $V_5$ ;
- c) the longest draining time sum from  $(t_{ref1}+t_{ref2}+t_{ref3})$  or  $(t_{ref1}+t_{ref4}+t_{ref5})$  shall be less than  $t_{max}$ .



**Figure 3 — Side view example of multi-bottom recess arrangement assessment**

10.3

Replace the text of the subclause by the following:

**10.3.1 General requirements for a foot basin**

If a foot basin is used to reduce the sill height relative to the recess bottom, the requirement of this subclause shall apply to minimizing ingress of water by ensuring it drains quickly before reaching the top of the sill.

In addition to the requirements of 10.1 and 10.2, as a specific recess of a multi-bottom recess, a foot basin shall conform to the requirements of Table 9.

As an exception for multihulls, sill height requirements do not apply where the foot basin is replaced by a horizontal opening which shall:

- comply with Table 9 for minimum width, length, location and grating permeability, companionway door requirements;
- give way directly to the open sea with a minimum section of 80 % of the total required area of the grating;
- be designed to prevent ingress of water from the sea.

**Table 9 — Requirements for a foot basin**

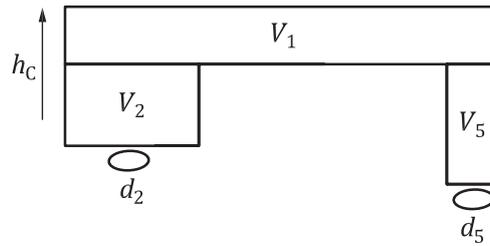
Characteristics of the foot basin <sup>a</sup>	Requirements
Minimum width ( $W_m$ )	$\geq 90$ % of the maximum width of companionway opening
Minimum length <sup>b</sup>	The length of the upper part of the foot basin (normal to the companionway width) shall be between $2 \times h_{S \text{ min}}$ and $4 \times h_{S \text{ min}}$
Minimum depth <sup>c</sup>	The depth (below upper level of the adjacent recess bottom) shall not be less than $1 \times h_{S \text{ min}}$
Minimum volume <sup>d</sup>	The volume below the sill shall be at least $(3h_{S \text{ min}})^2 \times W_m$
Location	Immediately in way of companionway opening(s), see Figure 4
Grating permeability	The grating permeability shall be equally spread on the total area of the grating, $\geq 25$ %
Sill height measurement	The sill height shall be measured from the bottom of the foot basin
Companionway door	Companionway opening appliance(s) shall be permanently installed, enabling immediate closure
<sup>a</sup> If the total drainage area is $> 25$ % of the foot basin bottom area, a device protecting water surging from below shall be provided. <sup>b</sup> This requirement prevents the water rebounding on the grating and flooding inside the interior. A foot basin with a length greater than $4 \times h_{S \text{ min}}$ is no longer considered as a foot basin but as a recess. <sup>c</sup> The length and the width of the foot basin is measured at the minimum depth required $h_{S \text{ min}}$ . <sup>d</sup> To calculate the volume of the foot basin, the depth used is the lowest of the actual depth and the actual sill height.	

**10.3.2 Drainage requirements for a foot basin**

Figure 4 shows a side view example of a multi-bottom recess with foot basin in order to illustrate the way to handle draining time calculations.

The drainage calculations shall be in accordance with 10.2.

In addition to these calculations, another draining time calculation shall be made according to  $t_{\text{max}}$  values from Table 10 for  $V_5$  draining time calculations.



**Key**

- $V_1$  volume of the main level in a multiple bottom recess
- $V_2$  sub-volume of a multiple bottom recess
- $V_5$  foot basin volume in front of companionway door
- $h_c$  retention height
- $d_2$  main recess drain of a multiple bottom recess
- $d_5$  foot basin drain

**Figure 4 — Side view example of multi-bottom recess arrangement with foot basin**

If the total drainage area is > 25 % of the foot basin bottom area, the foot basin bottom shall be designed to prevent water surging from below.

The maximum draining time shall comply with the requirements specified in Table 10, assessed for drainage until 0,10 m remaining height of water on its bottom.

**Table 10 — Drainage of a foot basin fitted in multiple-bottom recess**

Recess type	Maximum foot basin draining time
Multi-bottom recess open to the sea	0,05 $t_{max}$
Multi-bottom recess not open to the sea	0,1 $t_{max}$

*Clause A.1*

Replace the text by the following:

NOTE An explanation of the source of the formulae in this annex can be found in Annex B.

*Clause A.3*

Replace the first paragraph by the following:

The process in 10.2 shall be followed for this assessment.

Replace the third paragraph “CAUTION” by the following:

$h_c$  shall be considered as the total height from lower-level bottom to top of water retention height in the upper level, and not the water retention in the upper sub-recess ( $h_c-h_j$ ). See Figure A.2.

*Clause A.4*

Replace the first paragraph by the following:

Where several drains have different diameters, Annex B shall be used to assess draining time with different water flows in each drain.