SLOVENSKI STANDARD
oSIST prEN 65700:2018

01-januar-2018

Skoznjiki za enosmerne aplikacije

Bushings for DC application

Durchführungen für Gleichspannungsanwendungen

Traversées pour application en courant continu

Ta slovenski standard je istoveten z: **prEN 65700:2017**

ICS:

29.080.20 Skoznjiki Bushings

oSIST prEN 65700:2018 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 65700

October 2017

ICS 29.080.20

Will supersede EN 62199:2004

English Version

Bushings for DC application
(IEC/IEEE 65700-19-03:2014)

Traversées pour application en courant continu
(IEC/IEEE 65700-19-03:2014)

Durchführungen für Gleichspannungsanwendungen
(IEC/IEEE 65700-19-03:2014)

This draft European Standard is submitted to CENELEC members for enquiry.
Deadline for CENELEC: 2018-01-12.

The text of this draft consists of the text of IEC/IEEE 65700-19-03:2014.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CENELEC 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

This document (prEN 65700:2017) consists of the text of IEC/IEEE 65700-19-03:2014 prepared by IEC/TC 36A "Insulated bushings" of IEC/TC 36 "Insulators and Bushing" subcommittee of the IEEE-PES transformer committee.

This document is currently submitted to the enquiry.

The following dates are proposed:

• latest date by which the existence of this document has to be announced at national level	(doa)	dor + 6 months
• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	dor + 12 months
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	dor + 36 months (to be confirmed or modified when voting)

This document will supersede EN 62199:2004.

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.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60050	Series	International Electrotechnical Vocabulary	-	-
IEC 60060-1	2010	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	2010
IEC 60071-1	-	Insulation co-ordination - Part 1: Definitions, principles and rules	EN 60071-1	-
IEC 60071-5	-	Insulation co-ordination - Part 5: Procedures for high-voltage direct current (HVDC) converter stations	EN 60071-5	-
IEC 60076-1	-	Power transformers - Part 1: General	EN 60076-1	-
IEC 60076-2	-	Power transformers - Part 2: Temperature rise for liquid-immersed transformers	EN 60076-2	-
IEC 60076-7	-	Power transformers - Part 7: Loading guide for oil-immersed power transformers	-	-
IEC 60137	2008	Insulated bushings for alternating voltages above 1 000 V	EN 60137	2008
IEC 60270	-	High-voltage test techniques - Partial discharge measurements	EN 60270	-
IEC 60296	-	Fluids for electrotechnical applications - Unused mineral insulating oils for transformers and switchgear	EN 60296	-
IEC 60376	-	Specification of technical grade sulfur hexafluoride (SF6) for use in electrical equipment	EN 60376	-
IEC 60480	-	Guidelines for the checking and treatment of sulphur hexafluoride (SF6) taken from electrical equipment and specification for its re-use	EN 60480	-

Publication	Year	Title	EN/HD	Year
IEC 60836	-	Specifications for unused silicone insulating liquids for electrotechnical purposes	EN 60836	-
IEC 60867	-	Insulating liquids - Specifications for unused liquids based on synthetic aromatic hydrocarbons	EN 60867	-
IEC 61245	-	Artificial pollution tests on high-voltage insulators to be used on d.c. systems	-	-
IEC 61378-2	-	Convertor transformers - Part 2: Transformers for HVDC applications	EN 61378-2	-
IEC 61462	-	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	EN 61462	-
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	-
CISPR 16-1	Series	Specification for radio disturbance and immunity measuring apparatus and methods	EN 55016-1	Series
CISPR 18-2	-	Radio interference characteristics of overhead power lines and high-voltage equipment - Part 2: Methods of measurement and procedure for determining limits	-	-
IEEE Std C57.19.00™	2004	IEEE General Requirements and Test Procedures for Outdoor Apparatus Bushings (ANSI)	-	-

IEEE Standards Dictionary Online

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IEC/IEEE 65700-19-03

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INTERNATIONAL STANDARD

Bushings for DC application

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

BUSHINGS FOR DC APPLICATION

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.

   IEEE Standards documents are developed within IEEE Societies and Standards Coordinating Committees of the IEEE Standards Association (IEEE-SA) Standards Board. IEEE develops its standards through a consensus development process, approved by the American National Standards Institute, which brings together volunteers representing varied viewpoints and interests to achieve the final product. Volunteers are not necessarily members of IEEE and serve without compensation. While IEEE administers the process and establishes rules to promote fairness in the consensus development process, IEEE does not independently evaluate, test, or verify the accuracy of any of the information contained in its standards. Use of IEEE Standards documents is wholly voluntary. IEEE documents are made available for use subject to important notices and legal disclaimers (see http://standards.ieee.org/IPR/disclaimers.html for more information).

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2) The formal decisions of 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 IEC National Committees. The formal decisions of IEEE on technical matters, once consensus within IEEE Societies and Standards Coordinating Committees has been reached, is determined by a balanced ballot of materially interested parties who indicate interest in reviewing the proposed standard. Final approval of the IEEE standards document is given by the IEEE Standards Association (IEEE-SA) Standards Board.

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6) All users should ensure that they have the latest edition of this publication.

7) No liability shall attach to IEC or IEEE or their directors, employees, servants or agents including individual experts and members of technical committees and IEC National Committees, or volunteers of IEEE Societies and the Standards Coordinating Committees of the IEEE Standards Association (IEEE-SA) Standards Board, for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC/IEEE Publication or any other IEC or IEEE Publications.

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This International Standard has been prepared by a joint working group of sub-committee 36A: Insulated bushings, of IEC technical committee 36: Insulators and Bushing subcommittee of the IEEE-PES transformer committee[1].

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

FDIS	Report on voting
36A/173/FDIS	36A/174/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 stability 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.

A bilingual version of this publication may be issued at a later date.

[1] A list of IEEE participants can be found at the following URL: <http://standards.ieee.org/downloads/65700/65700-19-03-2014/65700-19-03-2014_wg-participants.pdf>.

INTRODUCTION

In this first edition of IEC/IEEE 65700-19-03, service experiences as well as established market requirements have been harmonized with existing IEC and IEEE standards, primarily:

IEC 60137, *Insulated bushings for alternating voltages above 1 000 V*

IEC 62199, *Bushings for DC application*

IEEE Std C57.19.00™, *IEEE Standard General Requirements and Test Procedures for Outdoor Power Apparatus Bushings*

IEEE Std C57.19.03™, *IEEE Standard Requirements, Terminology and Test Code for Bushings for DC Application*

This dual numbered standard replaces the previous IEC and IEEE DC bushing standards.

Where applicable, reference is also made to the following standards:

IEC 61462, *Composite insulators – Hollow insulators for use in outdoor and indoor electrical equipment*; and

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

Non-ceramic bushing insulators are widely used in DC applications and this standard applies to similar qualification procedures on all types of insulators, except for the artificial pollution test. Preparation of a bushing for an artificial pollution test destroys the surface of a composite insulator and therefore cannot be performed on such bushings.

The range of type tests and routine tests has been carefully planned, considering that high voltage direct current (HVDC) power transmission is a mature technology, but still with limited service experience compared to AC systems and voltage coordination may vary with different system HVDC design practices.

Work on IEEE Std C57.19.03 edition 1 was started in 1988 within the Working Group on Bushings for DC Applications of the Bushing Subcommittee of the IEEE Transformers Committee. The working group decided to address requirements for these bushings in a self-standing document because many problems specific to this type of bushing were being experienced within the industry and other available standards on bushings were inadequate for this purpose. The main reference for the resulting document was its counterpart for ac bushings, IEEE Std C57.19.00-1991 and IEC 60137. Requirements were also coordinated with the CIGRE Joint Working Group 12/14.10 as well as with the HVDC Converter Transformer and Smoothing Reactor Subcommittee of the IEEE Transformers Committee, which developed standards for these HVDC apparatus during the same time frame.

IEEE Std C57.19.03:1996 was approved by the IEEE-SA Standards Board on 20 June 1996 and published on 6 January 1997. During the reaffirmation process for this document in 2002, several errors in the document were reported. All known errors were corrected in a corrigendum in December 2005. This revised standard includes the corrections made in the corrigendum.

Work on IEC 62199 started in 2000 by IEC SC 36A, the insulated bushings subcommittee of IEC TC 36, the insulators technical committee, and was largely based on IEEE Std C57.19.03. Edition 1 was published in 2004.

After work on the revision of IEEE Std C57.19.03 was started by IEEE it was agreed at a meeting of IEC TC36 in Sao Paulo in 2008 to approach IEEE to establish a Joint Maintenance Team under the Dual Logo Standard procedure. This was agreed and work on the new document IEC/IEEE 65700-19-03 was started in 2009.