SLOVENSKI STANDARD
SIST EN 61462:2008
01-januar-2008

Kompozitni votli izolatorji - Tlaį ni in breztlaį ni izolatorji za elektriį no opremo z naznaį eno napetostjo nad 1 000 V - Definicije, preskusne metode, sprejemna merila in naį rtovalska priporoį ila (IEC 61462:2007)

Composite hollow insulators - Pressurized and unpressurized insulators for use in electrical equipment with rated voltage greater than 1 000 V - Definitions, test methods, acceptance criteria and design recommendations (IEC 61462:2007)

Verbundhohlisolatoren - Druckbeanspruchte und drucklose Isolatoren für den Einsatz in elektrischen Betriebsmitteln mit Bemessungsspannungen über 1 000 V - Begriffe, Prüfverfahren, Annahmekriterien und Konstruktionsempfehlungen (IEC 61462:2007)

Isolateurs composites creux - Isolateurs avec ou sans pression interne pour utilisation dans des appareillages électriques de tensions nominales supérieures a 1 000 V - Définitions, méthodes d'essais, criteres d'acceptation et recommandations de conception (IEC 61462:2007)

Ta slovenski standard je istoveten z: **EN 61462:2007**

ICS:

29.080.10	Izolatorji	Insulators

SIST EN 61462:2008 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61462

October 2007

ICS 29.080.10

English version

Composite hollow insulators - Pressurized and unpressurized insulators for use in electrical equipment with rated voltage greater than 1 000 V - Definitions, test methods, acceptance criteria and design recommendations

(IEC 61462:2007)

Isolateurs composites creux - Isolateurs avec ou sans pression interne pour utilisation dans des appareillages électriques de tensions nominales supérieures à 1 000 V - Définitions, méthodes d'essais, critères d'acceptation et recommandations de conception (CEI 61462:2007)

Verbundhohlisolatoren - Druckbeanspruchte und drucklose Isolatoren für den Einsatz in elektrischen Betriebsmitteln mit Bemessungsspannungen über 1 000 V - Begriffe, Prüfverfahren, Annahmekriterien und Konstruktionsempfehlungen (IEC 61462:2007)

This European Standard was approved by CENELEC on 2007-10-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the 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

Ref. No. EN 61462:2007 E

Foreword

The text of document 36C/167/FDIS, future edition 1 of IEC 61462, 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 61462 on 2007-10-01.

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)	2008-07-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2010-10-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61462:2007 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 standards indicated:

IEC 60507	NOTE	Harmonized as EN 60507:1993 (not modified).
IEC 60694	NOTE	Harmonized as EN 60694:1996 (not modified).
IEC 61006	NOTE	Harmonized as EN 61006:1993 (not modified).
IEC 61166	NOTE	Harmonized as EN 61166:1993 (not modified).
IEC 62271-100	NOTE	Harmonized as EN 62271-100:2001 (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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 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 60060-1	– [1)]	High-voltage test techniques - Part 1: General definitions and test requirements	HD 588.1 S1	1991 [2)]
IEC 60068-2-17	– [1)]	Environmental testing - Part 2: Tests - Test Q: Sealing	EN 60068-2-17	1994 [2)]
IEC 60168	– [1)]	Tests on indoor and outdoor post insulators of ceramic material or glass for systems with nominal voltages greater than 1 kV	EN 60168	1994 [2)]
IEC 62155 (mod)	– [1)]	Hollow pressurized and unpressurized ceramic and glass insulators for use in electrical equipment with rated voltages greater than 1 000 V	EN 62155	2003 [2)]
IEC 62217	– [1)]	Polymeric insulators for indoor and outdoor use with a nominal voltage > 1 000 V - General definitions, test methods and acceptance criteria	EN 62217 + corr. December	2006 [2)] 2006
ISO 1101	– [1)]	Geometrical Product Specifications (GPS) - Geometrical tolerancing - Tolerances of form, orientation, location and run-out	EN ISO 1101	2005 [2)]
ISO 3452	Series	Non-destructive testing - Penetrant inspection - General principles	EN ISO 3452	Series

[1)] Undated reference.

[2)] Valid edition at date of issue.

NORME INTERNATIONALE

INTERNATIONAL STANDARD

CEI
IEC
61462

Première édition
First edition
2007-02

Isolateurs composites creux – Isolateurs avec ou sans pression interne pour utilisation dans des appareillages électriques de tensions nominales supérieures à 1 000 V – Définitions, méthodes d'essais, critères d'acceptation et recommandations de conception

Composite hollow insulators – Pressurized and unpressurized insulators for use in electrical equipment with rated voltage greater than 1 000 V – Definitions, test methods, acceptance criteria and design recommendations

International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch

Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE X

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For price, see current catalogue

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMPOSITE HOLLOW INSULATORS –

PRESSURIZED AND UNPRESSURIZED INSULATORS FOR USE IN ELECTRICAL EQUIPMENT WITH RATED VOLTAGE GREATER THAN 1 000 V – DEFINITIONS, TEST METHODS, ACCEPTANCE CRITERIA AND DESIGN RECOMMENDATIONS

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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International Standard IEC 61462 has been prepared by subcommittee 36C: Insulators for substations, of IEC technical committee 36: Insulators.

This first edition cancels and replaces the first edition which was issued as a technical specification in 1998.It constitutes a technical revision and now has the status of an International Standard.

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

FDIS	Report on voting
36C/167/FDIS	36C/170/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 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

INTRODUCTION

Composite hollow insulators consist of an insulating tube bearing the mechanical load protected by an elastomeric housing, the loads being transmitted to the tube by metal fittings. Despite these common features, the materials used and the construction details employed by different manufacturers may vary.

Some tests have been grouped together as "Design tests" to be performed only once for insulators of the same design and material. The design tests are performed in order to eliminate designs and materials not suitable for high-voltage applications.

The relevant design tests defined in IEC 62217 are applied for composite hollow insulators; additional specific mechanical tests are given in this standard. The influence of time on the electrical and mechanical properties of the complete composite hollow insulator and its components (tube material, housing material, interfaces, etc.) has been considered in specifying the design tests in order to ensure a satisfactory lifetime under normal service conditions. These conditions may also depend on the equipment inside or outside the composite hollow insulators; however, this matter has not been covered in this standard. Test methods not specified in this standard may be considered for specific combinations of materials and specific applications, and are a matter of agreement between manufacturers and users. In this standard, the term “user” in general means the equipment manufacturer using composite hollow insulators.

The practical use of composite hollow insulators covers both a.c. and d.c. applications. In spite of this fact a specific tracking and erosion test procedure for d.c. applications as a design test has not yet been defined and accepted. The 1 000 h a.c. tracking and erosion test of IEC 62217 is used to establish a minimum requirement for the tracking resistance of the housing material.

This standard distinguishes between design tests and type tests because several general characteristics of a specific design and specific combinations of materials do not vary for different insulator types. In these cases results from design tests can be adopted for different insulator types.

Pollution tests according to IEC 60507 are not included in this standard as they are generally not applicable. Such pollution tests performed on insulators made of non-ceramic materials do not correlate with experience obtained from service. Specific pollution tests for non-ceramic insulators are under consideration.

The mechanical characteristics of composite hollow insulators are quite different compared to those of hollow insulators made of ceramics. In order to determine the onset of mechanical deterioration of composite hollow insulators under the influence of mechanical stress, strain gauge measurements are used.

This standard refers to different characteristic pressures which are used for design and testing of composite hollow insulators. The term "maximum service pressure" (MSP) is equivalent to the term "design pressure" which is used in other standards for ceramic hollow insulators; however, this latter term is not used in this standard in order to avoid confusion with "design" as used in "design tests".

General recommendations for the design and construction of composite hollow insulators are presented in Annex B.

COMPOSITE HOLLOW INSULATORS –

PRESSURIZED AND UNPRESSURIZED INSULATORS FOR USE IN ELECTRICAL EQUIPMENT WITH RATED VOLTAGE GREATER THAN 1 000 V – DEFINITIONS, TEST METHODS, ACCEPTANCE CRITERIA AND DESIGN RECOMMENDATIONS

1 Scope and object

This International Standard applies to composite hollow insulators consisting of a load-bearing insulating tube made of resin impregnated fibres, a housing (outside the insulating tube) made of elastomeric material (for example silicone or ethylene-propylene) and metal fixing devices at the ends of the insulating tube. Composite hollow insulators as defined in this standard are intended for general use (unpressurized) or for use with a permanent gas pressure (pressurized). They are intended for use in both outdoor and indoor electrical equipment operating on alternating current with a rated voltage greater than 1 000 V and a frequency not greater than 100 Hz or for use in direct current equipment with a rated voltage greater than 1 500 V.

The object of this standard is:

– to define the terms used;
– to prescribe test methods;
– to prescribe acceptance criteria.

This standard does not prescribe impulse voltage or power frequency voltage type tests, nor does it prescribe pollution tests because the withstand voltages are not characteristics of the hollow insulator itself, but of the apparatus of which it ultimately forms a part.

All the tests in this standard, apart from the thermal-mechanical test, are performed at normal ambient temperature. This standard does not prescribe tests that may be characteristic of the apparatus of which the hollow insulator ultimately forms a part. Further technical input is required in this area.

NOTE 1 "Pressurized" means a permanent gas or liquid pressure greater than 0,05 MPa (0,5 bar) gauge. The gas can be dry air or inert gases, for example sulphur hexafluoride, nitrogen, or a mixture of such gases.

NOTE 2 "Unpressurized" means a gas or liquid pressure smaller than or equal to 0,05 MPa (0,5 bar) gauge.

NOTE 3 Composite hollow insulators are intended for use in electrical equipment, such as, but not limited to

- circuit-breakers,
- switch-disconnectors,
- disconnectors,
- earthing switches,
- instrument- and power transformers,
- bushings.

Additional testing defined by the relevant IEC equipment committee may be required.