



**NSAI**  
Standards

Irish Standard  
I.S. EN ISO 16147:2021

# Small craft - Inboard diesel engines - Engine-mounted fuel, oil and electrical components (ISO 16147:2020)

**I.S. EN ISO 16147:2021**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

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

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

*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):*

*NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.*

*This document is based on:*

EN ISO 16147:2021

*Published:*

2021-01-27

*This document was published  
under the authority of the NSAI  
and comes into effect on:*

2021-02-15

ICS number:

47.080

NOTE: If blank see CEN/CENELEC cover page

NSAI  
1 Swift Square,  
Northwood, Santry  
Dublin 9

T +353 1 807 3800  
F +353 1 807 3838  
E standards@nsai.ie  
W NSAI.ie

Sales:  
T +353 1 857 6730  
F +353 1 857 6729  
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

## National Foreword

I.S. EN ISO 16147:2021 is the adopted Irish version of the European Document EN ISO 16147:2021, Small craft - Inboard diesel engines - Engine-mounted fuel, oil and electrical components (ISO 16147:2020)

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

For relationships with other publications refer to the NSAI web store.

**Compliance with this document does not of itself confer immunity from legal obligations.**

*In line with international standards practice the decimal point is shown as a comma (,) throughout this document.*

This page is intentionally left blank

EUROPEAN STANDARD

EN ISO 16147

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2021

ICS 47.080

Supersedes EN ISO 16147:2018

English Version

## Small craft - Inboard diesel engines - Engine-mounted fuel, oil and electrical components (ISO 16147:2020)

Petits navires - Moteurs intérieurs diesels - Éléments des circuits d'alimentation, des systèmes de lubrification et des systèmes électriques fixés sur le moteur (ISO 16147:2020)

Kleine Wasserfahrzeuge - Eingebaute Dieselmotoren - Am Motor befestigte Kraftstoff-, Öl- und Elektrikbauteile (ISO 16147:2020)

This European Standard was approved by CEN on 3 November 2020.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

<b>Contents</b>	<b>Page</b>
<b>European foreword.....</b>	<b>3</b>
<b>Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of Directive 2013/53/EU aimed to be covered .....</b>	<b>4</b>

## **European foreword**

This document (EN ISO 16147:2021) has been prepared by Technical Committee ISO/TC 188 "Small craft" in collaboration with Technical Committee CEN/TC 464 "Small Craft" the secretariat of which is held by SIS.

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 July 2021, and conflicting national standards shall be withdrawn at the latest by July 2021.

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 16147:2018.

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 the 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## **Endorsement notice**

The text of ISO 16147:2020 has been approved by CEN as EN ISO 16147:2021 without any modification.

## 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 (ERs) of EU Directive 2013/53/EU	Clauses/subclauses of this European Standard	Qualifying remarks/Notes
Annex I, Part A, 5.1.1 - Installation requirements; inboard engine	4, 5, 6	In respect of inspection of fuel, oil and electrical components fitted to diesel inboard-mounted engines.
Annex I, Part A, 5.2.1 - Fuel system; general	4, 5, 7	In respect of minimising the risk of fuel leakage and risk/spread of fire from fuel components that are engine mounted.
Annex I, Part A, 5.3 - Electrical system	4, 6	Only in respect of minimising the risk/spread of fire from electrical components that are engine mounted.
Annex I, Part A, 5.6.1 Fire protection - General	4, 5, 6, 7	In respect of the design and installation arrangements for engine mounted fuel, oil and electrical components on inboard diesel engines.

**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.



# INTERNATIONAL STANDARD

**ISO  
16147**

Third edition  
2020-12

---

---

## **Small craft — Inboard diesel engines — Engine-mounted fuel, oil and electrical components**

*Petits navires — Moteurs intérieurs diesels — Éléments des circuits  
d'alimentation, des systèmes de lubrification et des systèmes  
électriques fixés sur le moteur*



Reference number  
ISO 16147:2020(E)

© ISO 2020

**ISO 16147:2020(E)**



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2020

All rights reserved. Unless otherwise specified, or required in the context of its implementation, 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  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 General</b> .....	<b>2</b>
<b>5 Engine fuel and oil system and components</b> .....	<b>2</b>
5.1 General.....	2
5.2 High-pressure fuel pipes.....	3
5.3 Low-pressure fuel lines.....	3
5.4 Fuel and lubrication oil filters.....	3
<b>6 Electrical systems and components</b> .....	<b>3</b>
6.1 General.....	3
6.2 Cranking motors.....	3
6.3 Wiring and connections.....	4
6.4 Relays, fuse boxes and electronic control modules (ECMs).....	4
<b>7 Installation manual</b> .....	<b>4</b>
<b>Bibliography</b> .....	<b>5</b>

## ISO 16147:2020(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.

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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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).

This third edition of ISO 16147 cancels and replaces the second edition (ISO 16147:2018), of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

- clarification in the Scope that the length of hull is as defined in ISO 8666, and reference added in a new Bibliography;
- all references have been dated.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

# Small craft — Inboard diesel engines — Engine-mounted fuel, oil and electrical components

## 1 Scope

This document establishes requirements for the design and installation of engine-mounted fuel, oil and electrical components on diesel inboard-mounted engines for minimizing fuel leakage, risk of electric shock and the risk of and/or the spread of fire on small craft of hull length up to 24 m in accordance with ISO 8666.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 7840:2013, *Small craft — Fire-resistant fuel hoses*

ISO 10088:2013, *Small craft — Permanently installed fuel systems*

ISO 13297:2020, *Small craft — Electrical systems — Alternating and direct current installations*

ISO 25197:2020, *Small craft — Electrical/electronic control systems for steering, shift and throttle*

IEC 60529:1989+A1:1999+A2:2013, *Degrees of protection provided by enclosures (IP CODE)*

IEC 60092-507:2014, *Electrical Installations in Ships — Part 507: Small vessels*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

### 3.1

#### **engine-mounted**

component fixed to the marine inboard engine and which remains while the engine is in operation

### 3.2

#### **diesel fuel**

hydrocarbon fuel or blends of hydrocarbon fuels including bio-fuel which are liquids at atmospheric pressure and are used in compression-ignition engines

### 3.3

#### **diesel engine**

internal combustion engine that uses the heat of highly compressed air to ignite a spray of *diesel fuel* (3.2) introduced after the start of the compression stroke

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- Looking for additional Standards? Visit Intertek Inform Infostore
  - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-