SVENSK STANDARD

SS-EN IEC 60383-1, utg 2:2024

Fastställd	Sida	Ansvarig kommitté
2024-04-24	1 (66)	SEK TK 36

Isolatorer – Isolatorer för friledningar med systemspänning över 1 kV – Del 1: Isolatorer av keramiskt material eller glas för växelspänning – Definitioner, provningsmetoder och villkor för godkännande

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

Som svensk standard gäller europastandarden EN IEC 60383-1:2023. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60383-1:2023.

Nationellt förord

Europastandarden EN IEC 60383-1:2023

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60383-1, Fifth edition, 2023 - 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**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60383-1, utg 1:1997 med eventuella tillägg, ändringar och rättelser gäller ej fr o m 2026-08-11.

ICS 29.080.10; 29.240.20

Denna standard är fastställd av SEK Svensk Elstandard,
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Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

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Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60383-1

September 2023

ICS 29.080.10; 29.240.20

Supersedes EN 60383-1:1996;
EN 60383-1:1996/A11:1999

English Version

Insulators for overhead lines with a nominal voltage above 1 000 V - Part 1: Ceramic or glass insulator units for a.c. systems - Definitions, test methods and acceptance criteria (IEC 60383-1:2023)

Isolateurs pour lignes aériennes de tension nominale supérieure à 1 000 V - Partie 1: Éléments d'isolateurs en matière céramique ou en verre pour systèmes à courant alternatif - Définitions, méthodes d'essai et critères d'acceptation
(IEC 60383-1:2023)

Isolatoren für Freileitungen mit einer Nennspannung über 1 000 V - Teil 1: Keramik- oder Glas-Isolatoren für Wechselstromsysteme - Begriffe, Prüfverfahren und Annahmekriterien
(IEC 60383-1:2023)

This European Standard was approved by CENELEC on 2023-08-11. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN IEC 60383-1:2023 E

SEK Svensk Elstandard

SS-EN IEC 60383-1, utg 2:2024

European foreword

The text of document 36/564/FDIS, future edition 5 of IEC 60383-1, prepared by IEC/TC 36 "Insulators" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60383-1:2023.

The following dates are fixed:

•	latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop) 2024-05-11
•	latest date by which the national standards conflicting with the document have to be withdrawn	(dow) 2026-08-11

This document supersedes EN 60383-1:1996 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60383-1:2023 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60060-1	-	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	-
IEC 60120	-	Ball and socket couplings of string insulator units - Dimensions	EN IEC 60120	-
IEC 60305	-	Insulators for overhead lines with a nominal voltage above 1000 V - Ceramic or glass insulator units for AC systems - Characteristics of insulator units of the cap and pin type	EN IEC 60305	-
IEC 60372	-	Locking devices for ball and socket couplings of string insulator units - Dimensions and tests	EN IEC 60372	-
IEC 60433	-	Insulators for overhead lines with a nominal voltage above 1000 V - Ceramic insulators for AC systems - Characteristics of insulator units of the long rod type	EN IEC 60433	-
IEC 60437	-	Radio interference test on high-voltage insulators	EN 60437	-
IEC 60471	-	Clevis and tongue couplings of string insulator units - Dimensions	EN IEC 60471	-
IEC 61211	-	Insulators of ceramic material or glass for overhead lines with a nominal voltage greater than 1 000 V - Impulse puncture testing in air	EN 61211	-
ISO 1459	1973	Metallic coatings - Protection against corrosion by hot dip galvanizing - Guiding principles	-	-
ISO 1460	-	Metallic coatings - Hot dip galvanized coatings on ferrous metals - Determination of the mass per unit area - Gravimetric method	EN ISO 1460	-

ISO 1461	-	Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test Methods	EN ISO 1461	-
ISO 1463	-	Metal and oxide coatings - Measurement of coating thickness - Microscopical method	EN ISO 1463	-
ISO 2064	-	Metallic and other inorganic coatings - Definitions and conventions concerning the measurement of thickness	EN ISO 2064	-
ISO 2178	2016	Non-magnetic coatings on magnetic substrates - Measurement of coating thickness - Magnetic method	EN ISO 2178	2016

IEC 60383-1

Edition 5.0 2023-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 1: Ceramic or glass insulator units for AC systems – 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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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.
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IEC 60383 has been prepared by IEC technical committee 36: Insulators. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 1993. This edition constitutes a technical revision.

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

a) The complete document has been revised and updated. The layout of the document has been changed in order to increase readability;
b) RIV test has been added (Clause 14);
c) Impulse puncture test in air has been added (15.2);
d) Residual strength test has been added (Clause 21);

e) Zinc sleeve test has been added (Clause 28);

f) Impact test has been added (Clause 30);

g) Annex C, coatings on ceramic and glass insulators has been added;

h) Annex D, impact test has been added.

The text of this International Standard is based on the following documents:

Draft	Report on voting
36/564/FDIS	36/571/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 60383 series, published under the general title *Insulators for overhead lines with a nominal voltage above 1 000 V*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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

IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This part of IEC 60383 deals with four different types of insulators:

- Pin insulators
- Line post insulators
- String insulator units
- Insulators for overhead electric traction lines

Certain clauses of this document contain general requirements and other clauses contain specific tests relevant to each of the above-mentioned insulators.

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

Part 1: Ceramic or glass insulator units for AC systems – Definitions, test methods and acceptance criteria

1 Scope

This part of IEC 60383 applies to insulators of ceramic material or glass for use on AC overhead power lines and overhead traction lines with a nominal voltage greater than 1 000 V and a frequency not greater than 100 Hz. It also applies to insulators for use on DC overhead electric traction lines.

This document applies to string insulator units, rigid overhead line insulators and to insulators of similar design when used in substations.

It does not apply to insulators forming parts of electrical apparatus or to parts used in their construction or to post insulators which are covered by IEC 60168, *Tests on indoor and outdoor post insulators of ceramic material or glass for systems with nominal voltages greater than 1 000 V*.

Tests on insulator strings and insulator sets (for example, wet switching impulse voltage) are dealt with in IEC 60383-2.

The object of this document is:

– to define the terms used
– to define insulator characteristics and to prescribe the conditions under which the specified values of these characteristics shall be verified
– to prescribe test methods
– to prescribe acceptance criteria.

This document does not include requirements dealing with the choice of insulators for specific operating conditions.

Specific requirements on the use of coatings on ceramic or glass insulators are described in the informative Annex C.

Numerical values for insulator characteristics are specified in IEC 60305, IEC 60433 and IEC 60720.

NOTE A guide for the choice of insulators under polluted conditions has been published, see IEC 60815-1 and -2.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

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

IEC 60120, *Ball and socket couplings of string insulator units – Dimensions*

IEC 60305, *Insulators for overhead lines with a nominal voltage above 1000 V – Ceramic or glass insulator units for AC systems – Characteristics of insulator units of the cap and pin type*

IEC 60372, *Locking devices for ball and socket couplings of string insulator units – Dimensions and tests*

IEC 60433, *Insulators for overhead lines with a nominal voltage above 1000 V – Ceramic insulators for AC systems – Characteristics of insulator units of the long rod type*

IEC 60437, *Radio interference test on high-voltage insulators*

IEC 60471, *Clevis and tongue couplings of string insulator units – Dimensions*

IEC 61211, *Insulators of ceramic material or glass for overhead lines with a nominal voltage greater than 1 000 V – Impulse puncture testing in air*

ISO 1459:1973, *Metallic coatings – Protection against corrosion by hot dip galvanizing – Guiding principles*

ISO 1460, *Metallic coatings – Hot dip galvanized coatings on ferrous metals – Determination of the mass per unit area – Gravimetric method*

ISO 1461, *Hot dip galvanized coatings on fabricated iron and steel articles – Specifications and test Methods*

ISO 1463, *Metal and oxide coatings – Measurement of coating thickness – Microscopical method*

ISO 2064, *Metallic and other non-organic coatings – Definitions and conventions concerning the measurement of thickness*

ISO 2178:2016, *Non-magnetic coatings on magnetic substrates – Measurement of coating thickness – Magnetic method*