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BUREAU OF INDIAN STANDARDS
DRAFT FOR COMMENTS ONLY

Draft Indian Standard

INSULATORS FOR OVERHEAD LINES – COMPOSITE SUSPENSION AND TENSION INSULATORS WITH a.c. VOLTAGE GREATER THAN 1 000 V AND d.c. VOLTAGE GREATER THAN 1 500 V – DEFINITIONS, TEST METHODS AND ACCEPTANCE CRITERIA

(*First Revision of IS 16784*)

ICS 29.080.10

Electrical Insulators And Accessories Sectional Committee, ETD 06	**Last date of receipt of comment: 13 September 2025**

NATIONAL FOREWORD

This draft Indian Standard which is identical with IEC 61109: 2025 "Insulators for overhead lines – Composite suspension and tension insulators with AC voltage greater than 1 000 V and DC voltage greater than 1 500 V – Definitions, test methods and acceptance criteria" issued by the International Electrotechnical Commission (IEC) will be adopted by the Bureau of Indian Standards on the recommendation of the Electrical Insulators And Accessories Sectional Committee and approval of the Electrotechnical Division Council.

This Indian standard was first published in 2018. This revision has been undertaken to align with the latest version of IEC 61109: 2025 (Ed. 3.0).

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

a) extension of this document to apply both to AC and DC systems;
b) modifications of Clause 3, Terms, definitions and abbreviations;
c) removal of Clause 7, Hybrid insulators, from this document;
d) modifications of tests procedures recently included in IS 16684 (hydrophobicity transfer test, stress corrosion, water diffusion test on the core with housing);
e) modifications on environmental conditions;
f) modifications on classification of tests and include the relevance of the interfaces;
g) clarification and modification of the parameters determining the need to repeat design and type tests;
h) revision of Table 1;
i) revision of electrical type tests;
j) revision of re-testing procedure of sample test;

k) addition of a new Annex D on electric field control for AC;
l) addition of a new Annex E on typical sketch for composite insulators assembly;
m) addition of a new Annex F on mechanical evaluation of the adhesion between core and housing;
n) addition of a new Annex G on applicability of design- and type tests for DC applications.

The text of IEC Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain terminologies and conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
b) Comma (,) has been used as a decimal marker, while in Indian Standards the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to International Standards for which Indian Standards also exists. The corresponding Indian Standards, which are to be substituted, are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
IEC 60060-1, High-voltage test techniques – Part 1: General definitions and test requirements	IS 2071 (Part 1) : 2016, High - Voltage test techniques: Part 1 general definitions and test requirements (Third Revision)	Identical with IEC 60060-1 : 2010
IEC 60383-1, Insulators for overhead lines with a nominal voltage above 1000 V – Part 1: Ceramic or glass insulator units for AC systems – Definitions, test methods and acceptance criteria	IS/IEC 60383-1:2023, 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 (First Revision)	Identical
IEC 60383-2, Insulators for overhead lines with a nominal voltage above 1 000 V – Part 2: Insulator strings and insulator sets for AC systems – Definitions, test methods and acceptance criteria	IS/IEC 60383-2:1993, Insulators for Overhead Lines with a Nominal Voltage Above 1 000 V: Part 2 Insulator Strings and Insulator Sets for a.c. Systems - Definitions, Test Methods and Acceptance Criteria	Identical
IEC 60437, Radio interference test on high-voltage insulators	IS 8263:2024, Radio Interference Test on High-Voltage Insulators (Second Revision)	Identical with IEC 60437 : 2023
IEC 62217, Polymeric HV insulators for indoor and outdoor use – General definitions, test methods and acceptance criteria	IS 16684:2018, Polymeric HV Insulators for Indoor and Outdoor Use-General Definitions, Test Methods and Acceptance Criteria	Identical with IEC 62217: 2012

The technical committee has reviewed the provisions of the following international standards referred in this adopted standard and decided that they are acceptable for use in conjunction with this standard.

International Standard	*Title*
IEC 61284	Overhead lines – Requirements and tests for fittings
IEC 61466-1	Composite string insulator units for overhead lines with a nominal voltage greater than 1 000 V – Part 1: Standard strength classes and end fittings
IEC 61467	Insulators for overhead lines – Insulator strings and sets for lines with a nominal voltage greater than 1 000 V – AC power arc tests
IEC 62231	Composite station post insulators for substations with AC voltages greater than 1 000 V up to 245 kV – Definitions, test methods and acceptance criteria
ISO 3452 (all parts)	Non-destructive testing – Penetrant testing

Only the English language text has been retained while adopting it in this Indian Standard, and as such, the page numbers given here are not the same as in the IEC Publication.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated expressing the result of a test or analysis shall be rounded off in accordance with IS 2: 2022 'Rules for rounding of numerical values (*Second Revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Note: The technical content of the document is not available on website. For details, please refer the corresponding IEC 61109: 2025 (Ed. 3.0) or kindly contact:

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