



# SLOVENSKI STANDARD SIST EN 60433:2000

01-februar-2000

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## Insulators for overhead lines with a nominal voltage above 1kV - Ceramic insulators for a.c. systems - Characteristics of insulators units of the long rod type (IEC 60433:1998)

Insulators for overhead lines with a nominal voltage above 1 kV - Ceramic insulators for a.c. systems - Characteristics of insulator units of the long rod type (IEC 60433:1998)

Isolatoren für Freileitungen mit einer Nennspannung über 1 kV - Keramik-Isolatoren für Wechselspannungssysteme - Kenngrößen von Kettenisolatoren in Langstabausführung  
(standards.iteh.ai)

Isolateurs pour lignes aériennes de tension nominale supérieure à 1 kV - Isolateurs céramiques pour systèmes à courant alternatif - Caractéristiques des éléments de chaînes d'isolateurs à fût long  
2047f1b328b1/sist-en-60433-2000

Ta slovenski standard je istoveten z: EN 60433:1998

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### ICS:

29.080.10	Izolatorji	Insulators
29.240.20	Daljnovodi	Power transmission and distribution lines

**SIST EN 60433:2000**

en

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EUROPEAN STANDARD

EN 60433

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 1998

ICS 29.080.10

English version

**Insulators for overhead lines with a nominal voltage above 1 kV  
Ceramic insulators for a.c. systems  
Characteristics of insulator units of the long rod type  
(IEC 60433:1998)**

Isolateurs pour lignes aériennes de  
tension nominale supérieure à 1 kV  
Isolateurs céramiques pour systèmes à  
courant alternatif - Caractéristiques des  
éléments de chaînes d'isolateurs à fût  
long  
(CEI 60433:1998)

Isolatoren für Freileitungen mit einer  
Nennspannung über 1 kV  
Keramik-Isolatoren für  
Wechselspannungssysteme  
Kenngrößen von Kettenisolatoren in  
Längstabausführung  
(IEC 60433:1998)

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This European Standard was approved by CENELEC on 1998-10-01. 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, 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 36B/180/FDIS, future edition 3 of IEC 60433, 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 60433 on 1998-10-01.

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) 1999-07-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2001-07-01

Annexes designated "normative" are part of the body of the standard.  
In this standard, annex ZA is normative.  
Annex ZA has been added by CENELEC.

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### Endorsement notice

The text of the International Standard IEC 60433:1998 was approved by CENELEC as a European Standard without any modification.

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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 60071-1	1993	Insulation co-ordination Part 1: Definitions, principles and rules	EN 60071-1	1995
IEC 60120	1984	Dimensions of ball and socket couplings of string insulator units	HD 474 S1	1986
IEC 60383-1	1993	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	1996
IEC 60471	1977	Dimensions of clevis and tongue couplings of string insulator units	-	-
IEC 60672-1	1995	Ceramic and glass insulating materials Part 1: Definitions and classification	EN 60672-1	1995
IEC 60672-3	1997	Part 3: Specification for individual materials	EN 60672-3	1997
IEC 60815	1986	Guide for the selection of insulators in respect of polluted conditions	-	-

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**NORME  
INTERNATIONALE  
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STANDARD**

**CEI  
IEC**

**60433**

Troisième édition  
Third edition  
1998-08

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**Isolateurs pour lignes aériennes  
de tension nominale supérieure à 1 000 V –  
Isolateurs céramiques pour systèmes  
à courant alternatif –  
Caractéristiques des éléments de chaînes  
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**Insulators for overhead lines  
with a nominal voltage above 1 000 V –  
Ceramic insulators for a.c. systems –  
Characteristics of insulator units  
of the long rod type**

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

CODE PRIX  
PRICE CODE

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INSULATORS FOR OVERHEAD LINES  
WITH A NOMINAL VOLTAGE ABOVE 1 000 V –**

**Ceramic insulators for a.c. systems –  
Characteristics of insulator units of the long rod type**

## 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.
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- 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 60433 has been prepared by subcommittee 36B: Insulators for overhead lines, of IEC technical committee 36: Insulators.

This third edition cancels and replaces the second edition published in 1980 and constitutes a technical revision.

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

FDIS	Report on voting
36B/180/FDIS	36B/184/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.



**INSULATORS FOR OVERHEAD LINES  
WITH A NOMINAL VOLTAGE ABOVE 1 000 V –  
Ceramic insulators for a.c. systems –  
Characteristics of insulator units of the long rod type**

## 1 Scope

This International Standard is applicable to string insulator units of the long rod type with insulating parts of ceramic material intended for use in a.c. overhead power lines with a nominal voltage greater than 1 000 V and a frequency not greater than 100 Hz. It is also applicable to insulators of similar design, used in substations.

This standard is applicable to ceramic string insulator units of the long rod type, either with a clevis end fitting at both ends for coupling with a tongue, or with a socket end fitting at both ends for coupling with a pin ball.

The object of this standard is to prescribe specified values for electrical and mechanical characteristics, and for the principal dimensions of ceramic string insulator units of the long rod type.

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This standard is applicable to string insulator units for use on overhead lines situated in lightly polluted areas, and the creepage distances given in table 1 have been established accordingly, using the IEC 60815 recommendation of 16 mm/kV for pollution level I. However, shorter creepage distances may be used in some non-polluted areas. If specific operating conditions require or allow non-standard (longer or shorter) creepage distances, the mechanical characteristics as well as the lengths  $L$  (see clause 4) of this standard should be used unless the need for exceptionally long creepage distances requires values of  $L$  greater than those given in table 1. In the case of special requirements, e.g. very heavy polluted areas and for other particular or extreme environmental conditions, it may be necessary for certain dimensions to be changed.

### NOTES

- 1 As far as reasonably applicable, this International Standard may also be applied to similar insulator units outside the scope of this standard, such as insulators for electric traction lines.
- 2 This International Standard does not include tests on insulators and dimensions of end fittings.
- 3 Ball and socket couplings are covered by IEC 60120, clevis and tongue couplings by IEC 60471.
- 4 For the definition of pollution levels, see IEC 60815.
- 5 The term "ceramic" is used in this International Standard to refer to porcelain materials and, contrary to North American practice, does not include glasses.