



SLOVENSKI STANDARD
SIST EN ISO 12217-1:2002
01-december-2002

AUUd`cj]UE`GHUJ]bcgh]b`cWbUj n[cbUHyf`_UH[cf]nUW]UE`%`XY.` c`b]fUHyb
UXfb]Wg`lfi dca žjY 1ja `U]YbU_ja `* `a `fIGC`%&&+!%&\$&L

Small craft - Stability and buoyancy assessment and categorization - Part 1: Non-sailing boats of hull length greater than or equal to 6 m (ISO 12217-1:2002)

Kleine Wasserfahrzeuge - Festlegung und Kategorisierung von Querstabilität und Auftrieb - Teil 1: Nicht-Segelboote ab 6 m Rumpflänge (ISO 12217-1:2002)

iTeh STANDARD PREVIEW

Petits navires - Evaluation et catégorisation de la stabilité et de la flottabilité - Partie 1: Bateaux a propulsion non vélique d'une longueur de coque supérieure ou égale a 6 m (ISO 12217-1:2002)

[SIST EN ISO 12217-1:2002](https://standards.iteh.ai/catalog/standards/sist/b6312673-ccc4-4a04-ba0f-3f5b299debc2/sist-en-iso-12217-1-2002)

[https://standards.iteh.ai/catalog/standards/sist/b6312673-ccc4-4a04-ba0f-](https://standards.iteh.ai/catalog/standards/sist/b6312673-ccc4-4a04-ba0f-3f5b299debc2/sist-en-iso-12217-1-2002)

[3f5b299debc2/sist-en-iso-12217-1-2002](https://standards.iteh.ai/catalog/standards/sist/b6312673-ccc4-4a04-ba0f-3f5b299debc2/sist-en-iso-12217-1-2002)

Ta slovenski standard je istoveten z: EN ISO 12217-1:2002

ICS:

47.080

SIST EN ISO 12217-1:2002

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 12217-1:2002

<https://standards.iteh.ai/catalog/standards/sist/b6312673-cee4-4a04-ba0f-3f5b299debc2/sist-en-iso-12217-1-2002>

ICS 47.080

English version

Small craft - Stability and buoyancy assessment and categorization - Part 1: Non-sailing boats of hull length greater than or equal to 6 m (ISO 12217-1:2002)

Petits navires - Evaluation 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 (ISO 12217-1:2002)

Kleine Wasserfahrzeuge - Festlegung und Kategorisierung von Querstabilität und Auftrieb - Teil 1: Nicht-Segelboote ab 6 m Rumpflänge (ISO 12217-1:2002)

This European Standard was approved by CEN on 11 March 2002.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

CORRECTED 2002-07-17

Foreword

This document (ISO 12217-1:2002) has been prepared by Technical Committee ISO/TC 188 "Small craft" in collaboration with CMC.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2002, and conflicting national standards shall be withdrawn at the latest by October 2002.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative annex ZB, which is an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

[SIST EN ISO 12217-1:2002](https://standards.iteh.ai/catalog/standards/sist/b6312673-ccc4-4a04-ba0f-3f5b299debc2/sist-en-iso-12217-1-2002)

<https://standards.iteh.ai/catalog/standards/sist/b6312673-ccc4-4a04-ba0f-3f5b299debc2/sist-en-iso-12217-1-2002>

Endorsement notice

The text of the International Standard ISO 12217-1:2002 has been approved by CEN as a European Standard without any modifications.

NOTE Normative references to International Standards are listed in annex ZA (normative).

Annex ZA (normative)

Normative references to international publications with their relevant European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE Where an International Publication has been modified by common modifications, indicated by (mod.), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN</u>	<u>Year</u>
ISO 9093-1	1994	Small craft - Seacocks and through-hull fittings - Part 1: Metallic	EN ISO 9093-1	1997
ISO 10240	1995	Small craft - Owner's manual	EN ISO 10240	1996
ISO 11812	2001	Small craft - Watertight cockpits and quick-draining cockpits	EN ISO 11812	2001
ISO 14946	2001	Small craft - Maximum load capacity	EN ISO 14946	2001

SIST EN ISO 12217-1:2002

<https://standards.iteh.ai/catalog/standards/sist/b6312673-ccc4-4a04-ba0f-3f5b299debc2/sist-en-iso-12217-1-2002>

Annex ZB (informative)

Clauses of this European Standard addressing essential requirements or other provisions of EU Directives

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association and supports essential requirements of EU Directive 94/25/EC.

WARNING: Other requirements and other EU Directive may be applicable to the product(s) falling within the scope of this standard.

The following clauses of this standard, as detailed in Table ZB.1, are likely to support requirements of Directive 94/25/EC.

Compliance with the clauses of this standard provides one means of conforming with the specific essential requirements of the Directive concerned and associated EFTA regulations.

Table ZB.1: Correspondence between this European Standard and EU Directives

Clauses/sub-clauses of this European Standard	Corresponding annexes/ paragraphs of Directive 94/25/EC	Comments
5, 6.1, 6.2, 6.3, 6.4, Annex A, B, C, D	Annex I, Clause 3.2, Stability and Freeboard, Clause 3.5, Flooding, and Clauses 3.6 and 3.2, maximum load and number of persons	Design categories A, B, C and D defined in the standard are considered to correspond to design categories A, B, C and D of the Directive
6.5, Annex E, F	Annex I, Clause 3.3, Buoyancy and flotation	
Annex H	Annex I, Clause 2.5, Owner's manual	

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

Part 1:

**Non-sailing boats of hull length greater
than or equal to 6 m**

iTeh STANDARD PREVIEW

*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*

<https://standards.iteh.ai/catalog/standards/sist/b6312673-cee4-4a04-ba0f-3f5b299debc2/sist-en-iso-12217-1-2002>



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 12217-1:2002](https://standards.iteh.ai/catalog/standards/sist/b6312673-cee4-4a04-ba0f-3f5b299debc2/sist-en-iso-12217-1-2002)

<https://standards.iteh.ai/catalog/standards/sist/b6312673-cee4-4a04-ba0f-3f5b299debc2/sist-en-iso-12217-1-2002>

© ISO 2002

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.ch
Web www.iso.ch

Printed in Switzerland

Contents

	Page
Foreword.....	iv
Introduction.....	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
3.1 Primary.....	2
3.2 Downflooding.....	3
3.3 Dimensions, areas and angles	4
3.4 Condition, mass and volume.....	5
3.5 Other terms and definitions.....	6
4 Symbols	8
5 Procedure	8
5.1 Maximum total load.....	8
5.2 Sailing or non-sailing	8
5.3 Tests and calculations to be applied.....	8
6 Tests, calculations and requirements.....	10
6.1 Downflooding.....	10
6.2 Offset-load test	14
6.3 Resistance to waves and wind (design categories A and B only)	15
6.4 Heel due to wind action (design categories C and D only).....	16
6.5 Flotation requirements.....	17
7 Application	17
7.1 Deciding the design category	17
7.2 Meaning of the design categories (see Table 5)	17
Annex A (normative) Full method for required downflooding height	18
Annex B (normative) Method for offset-load test	20
Annex C (normative) Methods for calculating downflooding angle	24
Annex D (normative) Determining the curve of righting moments.....	26
Annex E (normative) Method for level flotation test.....	28
Annex F (normative) Flotation material and elements	32
Annex G (normative) Information for owner's manual.....	34
Annex H (informative) Summary of requirements	35
Annex I (informative) Worksheets	36
Bibliography.....	47

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 12217 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 12217-1 was prepared by Technical Committee ISO/TC 188, *Small craft*.

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

Annexes A, B, C, D, E, F and G form a normative part of this part of ISO 12217. Annexes H and I are for information only.

Introduction

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

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN ISO 12217-1:2002](https://standards.iteh.ai/catalog/standards/sist/b6312673-cee4-4a04-ba0f-3f5b299debc2/sist-en-iso-12217-1-2002)

<https://standards.iteh.ai/catalog/standards/sist/b6312673-cee4-4a04-ba0f-3f5b299debc2/sist-en-iso-12217-1-2002>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 12217-1:2002

<https://standards.iteh.ai/catalog/standards/sist/b6312673-cee4-4a04-ba0f-3f5b299debc2/sist-en-iso-12217-1-2002>

Small craft — Stability and buoyancy assessment and categorization —

Part 1:

Non-sailing boats of hull length greater than or equal to 6 m

CAUTION — Compliance with this part of ISO 12217 does not guarantee total safety or total freedom of risk from capsizing or sinking.

1 Scope

This part of ISO 12217 specifies methods for evaluating the stability and buoyancy of intact (i.e. undamaged) boats. The flotation characteristics of boats vulnerable to swamping are also encompassed.

The evaluation of stability and buoyancy properties using this part of ISO 12217 will enable the boat to be assigned to a design category (A, B, C or D) appropriate to its design and maximum total load.

This part of ISO 12217 is principally applicable to boats propelled by human or mechanical power of 6 m up to and including 24 m hull length. However, it may also be applied to boats of under 6 m if they do not attain the desired design category specified in ISO 12217-3 and they are decked and have quick-draining recesses which comply with ISO 11812.

This part of ISO 12217 excludes

- inflatable and rigid-inflatable boats up to 8 m covered by ISO 6185,
- canoes, kayaks or other boats with a beam of less than 1,1 m,
- hydrofoils and hovercraft when operating in the dynamically supported mode, and
- submersibles.

It does not include or evaluate the effects on stability of towing, fishing, dredging or lifting operations, which should be separately considered if appropriate.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 12217. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 12217 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 2896:2001, *Rigid cellular plastics — Determination of water absorption*

ISO 12217-1:2002(E)

ISO 8666:—¹⁾, *Small craft — Principal data*

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

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

ISO 9094-1: —¹⁾, *Small craft — Fire protection — Part 1: Craft with a hull length of up to and including 15 m*

ISO 9094-2:—¹⁾, *Small craft — Fire protection — Part 2: Craft with a hull length of over 15 m*

ISO 10240:1995²⁾, *Small craft — Owner's manual*

ISO 11812:2001, *Small craft — Watertight cockpits and quick-draining cockpits*

ISO 12216:—¹⁾, *Small craft — Windows, portlights, hatches, deadlights and doors — Strength and tightness requirements*

ISO 14946:2001, *Small craft — Maximum load capacity*

IMO Resolution MSC.81(70), *Revised Recommendation on Testing of Life-Saving Appliances*

3 Terms and definitions

For the purposes of this part of ISO 12217, the following terms and definitions apply. The meanings of certain symbols used in the definitions are given in clause 4.

3.1 Primary

3.1.1

design category

description of the sea and wind conditions for which a boat is assessed to be suitable by this part of ISO 12217

NOTE See also 7.2.

3.1.2

non-sailing boat

boat for which the primary means of propulsion is other than by wind power, having $A_S < 0,07 (m_{LDC})^{2/3}$

3.1.3

recess

any volume open to the sky that may retain water

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

NOTE Cabins, shelters or lockers provided with closures according to the requirements of ISO 12216 are not recesses.

3.1.4

quick-draining recess

recess fulfilling all the requirements of ISO 11812 for “quick-draining cockpits and recesses”

NOTE According to its characteristics, a cockpit may be considered to be quick-draining for one design category, but maybe not for a higher one.

1) To be published.

2) Undergoing revision.

3.1.5**watertight recess**

recess fulfilling all the requirements of ISO 11812 for “watertight cockpits and recesses”

NOTE This term only implies requirements in respect of watertightness and sill heights, but not those for drainage.

3.1.6**fully decked boat**

boat in which the horizontal projection of the sheerline area comprises any combination of

- watertight deck and superstructure, and/or
- quick-draining recesses complying with ISO 11812, and/or
- watertight recesses complying with ISO 11812 with a combined volume of less than $L_H B_H F_M / 40$,

all closing appliances being watertight in accordance with ISO 12216.

NOTE The plan area of recesses permitted for boats of design category A or B is restricted by the requirements of 6.3.1.

3.1.7**partially decked boat**

boat in which at least two-thirds of the horizontal projection of the sheerline area is equipped with decking, cabins, shelters or rigid covers which are watertight according to ISO 12216 and designed to shed water overboard, in which area all that within $L_H/3$ from the bow and also the area 100 mm inboard from the periphery of the boat are included.

NOTE Outboard engine wells are considered to provide a covering suitable for this purpose.

3.2 Downflooding

[SIST EN ISO 12217-1:2002](https://standards.iteh.ai/catalog/standards/sist/b6312673-ccc4-4a04-ba0f-3f5b299debc2/sist-en-iso-12217-1-2002)

<https://standards.iteh.ai/catalog/standards/sist/b6312673-ccc4-4a04-ba0f-3f5b299debc2/sist-en-iso-12217-1-2002>

3.2.1**downflooding opening**

any opening (including the edge of a recess) that may admit water into the interior or bilge of a boat, or a recess, apart from those excluded in 6.1.1.1

3.2.2**downflooding angle**

ϕ_D

angle of heel at which the downflooding openings described in 6.1.1 become immersed, when the boat is in calm water and in the appropriate loading condition at design trim

NOTE 1 Where openings are not symmetrical about the centreline of the boat, the case resulting in the smallest angle is used.

NOTE 2 Downflooding angle is expressed in degrees.

3.2.3**downflooding height**

h_D

smallest height above the waterline to any downflooding opening, apart from those excluded in 6.1.1.1, when the boat is upright in calm water and at loaded displacement mass and design trim

NOTE Downflooding height is expressed in metres.