



**SLOVENSKI STANDARD**  
**SIST EN 61857-1:2001**

**01-september-2001**

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

Electrical insulation systems - Procedures for thermal evaluation -- Part 1: General requirements - Low-voltage

Elektrische Isoliersysteme - Verfahren zur thermischen Bewertung -- Teil 1: Allgemeine Anforderungen - Niederspannung

Systèmes d'isolation électrique - Procédures d'évaluation thermique -- Partie 1: Exigences générales - Basse tension

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**Ta slovenski standard je istoveten z: EN 61857-1:1999**

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**ICS:**

29.080.30      Izolacijski sistemi      Insulation systems

**SIST EN 61857-1:2001**      **en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 61857-1**

January 1999

ICS 29.080.01

Descriptors: Electric equipment, electrical insulation, definitions, specifications, thermal tests, ageing tests: materials, test conditions, temperature, humidity, life durability, dielectric strength tests

English version

**Electrical insulation systems - Procedures for thermal evaluation  
Part 1: General requirements - Low-voltage  
(IEC 61857-1:1998)**

Systèmes d'isolation électrique  
Procédures d'évaluation thermique  
Partie 1: Exigences générales  
Basse tension  
(CEI 61857-1:1998)

Elektrische Isoliersysteme  
Verfahren zur thermischen Bewertung  
Teil 1: Allgemeine Anforderungen  
Niederspannung  
(IEC 61857-1:1998)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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

**CENELEC**

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

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

### Foreword

The text of document 98/68/FDIS, future edition 1 of IEC 61857-1, prepared by IEC TC 98, Electrical insulation systems (EIS), was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61857-1 on 1999-01-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1999-10-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2001-10-01

Annexes designated "normative" are part of the body of the standard.  
Annexes designated "informative" are given for information only.  
In this standard, annex ZA is normative and annex A informative.  
Annex ZA has been added by CENELEC.

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### Endorsement notice

The text of the International Standard IEC 61857-1:1998 was approved by CENELEC as a European Standard without any modification.

In the official version, for annex A, Bibliography, the following notes have to be added for the standards indicated:

- [SIST EN 61857-1:2001](https://standards.iteh.ai/catalog/standards/sist/86b5334c-9600-4fae-b820-a02c156c28c/sist-en-61857-1-2001)  
<https://standards.iteh.ai/catalog/standards/sist/86b5334c-9600-4fae-b820-a02c156c28c/sist-en-61857-1-2001>
- |                 |   |
|-----------------|---|
| IEC 60034-18-1  | NOTE: Harmonized as EN 60034-18-1:1994 (not modified).  |
| IEC 60034-18-21 | NOTE: Harmonized as EN 60034-18-21:1994 (not modified). |
| IEC 60034-18-31 | NOTE: Harmonized as EN 60034-18-31:1994 (not modified). |
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## Annex ZA (normative)

Normative references to international publications  
with their corresponding 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: When 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/HD</u>	<u>Year</u>
IEC 60085	1984	Thermal evaluation and classification of electrical insulation	HD 566 S1	1990
IEC 60216-3	series	Guide for the determination of thermal endurance properties of electrical insulating materials Part 3: Instructions for calculating thermal endurance characteristics	EN 60216-3	series
IEC 60216-4-1	1990	Part 4: Ageing ovens Section 1: Single-chamber ovens	HD 611.4.1 S1	1992
IEC 60493-1	1974	Guide for the statistical analysis of ageing test data - Part 1: Methods based on mean values of normally distributed test results	-	-
IEC/TR 60505	1975	Guide for the evaluation and identification of insulation systems of electrical equipment	-	-

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**NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD**

**CEI  
IEC**

**61857-1**

Première édition  
First edition  
1998-11

**Systèmes d'isolation électrique –  
Procédures d'évaluation thermique –**

**Partie 1:  
Exigences générales – Basse tension**

**STANDARD PREVIEW**  
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**Electrical insulation systems –  
Procedures for thermal evaluation –**

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**Part 1:  
General requirements – Low-voltage**

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

CODE PRIX  
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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICAL INSULATION SYSTEMS –  
PROCEDURES FOR THERMAL EVALUATION –****Part 1: General requirements – Low-voltage**

## FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61857-1 has been prepared by IEC technical committee 98: Electrical insulation systems (EIS).

The text of this standard is based on the following documents:

FDIS	Report on voting
98/68/FDIS	98/73/RVD

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

Annex A is for information only.

## INTRODUCTION

This International Standard establishes a standardised test procedure for estimating by comparison of the life expectancy of electrical insulation systems (EIS) in accordance with IEC 60505.

An EIS contains many different components selected to withstand the varying electrical, mechanical, and thermal stresses occurring in the different parts of the structure of an electrotechnical product. The useful life of an EIS depends upon the way that its individual components are arranged, their interactions upon each other, and the contribution of each component to the electrical and mechanical integrity of the EIS. Therefore, it is impossible to specify one test object to represent all electrotechnical products. It is incumbent upon the IEC equipment technical committees to address the test objects and application of this test procedure that will meet their specific needs. This work is intended to proceed by horizontal committee activity between this technical committee and other IEC technical committees to develop a series of parts, each part to address a specific test object and/or application.

This procedure permits approximate comparisons only, and cannot be relied upon to completely determine the merits of any particular EIS. Such information can be obtained only from extended service experience.

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## ELECTRICAL INSULATION SYSTEMS – PROCEDURES FOR THERMAL EVALUATION –

### Part 1: General requirements – Low-voltage

#### 1 Scope

This part of IEC 61857 specifies a general test procedure for the thermal evaluation and qualification of electrical insulation systems (EIS) and establishes a procedure that compares the performance of a candidate EIS to that of a reference EIS.

This International Standard is applicable to existing or proposed EISs used in electrotechnical products with an input voltage of up to 1 000 V where the thermal factor is the dominating ageing factor.

#### 2 Normative references

The following normative documents contain provisions that, through reference in this text, constitute provisions of this part of IEC 61857. 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 IEC 61857 are encouraged to investigate the possibility of applying the most recent editions of the normative documents listed 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.

<https://standards.iteh.ai/catalog/standards/sist/86b5334c-9600-4fae-b820->

IEC 60085:1984, *Thermal evaluation and classification of electrical insulation*

IEC 60216-3 (all parts), *Guide for the determination of thermal endurance properties of electrical insulating materials – Part 3: Instructions for calculating thermal endurance characteristics*

IEC 60216-4-1:1990, *Guide for the determination of thermal endurance properties of electrical insulating materials – Part 4: Ageing ovens – Section 1: Single chamber ovens*

IEC 60493-1:1974, *Guide for the statistical analysis of ageing test data – Part 1: Methods based on mean values of normally distributed test results*

IEC/TR 60505:1975, *Guide for the evaluation and identification of insulation systems of electrical equipment*

#### 3 Definitions

For the purposes of this part of IEC 61857, the terms and definitions given in IEC 60505 as well as the following definitions apply.