SLOVENSKI STANDARD
SIST EN 60660:2001

01-februar-2001

Insulators - Tests on indor post insulators of organic material for systems with nominal voltages greater than 1 kV up to but not including 300 kV (IEC 60660:1999)

Insulators - Tests on indoor post insulators of organic material for systems with nominal voltages greater than 1 kV up to but not including 300 kV

Isolatoren - Prüfungen an Innenraum-Stützern aus organischem Werkstoff für Netze mit Nennspannungen über 1 kV bis kleiner 300 kV

Isolateurs - Essais des supports isolants d'intérieur en matière organique destinés à des installations de tension nominale supérieure à 1 kV jusqu'à 300 kV non compris

Ta slovenski standard je istoveten z: **EN 60660:1999**

ICS:

29.080.10 Izolatorji Insulators

SIST EN 60660:2001 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60660

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English version

Insulators
Tests on indoor post insulators of organic material for systems with nominal voltages greater than 1 kV up to but not including 300 kV
(IEC 60660:1999)

Isolateurs
Essais des supports isolants d'intérieur en matière organique destinés à des installations de tension nominale supérieure à 1 kV jusqu'à 300 kV non compris
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(IEC 60660:1999)

This European Standard was approved by CENELEC on 1999-12-01. 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, 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

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Foreword

The text of document 36C/111/FDIS, future edition 2 of IEC 60660, prepared by SC 36C, Insulators for substations, of IEC TC 36, Insulators, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60660 on 1999-12-01.

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) 2000-09-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2002-12-01

Endorsement notice

The text of the International Standard IEC 60660:1999 was approved by CENELEC as a European Standard without any modification.

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.

Publication	Year	Title	EN/HD	Year
IEC 60050-471	1984	International Electrotechnical Vocabulary (IEV) Chapter 471: Insulators	-	-
IEC 60060-1 + corr. March	1989 1990	High-voltage test techniques Part 1: General definitions and test requirements	HD 588.1 S1	1991
IEC 60071-1	1993	Insulation co-ordination Part 1: Definitions, principles and rules	EN 60071-1	1995
IEC 60270	[1)]	High-voltage testing - Partial discharge measurement	-	-
IEC 60273	1990	Characteristics of indoor and outdoor post insulators for systems with nominal voltages greater than 1 kV	HD 578 S1	1992
IEC 60587	1984	Test methods for evaluating resistance to tracking and erosion of electrical insulating materials used under severe ambient conditions	HD 380 S2	1987
IEC 60695-11-10	1999	Fire hazard testing Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	EN 60695-11-10	1999
IEC 60932	1988	Additional requirements for enclosed switchgear and controlgear from 1kV to 72,5 kV to be used in severe climatic conditions	-	-
ISO 9000-1	1994	Quality management and quality assurance standards - Part 1: Guidelines for selection and use	EN ISO 9000-1	1994

1) In preparation.

Publication	Year	Title	EN/HD	Year
ISO 9002	1994	Quality systems - Model for quality assurance in production, installation and servicing	EN ISO 9002	1994

NORME INTERNATIONALE

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Isolateurs –
Essais des supports isolants d'intérieur en matière organique destinés à des installations de tension nominale supérieure à 1 000 V jusqu'à 300 kV non compris

Insulators –
Tests on indoor post insulators of organic material for systems with nominal voltages greater than 1 000 V up to but not including 300 kV

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INSULATORS – TESTS ON INDOOR POST INSULATORS OF ORGANIC MATERIAL FOR SYSTEMS WITH NOMINAL VOLTAGES GREATER THAN 1 000 V UP TO BUT NOT INCLUDING 300 kV

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 specifications, 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 60660 has been prepared by subcommittee 36C: Insulators for substations, of IEC technical committee 36: Insulators.

This second edition cancels and replaces the first edition published in 1979 and constitutes a technical revision.

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

FDIS	Report on voting
36C/111/FDIS	36C/114/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 3.

Annex A is for information only.

The committee has decided that this publication remains valid until 2006.

At this date, in accordance with the committee's decision, the publication will be

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

INSULATORS – TESTS ON INDOOR POST INSULATORS OF ORGANIC MATERIAL FOR SYSTEMS WITH NOMINAL VOLTAGES GREATER THAN 1 000 V UP TO BUT NOT INCLUDING 300 kV

1 General

1.1 Scope and object

This International Standard is applicable to post insulators of organic material for indoor service in electrical installations or equipment operating in air at atmospheric pressure on alternating current with a nominal voltage greater than 1 000 V up to, but not including, 300 kV, as defined by range I of IEC 60071-1, and a frequency not greater than 100 Hz. Composite insulators are not covered by this standard.

The object of this standard is

– to define the terms used;

– to define electrical and mechanical characteristics of post insulators of organic material and to prescribe the conditions under which the specified values of these characteristics are verified;

– to prescribe methods of testing;

– to prescribe acceptance criteria.

This standard does not give numerical values for insulator characteristics; nor does it deal with a choice of insulators for specific operating conditions. IEC 60273 specifies numerical values for electrical and mechanical characteristics and gives the dimensions necessary for interchangeability of post insulators.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of the ISO/IEC Directives. 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 the ISO/IEC Directives are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60050(471):1984, *International Electrotechnical Vocabulary (IEV) – Chapter 471: Insulators*

IEC 60060-1, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60071-1, *Insulation co-ordination – Part 1: Definitions, principles and rules*

IEC 60270, *Partial discharge measurements*

IEC 60273, *Characteristics of indoor and outdoor post insulators for systems with nominal voltages greater than 1 000 V*

IEC 60587, *Test method for evaluating resistance to tracking and erosion of electrical insulating materials used under severe ambient conditions*

IEC 60695-11-10:1999, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*

IEC 60932, *Additional requirements for enclosed switchgear and controlgear from 1 kV to 72,5 kV to be used in severe climatic conditions*

ISO 9000-1, *Quality management and quality assurance standards – Part 1: Guidelines for selection and use*

ISO 9002, *Quality systems – Model for quality assurance in production, installation and servicing*

1.3 Definitions

For the purpose of this standard, the following definitions apply, together with those in IEC 60050(471)

NOTE – The definitions regarding test voltages are given for convenience. For additional details, see IEC 60060-1.

1.3.1
post insulator of organic material
post insulator intended to give rigid support to a live part which is to be insulated from earth and from another live part. The whole or part of the material composing the post insulator consists of organic materials, i.e. of material pertaining to the chemistry of the compounds produced from carbon or to the chemistry of the compounds produced from carbon and silicon. These organic materials may be used alone or in conjunction with other materials (mineral or organic) as fillers, reinforcements, etc.

1.3.2
indoor post insulator
a post insulator not intended to be exposed to outdoor atmospheric conditions. For indoor installations subject to excessive condensation, outdoor post insulators or special indoor post insulators may be used
[IEV 471-04-04, modified]

1.3.3
design category
post insulators of organic materials are divided into two different design categories according to their construction. The design categories covered by this standard are:

Design category A

Cylindrical post insulators with internal metal fittings in which the length of the shortest puncture path through solid insulating material is equal to or greater than one-third the external arcing distance between the metal fittings

Design category B

Cylindrical post insulators with internal metal fittings in which the length of the shortest puncture path through solid insulating material is less than one-third the external arcing distance between the metal fittings

NOTE – The term “cylindrical insulators” is intended to cover insulators of the truncated conical form.