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Standards

Irish Standard  
I.S. EN 61857-31:2017

# Electrical insulation systems - Procedures for thermal evaluation - Part 31: Applications with a designed life of 5 000 h or less

**I.S. EN 61857-31:2017**

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

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## National Foreword

I.S. EN 61857-31:2017 is the adopted Irish version of the European Document EN 61857-31:2017, Electrical insulation systems - Procedures for thermal evaluation - Part 31: Applications with a designed life of 5 000 h or less

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EUROPEAN STANDARD

**EN 61857-31**

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2017

ICS 29.080.30

English Version

**Electrical insulation systems - Procedures for thermal evaluation  
- Part 31: Applications with a designed life of 5 000 h or less  
(IEC 61857-31:2017)**

Systèmes d'isolement électrique - Modes opératoires pour  
l'évaluation thermique - Partie 31 : Applications à durée de  
vie nominale inférieure à 5 000 heures  
(IEC 61857-31:2017)

Elektrische Isoliersysteme - Verfahren zur thermischen  
Bewertung - Teil 31: Anwendungen mit einer vorgesehenen  
Betriebsdauer von weniger als 5 000 h  
(IEC 61857-31:2017)

This European Standard was approved by CENELEC on 2017-02-28. CENELEC 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.

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European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

**EN 61857-31:2017**

**European foreword**

The text of document 112/356/CDV, future edition 1 of IEC 61857-31, prepared by IEC/TC 112 "Evaluation and qualification of electrical insulating materials and systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61857-31:2017.

The following dates are fixed:

- latest date by which the document has to be (dop) 2017-11-28  
implemented at national level by  
publication of an identical national  
standard or by endorsement
- latest date by which the national (dow) 2020-02-28  
standards conflicting with the  
document have to be withdrawn

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In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 61857 (series)

NOTE Harmonized as EN 61857 (series).

**Annex ZA**

(normative)

**Normative references to international publications  
with their corresponding European publications**

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu).

| <u>Publication</u> | <u>Year</u> | <u>Title</u>  | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|---|--------------|-------------|
| IEC 60505          | -           | Evaluation and qualification of electrical insulation systems   | EN 60505     | -           |
| IEC 61857-1        | -           | Electrical insulation systems - Procedures for thermal evaluation -- Part 1: General requirements - Low-voltage   | EN 61857-1   | -           |
| IEC 61857-21       | -           | Electrical insulation systems - Procedures for thermal evaluation -- Part 21: Specific requirements for general-purpose models - Wire-wound applications                                | EN 61857-21  | -           |
| IEC 61857-22       | -           | Electrical insulation systems - Procedures for thermal evaluation -- Part 22: Specific requirements for encapsulated-coil model - Wire-wound electrical insulation system (EIS)         | EN 61857-22  | -           |
| IEC/TR 61857-2     | -           | Electrical insulation systems - Procedures for thermal evaluation - Part 2: Selection of the appropriate test method for evaluation and classification of electrical insulation systems | -            | -           |

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**IEC 61857-31**

Edition 1.0 2017-01

# **INTERNATIONAL STANDARD**

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**Electrical insulation systems – Procedures for thermal evaluation –  
Part 31: Applications with a designed life of 5 000 h or less**



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**IEC 61857-31**

Edition 1.0 2017-01

# **INTERNATIONAL STANDARD**

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**Electrical insulation systems – Procedures for thermal evaluation –  
Part 31: Applications with a designed life of 5 000 h or less**

INTERNATIONAL  
ELECTROTECHNICAL  
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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICAL INSULATION SYSTEMS – PROCEDURES  
FOR THERMAL EVALUATION –****Part 31: Applications with a designed life of 5 000 h or less****FOREWORD**

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International Standard IEC 61857-31 has been prepared by IEC technical committee 112: Evaluation and qualification of electrical insulating materials and systems.

The text of this International Standard is based on the following documents:

| CDV         | Report on voting |
|-------------|------------------|
| 112/356/CDV | 112/375/RVC      |

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 61857 series, published under the general title *Electrical insulation systems – Procedures for thermal evaluation*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

## INTRODUCTION

IEC 61857-1 provides the general structure to be followed for an electrical insulation system (EIS) evaluation and classification.

IEC TR 61857-2 provides guidelines to identify the application and to select the preferred test method based on the application.

This part of IEC 61857 provides a test method for EIS applications, such as the automotive industry, when the designed life is 5 000 h or less.

The selection of this test method can be decided by the end product application.

## ELECTRICAL INSULATION SYSTEMS – PROCEDURES FOR THERMAL EVALUATION –

### Part 31: Applications with a designed life of 5 000 h or less

#### 1 Scope

This part of IEC 61857 establishes an EIS evaluation for applications with a designed life of 5 000 h or less. This test method follows the procedures of IEC 60505 and is modified based on the range of designed life.

#### 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.

IEC 60505, *Evaluation and qualification of electrical insulation systems*

IEC 61857-1, *Electrical insulation systems – Procedures for thermal evaluation – Part 1: General requirements – Low-voltage*

IEC TR 61857-2, *Electrical insulation systems – Procedures for thermal evaluation – Part 2: Selection of the appropriate test method for evaluation and classification of electrical insulation systems*

IEC 61857-21, *Electrical insulation systems – Procedures for thermal evaluation – Part 21: Specific requirements for general-purpose models – Wire-wound applications*

IEC 61857-22, *Electrical insulation systems – Procedures for thermal evaluation – Part 22: Specific requirements for encapsulated-coil model – Wire-wound electrical insulation system (EIS)*

#### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61857-1 and the following apply.

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

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

##### 3.1

##### **designed life**

expected application time which is proposed or decided by an end user, an industrial manufacturer, etc., regardless of the duty cycle, continual or intermittent



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