ICS 29.080.10 SLOVENSKÁ TECHNICKÁ NORMA November 2024

STN	**Hybridné izolátory na striedavý prúd (AC) a jednosmerný prúd (DC) pre vysokonapäťové aplikácie nad 1 000 V AC a 1 500 V DC Definície, skúšobné metódy a akceptačné kritériá**	**STN EN IEC 62896** 34 8116

Hybrid insulators for AC and DC for high-voltage applications greater than 1 000 V AC and 1 500 V DC - Definitions, test methods and acceptance criteria

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 10/24

Obsahuje: EN IEC 62896:2024, IEC 62896:2024

139337

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 62896

June 2024

ICS 29.080.10

English Version

Hybrid insulators for AC and DC for high-voltage applications greater than 1 000 V AC and 1 500 V DC - Definitions, test methods and acceptance criteria (IEC 62896:2024)

Isolateurs hybrides pour applications haute tension en courant alternatif et en courant continu supérieures à 1 000 V en courant alternatif et 1 500 V en courant continu - Définitions, méthodes d'essai et critères d'acceptation (IEC 62896:2024)

Hybridisolatoren für Wechsel- und Gleichspannungsanwendungen für Spannungen größer 1000 V AC und 1500 V DC - Begriffe, Prüfverfahren und Annahmebedingungen (IEC 62896:2024)

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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 62896:2024 E

EN IEC 62896:2024 (E)

European foreword

The text of document 36/594/FDIS, future edition 1 of IEC 62896, prepared by IEC/TC 36 "Insulators" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62896:2024.

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) 2025-03-18
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2027-06-18

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Endorsement notice

The text of the International Standard IEC 62896:2024 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 standard indicated:

IEC 60273	NOTE	Approved as HD 578 S1
IEC 60305	NOTE	Approved as EN IEC 60305
IEC 60433	NOTE	Approved as EN IEC 60433
IEC 60672-1	NOTE	Approved as EN 60672-1
IEC 60672-2	NOTE	Approved as EN 60672-2
IEC 60672-3	NOTE	Approved as EN 60672-3
IEC 61109	NOTE	Approved as EN 61109
IEC 61952	NOTE	Approved as EN 61952
IEC 62231	NOTE	Approved as EN 62231

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 60050-471	2007	International Electrotechnical Vocabulary - Part 471: Insulators	-	-
IEC 60168	-	Tests on indoor and outdoor post insulators of ceramic material or glass for systems with nominal voltages greater than 1000 V	EN 60168	-
IEC 60383-1	2023	Insulators for overhead lines with a nominal voltage above 1000 V - Part 1: Ceramic or glass insulator units for a.c. systems - Definitions, test methods and acceptance criteria	EN IEC 60383-1	2023
IEC 60383-2	-	Insulators for overhead lines with a nominal voltage above 1000 V - Part 2: Insulator strings and insulator sets for a.c. systems - Definitions, test methods and acceptance criteria	EN 60383-2	-
IEC 62155	-	Hollow pressurized and unpressurized ceramic and glass insulators for use in electrical equipment with rated voltages greater than 1 000 V	EN 62155	-
IEC 62217	-	Polymeric HV insulators for indoor and outdoor use - General definitions, test methods and acceptance criteria	EN 62217	-
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	-
IEC 61325	-	Insulators for overhead lines with a nominal voltage above 1000 V - Ceramic or glass insulator units for d.c. systems - Definitions, test methods and acceptance criteria	EN 61325	-

IEC 62896

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INTERNATIONAL STANDARD

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IEC 62896:2024-05(en-fr)

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HYBRID INSULATORS FOR AC AND DC HIGH-VOLTAGE APPLICATIONS GREATER THAN 1 000 V AC AND 1 500 V DC – 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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IEC 62896 has been prepared by IEC technical committee 36: Insulators. It is an International Standard.

This first edition cancels and replaces the IEC TS 62896 published in 2015. This edition constitutes a technical revision.

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

a) modifications of terms and definitions;
b) modifications of tests procedures included in IEC TR 62039 and IEC 62217 (Hydrophobicity transfer test);
c) harmonization of Table 1 (Tests to be carried out after design and type changes) with other product standards and IEC 62217.

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

Draft	Report on voting
36/594/FDIS	36/597/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.

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, or
- revised.

INTRODUCTION

Hybrid insulators consist of an insulating core, bearing the mechanical load protected by a polymeric housing, the load being transmitted to the core by end fittings. Despite these common features, the materials used and the construction details employed by different manufacturers may be quite different. The core is made of ceramic or glass material.

Hybrid insulators are applied as overhead line, post or hollow core equipment insulators. In order to perform the design tests, IEC 62217 is intended to be applied for the polymeric housing and the interfaces between core and the housing. For the core, the test standards for the respective ceramic product (IEC 60168, IEC 60383-1 and −2 and IEC 62155) are intended to be applied.

Some tests have been grouped together as "design tests", to be performed only once on insulators which satisfy the same design conditions. For all design tests of hybrid insulators, the common clauses defined in IEC 62217 are applied. 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 hybrid insulators has been considered in specifying the design tests to ensure a satisfactory life-time under normally known stress conditions in service.

Polymeric housing materials that show the hydrophobicity transfer mechanism (HTM) are preferred for hybrid insulators. These housing materials are applied as a countermeasure against severely polluted service conditions.

Pollution tests according to IEC 60507 or IEC 61245 are not included in this document since they are designed for non-polymeric items. Specific pollution tests for polymeric insulators are still under consideration.

HYBRID INSULATORS FOR AC AND DC HIGH-VOLTAGE APPLICATIONS GREATER THAN 1 000 V AC AND 1 500 V DC – DEFINITIONS, TEST METHODS AND ACCEPTANCE CRITERIA

1 Scope

This document applies to hybrid insulators for AC and DC applications greater than 1 000 V AC and 1 500 V DC consisting of a load-bearing insulating solid or hollow core consisting of ceramic or glass, a housing (defined geometry, outside the insulating core) made of polymeric material and end fittings permanently attached to the insulating core.

Hybrid insulators covered by this document are intended for use as suspension/tension long rod and cap and pin type insulators, line post insulators, station post insulators and hollow core insulators for apparatus.

The object of this document is to:

- define the terms used;
- prescribe test methods;
- prescribe acceptance criteria.

Silicone or other functional coatings (CIGRE Technical Brochure No. 478), booster sheds, shed extenders and rain deflectors are not within the scope of this document. CIGRE B2.69 published two Technical Brochures, TB 837 and TB 838, in June 2021 with the scope of practical applications and collection of experiences for anti-pollution coatings for insulators.

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

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 60050-471:2007, *International Electrotechnical Vocabulary (IEV) – Part 471: Insulators*

IEC 60168, *Tests on indoor and outdoor post insulators of ceramic material or glass for systems with nominal voltages greater than 1000 V*

IEC 60383-1:2023, *Insulators for overhead lines with a nominal voltage above 1000 V – Part 1: Ceramic or glass insulator units for a.c. systems – Definitions, test methods and acceptance criteria*

IEC 60383-2, *Insulators for overhead lines with a nominal voltage above 1000 V – Part 2: Insulator strings and insulator sets for a.c. systems – Definitions, test methods and acceptance criteria*

IEC 62155, *Hollow pressurized and unpressurized ceramic and glass insulators for use in electrical equipment with rated voltages greater than 1 000 V*

IEC 62217, *Polymeric HV insulators for indoor and outdoor use – General definitions, test methods and acceptance criteria*

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