Irish Standard
I.S. EN ISO 8846:2017

Small craft - Electrical devices - Protection against ignition of surrounding flammable gases (ISO 8846:1990)

I.S. EN ISO 8846:2017

Incorporating amendments/corrigenda/National Annexes issued since publication:

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I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

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This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

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National Foreword

I.S. EN ISO 8846:2017 is the adopted Irish version of the European Document EN ISO 8846:2017, Small craft - Electrical devices - Protection against ignition of surrounding flammable gases (ISO 8846:1990)

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 8846

August 2017

ICS 47.080

Supersedes EN 28846:1993

English Version

Small craft - Electrical devices - Protection against ignition of surrounding flammable gases (ISO 8846:1990)

Navires de plaisance - Équipements électriques - Protection contre l'inflammation des gaz inflammables environnants (ISO 8846:1990)

Kleine Wasserfahrzeuge - Elektrische Geräte - Zündschutz gegenüber entflammbaren Gasen (ISO 8846:1990)

This European Standard was approved by CEN on 23 July 2017.

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 CEN-CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.

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

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European foreword

The text of ISO 8846:1990 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 8846:2017.

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 February 2018, and conflicting national standards shall be withdrawn at the latest by February 2018.

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 28846:1993.

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 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 8846:1990 has been approved by CEN as EN ISO 8846:2017 without any modification.

Annex ZA
(informative)

Relationship between this European Standard and the Essential Requirements of EU Directive 2013/53/EU

This European standard has been prepared under a mandate given to CEN by the European Commission to provide one means of conforming to Essential Requirements of the New Approach Directive 2013/53/EU.

Once this standard is cited in the Official Journal of the European Union under that Directive and has been implemented as a national standard in at least one member state, 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 relevant Essential Requirements of that Directive and associated EFTA regulations.

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

Clauses/subclauses of this European Standard	**Essential requirements (ERs) of EU Directive 2013/53/EU**	**Qualifying remarks/Notes**
All clauses	I.A.5.1.1 – Inboard engine	In respect of electrical devices that may be mounted on an inboard engine or in an engine enclosure in order to minimise the risk of fire. This Standard does not deal with accessibility of these devices in order to enable frequent inspection and/or servicing. This Standard does not deal with insulating materials inside the engine compartment.
All Clauses	I.A.5.2.2(a) - Fuel tanks	In respect of protection from electrical devices as sources of ignition which are located in fuel tank compartments.
All Clauses	1.A.5.3 – Electrical system	This Standard does not cover ignition protection for electrical devices that may operate in hydrogen and oxygen mixtures produced by vented batteries gases

		escaping into the surrounding atmosphere.
All Clauses	Annex II, Components of watercraft (1) Ignition protected equipment for inboard and stern drive petrol engines and petrol tank spaces	

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

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INTERNATIONAL STANDARD

ISO 8846

First edition
1990-12-01

Small craft — Electrical devices — Protection against ignition of surrounding flammable gases

Navires de plaisance — Équipements électriques — Protection contre l'inflammation des gaz inflammables environnants

Reference number
ISO 8846:1990(E)

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.

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.

International Standard ISO 8846 was prepared by Technical Committee ISO/TC 188, *Small craft*.

Annex A of this International Standard is for information only.

International Organization for Standardization
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INTERNATIONAL STANDARD ISO 8846:1990(E)

Small craft — Electrical devices — Protection against ignition of surrounding flammable gases

1 Scope

This International Standard describes test methods and requirements for the design of electrical devices to be used on small craft so that they may be operated in an explosive atmosphere without igniting surrounding flammable gases. It does not require explosion-proof or explosion-protected electrical apparatus as defined in IEC 79-0. [1]

This International Standard does not cover ignition protection procedures for products or components that may operate in hydrogen and air mixtures. Nor does it cover mechanisms of ignition from external sources, such as static electricity, lightning or other factors not related to the apparatus under test.

2 Definitions

For the purposes of this International Standard, the following definitions apply.

2.1 flammable hydrocarbon mixture: Mixture of propane and air (per cent by volume) between the Lower Explosive Limit (LEL) and Upper Explosive Limit (UEL) that will explode if ignited by any means. Tests using propane and air are considered to cover marine fuel and air mixtures between the LEL and UEL.

2.2 ignition-protected device: Device that complies with the requirements of one of the test programmes given in clause 3.

2.3 ignition source

(1) Any electrical contacts, commutator or brush assembly, or collector ring and brushes that may produce electrical arcs of ignition-capable energy.

(2) Resistor or other component or surface that may operate at a temperature sufficient to ignite a flammable mixture.

2.4 normal operating conditions: Any operating conditions of the device, including the maximum achievable overload up to 400 % of the rated current (circuit breakers, switches and the like) and a stalled rotor condition for any motor with the circuit protected by an overcurrent protective device specified by the product manufacturer.

3 Test programme

3.1 The external surface temperature test shall be carried out according to clause 4.

3.2 Electrical devices which can generate sparks or arcs under operation (switches, relays, generators, fuses, distributors, cranking motors, etc.) shall be tested according to clause 5 if they can be considered sealed and according to clause 6 if they are non-sealed.

3.3 Electrical devices showing an increase of the external surface temperature of more than 100 °C above ambient under operation shall be tested according to clause 4. Electrical devices not rated for continuous operation and wired with momentarily operated switches, such as engine-cranking motors, propulsion unit trim motors and other intermittently operated devices, are exempt from this test.

4 External surface temperature test

4.1 The electrical device shall be placed in a closed, thermally insulated air-circulating oven having an initial temperature of 60 °C ± 2 °C. Suitable heating shall be provided in addition to that generated by the component in order to keep the temperature in the oven constant at 60 °C ± 2 °C.

4.2 The test voltage supply shall be adjusted within the range of 80 % to 120 % of the nominal system voltage giving the greatest temperature increase.