
**Sistemi električne izolacije – Postopki za toplotno vrednotenje – 21. del:
Posebne zahteve za modele za splošno/večnamensko uporabo – Uporaba pri
žičnih navitjih**

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

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 61857-21:2005](https://standards.iteh.ai/catalog/standards/sist/7b7e5314-488d-4792-8464-461076eb92cd/sist-en-61857-21-2005)

<https://standards.iteh.ai/catalog/standards/sist/7b7e5314-488d-4792-8464-461076eb92cd/sist-en-61857-21-2005>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 61857-21:2005

<https://standards.iteh.ai/catalog/standards/sist/7b7e5314-488d-4792-8464-461076eb92cd/sist-en-61857-21-2005>

EUROPEAN STANDARD

EN 61857-21

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2004

ICS 29.080.30

Supersedes EN 61857-21:1999 & EN 61857-23:2002

English version

**Electrical insulation systems –
Procedures for thermal evaluation
Part 21: Specific requirements for general-purpose models –
Wire-wound applications
(IEC 61857-21:2004)**

Systèmes d'isolation électriques -
Procédures d'évaluation thermique
Partie 21: Exigences particulières
pour les modèles d'usage général -
Applications aux enroulements à fil
(CEI 61857-21:2004)

Elektrische Isoliersysteme –
Verfahren zur thermischen Bewertung
Teil 21: Spezielle Bedingungen für
Mehrzweckmodelle –
Anwendungen bei Drahtwicklungen
(IEC 61857-21:2004)

(standards.iteh.ai)

This European Standard was approved by CENELEC on 2004-10-01. 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.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, 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 98/214/FDIS, future edition 2 of IEC 61857-21, prepared by IEC TC 98, Electrical insulation systems (EIS), was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61857-21 on 2004-10-01.

This European Standard supersedes EN 61857-21:1999 and EN 61857-23:2002 and constitutes a technical revision by merging Part 23 into Part 21.

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) 2005-07-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2007-10-01

Annex ZA has been added by CENELEC.

iTeh STANDARD PREVIEW Endorsement notice (standards.iteh.ai)

The text of the International Standard IEC 61857-21:2004 was approved by CENELEC as a European Standard without any modification.

[SIST EN 61857-21:2005](https://standards.iteh.ai/catalog/standards/sist/7b7e5314-488d-4792-8464-461076eb92cd/sist-en-61857-21-2005)

<https://standards.iteh.ai/catalog/standards/sist/7b7e5314-488d-4792-8464-461076eb92cd/sist-en-61857-21-2005>

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE Where 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 60455	Series	Resin based reactive compounds used for electrical insulation	HD 307 EN 60455	Series Series
IEC 60464	Series	Varnishes used for electrical insulation	EN 60464	Series
IEC 60505	- 1)	Evaluation and qualification of electrical insulation systems	EN 60505	2000 ²⁾
IEC 61857-1	- 1)	Electrical insulation systems - Procedures for thermal evaluation Part 1: General requirements - Low-voltage	EN 61857-1	1999 ²⁾

SIST EN 61857-21:2005

<https://standards.iteh.ai/catalog/standards/sist/7b7e5314-488d-4792-8464-461076eb92cd/sist-en-61857-21-2005>

1) Undated reference.

2) Valid edition at date of issue.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 61857-21:2005

<https://standards.iteh.ai/catalog/standards/sist/7b7e5314-488d-4792-8464-461076eb92cd/sist-en-61857-21-2005>

NORME
INTERNATIONALE
INTERNATIONAL
STANDARD

CEI
IEC

61857-21

Deuxième édition
Second edition
2004-08

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

**Partie 21:
 Exigences particulières pour les modèles
 d'usage général –
 Applications aux enroulements à fil**

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

**Part 21:
 Specific requirements for general-
 purpose models – Wire-wound applications**

© IEC 2004 Droits de reproduction réservés — Copyright - all rights reserved

Aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'éditeur.

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Electrotechnical Commission, 3, rue de Varembe, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE

N

Pour prix, voir catalogue en vigueur
For price, see current catalogue

CONTENTS

FOREWORD	5
INTRODUCTION	9
1 Scope	11
2 Normative references	11
3 Terms and definitions	11
4 Construction	11
4.1 General information	11
4.2 Model components	13
4.3 Assembly of the model	15
5 Number of test objects	17
6 Test procedures	17
6.1 General	17
6.2 Initial screening tests	17
6.3 Thermal endurance test	19
7 End-of-life criterion	23
8 Analyzing, reporting and classification	23
Figure 1 – Schematic drawing of a GPM frame	25
Figure 2 – Manufacturing drawing of a GPM-TC frame	14
Figure 3 – Photos of GPM and GPM-TC test objects	29
Table 1 – Initial dielectric tests for GPM-TC	19
Table 2 – Dielectric diagnostic tests for GPM-TC	21

ITeH STANDARD PREVIEW

(standards.iteh.ai)

PDF EN 61857-21:2005

[https://standards.iteh.ai/catalog/standards/sist/7b7e5314-488d-4792-](https://standards.iteh.ai/catalog/standards/sist/7b7e5314-488d-4792-8464-461076eb92cd/sist-en-61857-21-2005)

[8464-461076eb92cd/sist-en-61857-21-2005](https://standards.iteh.ai/catalog/standards/sist/7b7e5314-488d-4792-8464-461076eb92cd/sist-en-61857-21-2005)

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICAL INSULATION SYSTEMS –
PROCEDURES FOR THERMAL EVALUATION –****Part 21: Specific requirements for general-purpose models –
Wire-wound applications**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. 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 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 IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61857-21 has been prepared by IEC technical committee 98: Electrical insulation systems (EIS).

This second edition cancels and replaces the first edition published in 1998. This edition constitutes a technical revision by merging Part 23 into Part 21.

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

FDIS	Report on voting
98/214/FDIS	98/223/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.

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

IEC 61857 consists of the following parts, under the general title: *Electrical insulation systems – Procedures for thermal evaluation*

- Part 1: General requirements – Low-voltage
- Part 21: Specific requirements for general-purpose models – Wire-wound applications
- Part 22: Specific requirements for encapsulated-coil model – Wire-wound electrical insulation system (EIS)
- Part 31: Procedures for short time thermal evaluation¹

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

[SIST EN 61857-21:2005](https://standards.iteh.ai/catalog/standards/sist/7b7e5314-488d-4792-8464-461076eb92cd/sist-en-61857-21-2005)

<https://standards.iteh.ai/catalog/standards/sist/7b7e5314-488d-4792-8464-461076eb92cd/sist-en-61857-21-2005>

¹ This part is currently at the Committee Draft stage.

INTRODUCTION

A series of parts of IEC 61857 is being developed, each of which will address a specific test object and/or application with an associated test procedure.

This part of IEC 61857 provides a procedure for the evaluation of wire-wound systems, using general-purpose models, where the application is unknown.

As a function of the horizontal committee concept, additional parts will be developed in cooperation with IEC technical committees responsible for equipment.

iTeh STANDARD PREVIEW **(standards.iteh.ai)**

SIST EN 61857-21:2005

<https://standards.iteh.ai/catalog/standards/sist/7b7e5314-488d-4792-8464-461076eb92cd/sist-en-61857-21-2005>