



SLOVENSKI STANDARD

SIST EN 61952:2008

01-december-2008

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SIST EN 61952:2004

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Insulators for overhead lines - Composite line post insulators for A.C. systems with a nominal voltage greater than 1 000 V - Definitions, test methods and acceptance criteria (IEC 61952:2008)

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Isolatoren für Freileitungen - Verbund-Freileitungsstützer für Wechselstromsysteme mit einer Nennspannung über 1 000 V - Begriffe, Prüfverfahren und Annahmekriterien (IEC 61952:2008)

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Isolateurs pour lignes aériennes - Isolateurs composites rigides à socle pour systèmes à courant alternatif de tension nominale supérieure à 1 000 V - Définitions, méthodes d'essai et critères d'acceptation (CEI 61952:2008)

Ta slovenski standard je istoveten z: EN 61952:2008

ICS:

29.080.10	Izolatorji	Insulators
29.240.20	Daljnovodi	Power transmission and distribution lines

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en,fr

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61952

October 2008

ICS 29.080.10; 29.240.20

Supersedes EN 61952:2003

English version

**Insulators for overhead lines -
Composite line post insulators for A.C. systems
with a nominal voltage greater than 1 000 V -
Definitions, test methods and acceptance criteria
(IEC 61952:2008)**

Isolateurs pour lignes aériennes -
Isolateurs composites rigides à socle
pour systèmes à courant alternatif de
tension nominale supérieure à 1 000 V -
Définitions, méthodes d'essai
et critères d'acceptation
(CEI 61952:2008)

Isolatoren für Freileitungen -
Verbund-Freileitungsstützer
für Wechselstromsysteme
mit einer Nennspannung über 1 000 V -
Begriffe, Prüfverfahren
und Annahmekriterien
(IEC 61952:2008)

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This European Standard was approved by CENELEC on 2008-09-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the 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 36B/273/FDIS, future edition 2 of IEC 61952, prepared by SC 36B, Insulators for overhead lines, of IEC TC 36, Insulators, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61952 on 2008-09-01.

This standard supersedes EN 61952:2003.

EN 61952:2008 includes the following significant technical changes with respect to EN 61952:2003:

- removal of tests procedures now given in EN 62217,
- inclusion of clauses on tolerances, environmental conditions, transport, storage and installation,
- changes in the parameters determining the need to repeat design and type tests,
- clarification of the mounting arrangements for electrical type tests,
- modification of the specification of load application in bending tests to simplify testing,
- additional requirements for the visual examination,
- removal of the annex explaining the concept of classes for design tests.

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) 2009-06-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2011-09-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61952:2008 was approved by CENELEC as a European Standard without any modification.

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

IEC 60507	NOTE Harmonized as EN 60507:1993 (not modified).
IEC 61462	NOTE Harmonized as EN 61462:2007 (not modified).

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 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 60383-1	- ¹⁾	Insulators for overhead lines with a nominal voltage above 1 kV - Part 1: Ceramic or glass insulator units for a.c. systems - Definitions, test methods and acceptance criteria	EN 60383-1 + A11	1996 ²⁾ 1999
IEC 60383-2	- ¹⁾	Insulators for overhead lines with a nominal voltage above 1 kV - Part 2: Insulator strings and insulator sets for a.c. systems - Definitions, test methods and acceptance criteria	EN 60383-2	1995 ²⁾
IEC 62217	- ¹⁾	Polymeric insulators for indoor and outdoor use with a nominal voltage > 1 000 V.- General definitions, test methods and acceptance criteria	EN 62217 + corr. December	2006 ²⁾ 2006
ISO 3452	- ¹⁾	Non-destructive testing - Penetrant inspection - General principles	-	-

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

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IEC 61952

Edition 2.0 2008-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Insulators for overhead lines – Composite line post insulators for A.C. systems with a nominal voltage greater than 1 000 V – Definitions, test methods and acceptance criteria

Isolateurs pour lignes aériennes – Isolateurs composites rigides à socle pour systèmes à courant alternatif de tension nominale supérieure à 1 000 V – Définitions, méthodes d'essai et critères d'acceptation

INTERNATIONAL
ELECTROTECHNICAL
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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	8
2 Normative references.....	8
3 Terms and definitions.....	8
4 Abbreviations.....	10
5 Identification.....	10
6 Environmental conditions.....	11
7 Transport, storage and installation.....	11
8 Tolerances.....	11
9 Classification of tests.....	11
9.1 Design tests.....	11
9.2 Type tests.....	12
9.3 Sample tests.....	12
9.4 Routine tests.....	12
10 Design tests.....	13
10.1 General.....	13
10.2 Test specimens for IEC 62217.....	14
10.2.1 Tests on interfaces and connections of end fittings.....	14
10.2.2 Tracking and erosion test.....	14
10.2.3 Tests on core material.....	15
10.3 Product specific pre-stressing for IEC 62217 tests on interfaces and connections of end fittings.....	15
10.3.1 Thermal-mechanical pre-stressing.....	15
10.4 Assembled core load tests.....	15
10.4.1 Test for the verification of the maximum design cantilever load (MDCL).....	15
10.4.2 Tensile load test.....	16
11 Type tests.....	16
11.1 Electrical tests.....	17
11.1.1 Vertical mounting arrangement.....	17
11.1.2 Horizontal mounting arrangement.....	17
11.2 Mechanical tests.....	18
11.2.1 Cantilever failing load test.....	18
12 Sample tests.....	19
12.1 General rules.....	19
12.2 Verification of dimensions (E1 + E2).....	19
12.3 Galvanizing test (E1 + E2).....	19
12.4 Verification of the SCL (E1).....	19
12.4.1 Test procedure.....	19
12.4.2 Acceptance criteria.....	20
12.5 Re-testing procedure.....	20
13 Routine tests.....	20
13.1 Tensile load test.....	20
13.2 Visual examination.....	20

Annex A (informative) Notes on the mechanical loads and tests	22
Annex B (informative) Determination of the equivalent bending moment caused by combined loads.....	24
Bibliography.....	27
Figure 1 – Thermal-mechanical pre-stressing test – Typical cycles	21
Figure B.1 – Combined loads applied to unbraced insulators	25
Figure B.2 – Combined loads applied to braced insulators	26
Table 1 – Tests to be carried out after design changes	13
Table 2 – Design tests	14
Table 3 – Mounting arrangements for electrical tests	17
Table 4 – Sample sizes according to lot size.....	19

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INSULATORS FOR OVERHEAD LINES –
COMPOSITE LINE POST INSULATORS FOR A.C.
SYSTEMS WITH A NOMINAL VOLTAGE
GREATER THAN 1 000 V –
DEFINITIONS, TEST METHODS AND ACCEPTANCE CRITERIA**

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.
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International Standard IEC 61952 has been prepared by subcommittee 36B: Insulators for overhead lines, of IEC technical committee 36: Insulators.

This second edition cancels and replaces the first edition published in 2002. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- removal of tests procedures now given in IEC 62217,
- inclusion of clauses on tolerances, environmental conditions, transport, storage and installation,
- changes in the parameters determining the need to repeat design and type tests,
- clarification of the mounting arrangements for electrical type tests,
- modification of the specification of load application in bending tests to simplify testing,

- additional requirements for the visual examination,
- removal of the annex explaining the concept of classes for design tests.

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

FDIS	Report on voting
36B/273/FDIS	36B/275/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.

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.

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INTRODUCTION

Composite line post insulators consist of a cylindrical solid insulating core, bearing the mechanical load, protected by a polymeric housing, the loads being transmitted to the core by metal fittings. Despite these common features, the materials used and the construction details employed by different manufacturers may be different.

Some tests have been grouped together as "design tests", to be performed only once on insulators which satisfy the same design conditions. All the design tests defined in IEC 62217 are applied for composite line post insulators; additional specific mechanical tests are given in this standard. As far as practical, the influence of time on the electrical and mechanical properties of the components (core material, housing, interfaces, etc.) and of the complete composite insulators has been considered in specifying the design tests to ensure a satisfactory life-time under normally known stress conditions of transmission lines.

Composite insulators are used in both a.c. and d.c. applications. In spite of this fact a specific tracking and erosion test procedure for d.c. applications as a design test has not yet been defined and accepted. The 1 000 h a.c. tracking and erosion test of IEC 62217 is used to establish a minimum requirement for the tracking resistance of the housing material.

The approach for mechanical testing under bending loads used in this standard is based on the work of CIGRE [1]¹. This approach uses the concept of a damage limit which is the maximum stress which can be developed in the insulator before damage begins to occur. Annex A gives some notes on the mechanical loads and tests used in this standard.

Line post insulators are often used in braced structures whose geometry varies from line to line. A combined loading test to reproduce the complex loading cases in such structures is outside the scope of this standard and it would be very difficult to specify a general test which covers the majority of geometry and loading cases. In order to give some guidance, Annex B explains how to calculate the moment in the insulators resulting from combined loads. This moment can then be equated to an equivalent bending load or stress for design purposes. Further information is available from CIGRE [2].

Compression load tests are not specified in this standard. The mechanical loads expected from service stress acting on line post insulators are mostly combined loads. These loads will cause some deflection on the insulator. Compression loads applied on pre-deflected insulators will lead to results largely dependent on the pre-deflection. Therefore a pure compression test has little meaning since the deflection prior to the cantilever load test cannot be specified.

Pollution tests, as specified in IEC 60507 [3], are not included in this standard, their applicability to composite line post insulators not having been proven. Such pollution tests performed on insulators made of non-ceramic materials do not correlate with experience obtained from service. Specific pollution tests for non-ceramic insulators are under consideration.

¹ Figures in square brackets refer to the bibliography.