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NSAI Standards

Irish Standard
I.S. EN ISO 12215-9:2018

Small craft - Hull construction and scantlings - Part 9: Sailing craft appendages (ISO 12215-9:2012)

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National Foreword

I.S. EN ISO 12215-9:2018 is the adopted Irish version of the European Document EN ISO 12215-9:2018, Small craft - Hull construction and scantlings - Part 9: Sailing craft appendages (ISO 12215-9:2012)

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 12215-9

October 2018

ICS 47.080

Supersedes EN ISO 12215-9:2012

English Version

Small craft - Hull construction and scantlings - Part 9: Sailing craft appendages (ISO 12215-9:2012)

Petits navires - Construction de coques et échantillonnage - Partie 9: Appendices des bateaux à voiles (ISO 12215-9:2012)

Kleine Wasserfahrzeuge - Rumpfbauweise und Dimensionierung - Teil 9: Anhänge von Segelbooten (ISO 12215-9:2012)

This European Standard was approved by CEN on 16 April 2018.

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European foreword

The text of ISO 12215-9:2012 has been prepared by Technical Committee ISO/TC 188 “Small craft” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 12215-9:2018.

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of an identical text or by endorsement, at the latest by April 2019, and conflicting national standards shall be withdrawn at the latest by April 2019.

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

This document supersedes EN ISO 12215-9:2012.

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 2013/53/EU.

For relationship with EU Directive 2013/53/EU, see informative Annex ZA, 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, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 12215-9:2012 has been approved by CEN as EN ISO 12215-9:2018 without any modification.

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Annex ZA
(informative)

Relationship between this European Standard and the Essential Requirements of Directive 2013/53/EU aimed to be covered

This European standard has been prepared under a Commission's standardization request M/542 C(2015) 8736 final to provide one voluntary means of conforming to Essential Requirements of Directive 2013/53/EU.

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding Essential Requirements of that Directive and associated EFTA regulations.

Table ZA.1 — Correspondence between this European Standard and Annex I of Directive 2013/53/EU

Essential Requirements of Directive 2013/53/EU	Clause(s)/sub-clause(s) of this EN	Remarks/Notes
Annex I, Part A, 2.5 – Owner's manual	7.7.1, D.3.4, F.2.4.2	These clauses specify warnings and information to be included in the owner's manual, if relevant.
Annex I, Part A, 3.1 - Structure	All clauses	This part of ISO 12215 provides requirements for the strength of monohull sailing boat appendages with conventional keel configurations. It deals with the design stresses and structural efficiency of the keel and its connections. The load cases correspond to those for most conventional keel configurations; however they may not be appropriate in all cases and designers or builders still need to ensure the suitability of their designs. Scantlings derived from this standard are primarily intended to apply to recreational sailing craft. Dimensioning is regarded as reflecting current practice provided the craft is correctly handled and operated at speeds appropriate to the prevailing sea state.

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

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INTERNATIONAL STANDARD

ISO 12215-9

First edition
2012-06-15

Small craft — Hull construction and scantlings —

Part 9: Sailing craft appendages

Petits navires — Construction de la coque et échantillonnage —

Partie 9: Appendices des bateaux à voiles

Reference number
ISO 12215-9:2012(E)

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 12215-9 was prepared by Technical Committee ISO/TC 188, *Small craft*.

ISO 12215 consists of the following parts, under the general title *Small craft — Hull construction and scantlings*:

— *Part 1: Materials: Thermosetting resins, glass-fibre reinforcement, reference laminate*

— *Part 2: Materials: Core materials for sandwich construction, embedded materials*

— *Part 3: Materials: Steel, aluminium alloys, wood, other materials*

— *Part 4: Workshop and manufacturing*

— *Part 5: Design pressures for monohulls, design stresses, scantlings determination*

— *Part 6: Structural arrangements and details*

— *Part 7: Scantling determination of multihulls*

— *Part 8: Rudders*

— *Part 9: Sailing craft appendages*

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Introduction

The reason underlying the preparation of this part of ISO 12215 is that standards and recommended practices for loads on the hull and the dimensioning of small craft differ considerably, thus limiting the general worldwide acceptability of craft.

The loss of a keel leading to craft capsize is one of the major casualty hazards on sailing craft and therefore the structural efficiency of all elements of the keel and its connection to the craft is paramount.

This part of ISO 12215 specifies the design loads and their associated stress factors. The user then has a choice between one or the other of the following available options for assessing the structural arrangement.

a) Use of advanced engineering methods which allow the structure to be modelled as three-dimensional: suitable methods include finite element analysis and subsets thereof such as matrix displacement or framework methods. General guidance is provided on modelling assumptions within this part of ISO 12215.

b) Use of simplified, generally two-dimensional, “strength of materials”-based stress equations: These are presented in Annexes B to F and, if this option is chosen, use of the equations will be necessary to fulfil the requirements of this part of ISO 12215.

This part of ISO 12215 has been developed applying present practice and sound engineering principles. The design loads and criteria of this part of ISO 12215 may be used with the scantling determination equations of this part of ISO 12215 or using equivalent engineering methods as indicated in a), above.

The dimensioning according to this part of ISO 12215 is regarded as reflecting current practice, provided the craft is correctly handled in the sense of good seamanship and equipped and operated at a speed appropriate to the prevailing sea state.

During the latter stages of the development of the ISO 12215 series, and after publication of key parts, a number of authorities adopted this International Standard for the assessment of high-performance racing yachts. While, in theory, a category A blue-water cruising yacht could experience the same loads as a competitive racing yacht, the latter has not been the principal focus of ISO 12215. Consequently, designers are strongly cautioned against attempting to design high-performance racing craft such that nearly all structural components only just comply.

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Small craft — Hull construction and scantlings —

Part 9:
Sailing craft appendages

1 Scope

This part of ISO 12215 defines the loads and specifies the scantlings of sailing craft appendages on monohull sailing craft with a length of hull, L_H, of up to 24 m, measured according to ISO 8666. It gives

— design stresses,

— the structural components to be assessed,

— load cases and design loads for keel, centreboard and their attachments,

— computational methods and modelling guidance, and

— the means for compliance with its provisions.

2 Normative references

The following referenced documents are indispensable for the application 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 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specified property classes — Coarse thread and fine pitch thread*

ISO 3506-1, *Mechanical properties of corrosion-resistant stainless steel fasteners — Part 1: Bolts, screws and studs*

ISO 8666, *Small craft — Principal data*

ISO 12215-3, *Small craft — Hull construction and scantlings — Part 3: Materials — Steel, aluminium alloys, wood, other materials*

ISO 12215-5:2008, *Small craft — Hull construction and scantlings — Part 5: Design pressures for monohulls, design stress, scantlings determination*

ISO 12215-6:2008, *Small craft — Hull construction and scantlings — Part 6: Structural arrangements and details*

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*

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