

This is a preview of "ISO 12217-1:2015". [Click here to purchase the full version from the ANSI store.](#)

Third edition  
2015-10-15

---

---

## **Small craft — Stability and buoyancy assessment and categorization —**

### **Part 1: Non-sailing boats of hull length greater than or equal to 6 m**

*Petits navires — Évaluation et catégorisation de la stabilité et de la flottabilité —*

*Partie 1: Bateaux à propulsion non vélique d'une longueur de coque supérieure ou égale à 6 m*



Reference number  
ISO 12217-1:2015(E)

© ISO 2015



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org

This is a preview of "ISO 12217-1:2015". [Click here to purchase the full version from the ANSI store.](#)

## Contents

	Page
<b>Foreword</b> .....	<b>v</b>
<b>Introduction</b> .....	<b>vii</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>2</b>
<b>3 Terms and definitions</b> .....	<b>2</b>
3.1 Primary .....	2
3.2 Downflooding .....	4
3.3 Dimensions, areas and angles .....	5
3.4 Condition, mass and volume .....	7
3.5 Other terms and definitions .....	9
<b>4 Symbols</b> .....	<b>12</b>
<b>5 Procedure</b> .....	<b>13</b>
5.1 Maximum load .....	13
5.2 Sailing or non-sailing .....	13
5.3 Tests and calculations to be applied .....	14
5.4 Variation in input parameters .....	15
<b>6 Tests, calculations and requirements</b> .....	<b>15</b>
6.1 Downflooding .....	15
6.1.1 Downflooding openings .....	15
6.1.2 Downflooding height .....	17
6.1.3 Downflooding angle .....	20
6.2 Offset-load test .....	20
6.2.1 Objective .....	20
6.2.2 Test .....	21
6.2.3 Requirements .....	21
6.3 Resistance to waves and wind .....	21
6.3.1 General .....	21
6.3.2 Rolling in beam waves and wind .....	21
6.3.3 Resistance to waves .....	22
6.4 Heel due to wind action .....	23
6.4.1 General .....	23
6.4.2 Calculation .....	23
6.4.3 Requirement .....	24
6.5 Recess size .....	24
6.5.1 Application .....	24
6.5.2 Simplified methods .....	25
6.5.3 Direct calculation method .....	26
6.5.4 Design category C boats using option 6 .....	27
6.6 Habitable multihull boats .....	27
6.7 Motor sailers .....	27
6.7.1 General .....	27
6.7.2 Requirement .....	28
6.8 Flotation requirements .....	28
6.9 Detection and removal of water .....	28
<b>7 Application</b> .....	<b>29</b>
7.1 Deciding the design category .....	29
7.2 Meaning of the design categories .....	29
<b>Annex A (normative) Full method for required downflooding height</b> .....	<b>31</b>
<b>Annex B (normative) Method for offset-load test</b> .....	<b>33</b>
<b>Annex C (normative) Methods for calculating downflooding angle</b> .....	<b>41</b>

This is a preview of "ISO 12217-1:2015". [Click here to purchase the full version from the ANSI store.](#)

<b>Annex D</b> (normative) <b>Method for measuring freeboard margin</b> .....	<b>43</b>
<b>Annex E</b> (normative) <b>Determining the curve of righting moments</b> .....	<b>45</b>
<b>Annex F</b> (normative) <b>Method for level flotation test</b> .....	<b>48</b>
<b>Annex G</b> (normative) <b>Flotation material and elements</b> .....	<b>53</b>
<b>Annex H</b> (normative) <b>Information for owner's manual</b> .....	<b>55</b>
<b>Annex I</b> (informative) <b>Summary of requirements</b> .....	<b>57</b>
<b>Annex J</b> (informative) <b>Worksheets</b> .....	<b>58</b>
<b>Annex K</b> (informative) <b>Illustration of recess retention level</b> .....	<b>75</b>
<b>Bibliography</b> .....	<b>76</b>

This is a preview of "ISO 12217-1:2015". [Click here to purchase the full version from the ANSI store.](#)

## 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](http://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](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on 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 the following URL: [Foreword - Supplementary information](#).

The committee responsible for this document is ISO/TC 188, *Small craft*.

This third edition cancels and replaces the second edition (ISO 12217-1:2013), of which it constitutes a minor revision. It incorporates the following modifications:

- Introduction: the reference to the European Directive has been updated (2013/53/EU);
- [Clause 1](#), [6.1.1.6](#) letter d) 3), [6.6](#) and Worksheet 9 of [Annex J](#): “vulnerable” has been replaced with “susceptible”;
- [Clause 2](#): ISO 6185-4:2011 has been added;
- [Clause 3](#): entries [3.1.1](#), [3.4.3](#), [3.4.5](#), [3.4.6](#) and [3.5.9](#) have been amended;
- [Subclause 6.1.2.2](#), letter c): option 6 has been included;
- [Subclauses 6.3.2](#) and [6.4.1](#): the formulae have been harmonised;
- [Subclauses 6.5.2.3](#) and [6.5.2.4](#): formulae coefficients have been corrected;
- [Subclause 7.2](#): the text and Table 6 have been amended;
- [Clause F.4](#): [Table F.5](#) has been amended, [subclause F.4.4](#) has been added;
- [Annex J](#): worksheets 1, 2, 3, 6, 7, 8, 9, 10 and 12 have been corrected to align with corrections listed above;
- [Annex K](#) has been added;
- Bibliography: reference to ISO 7010 has been added;
- Editorial and cross-referencing corrections have been made to [Table 2](#), [subclauses 6.5.1](#), [6.5.2.2](#) and [6.5.2.3](#), and worksheets 4 and 8 of [Annex J](#).

## ISO 12217-1:2015(E)

This is a preview of "ISO 12217-1:2015". [Click here to purchase the full version from the ANSI store.](#)

ISO 12217 consists of the following parts, under the general title *Small craft — Stability and buoyancy assessment and categorization*:

- *Part 1: Non-sailing boats of hull length greater than or equal to 6 m*
- *Part 2: Sailing boats of hull length greater than or equal to 6 m*
- *Part 3: Boats of hull length less than 6 m*

This is a preview of "ISO 12217-1:2015". [Click here to purchase the full version from the ANSI store.](#)

## Introduction

This part of ISO 12217 enables the determination of the limiting environmental conditions for which an individual boat has been designed.

It enables the boat to be assigned to a design category appropriate to its design and maximum load. The design categories used align with those in the Recreational Craft Directive of the European Union, EU Directive 2013/53/EU.

The design category given in respect of stability and buoyancy is that for which the boat satisfies all the requirements according to [5.3](#), as summarized in [Annex I](#).