SLOVENSKI STANDARD
SIST EN 60832-1:2010

01-junij-2010

Nadomešča:
SIST EN 60832:2001

Delo pod napetostjo - Izolacijske palice in priklopne naprave - 1. del: Izolacijske palice (IEC 60832-1:2010)

Live working - Insulating sticks and attachable devices - Part 1: Insulating sticks (IEC 60832-1:2010)

Arbeiten unter Spannung - Isolierende Arbeitsstangen und auswechselbare Adapter/Arbeitsköpfe - Teil 1: Isolierende Arbeitsstangen (IEC 60832-1:2010)

Travaux sous tension - Perches isolantes et outils adaptables - Partie 1: Perches isolantes (CEI 60832-1:2010)

Ta slovenski standard je istoveten z: **EN 60832-1:2010**

ICS:

13.260	Varstvo pred električnim udarom. Delo pod napetostjo	Protection against electric shock. Live working
29.260.01	Električna oprema za delo v posebnih razmerah na splošno	Electrical equipment for working in special conditions in general

SIST EN 60832-1:2010 **en,fr**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60832-1

March 2010

ICS 13.260; 29.240.20; 29.260.99

Supersedes EN 60832:1996 (partially)

English version

Live working - Insulating sticks and attachable devices - Part 1: Insulating sticks

(IEC 60832-1:2010)

Travaux sous tension -
Perches isolantes et outils adaptables -
Partie 1: Perches isolantes
(CEI 60832-1:2010)

Arbeiten unter Spannung -
Isolierende Stangen und auswechselbare Adapter/Arbeitsköpfe -
Teil 1: Isolierende Stangen
(IEC 60832-1:2010)

This European Standard was approved by CENELEC on 2010-03-01. 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, Croatia, 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: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 60832-1:2010 E

Foreword

The text of document 78/838/FDIS, future edition 1 of IEC 60832-1, prepared by IEC TC 78, Live working, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60832-1 on 2010-03-01.

This EN 60832-1, together with EN 60832-2, supersedes EN 60832:1996. The two parts have been created to clearly separate the requirements and testing of insulating sticks from those of attachable devices.

Compared to EN 60832:1996, the major changes included in EN 60832-1:2010 are:

– integration of a cold impact test on the end fitting;

– creation of an electrical category of end fittings;

– integration of a test of the dielectric strength of internal insulation;

– modification of the dye penetration test (disappearance of fuchsine);

– application of conformity assessment for products having completed the production phase, according to IEC 61318:2007 (Edition 3), focusing on the classification of defects and the introduction of alternative testing in case of production follow-up.

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

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) 2010-12-01

– latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2013-03-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60832-1:2010 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 60743:2001	NOTE	Harmonized as EN 60743:2001 (not modified).
IEC 61472:2004	NOTE	Harmonized as EN 61472:2004 (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	-	High-voltage test techniques - Part 1: General definitions and test requirements	HD 588.1 S1	-
IEC 60212	1971	Standard conditions for use prior to and during the testing of solid electrical insulating materials	HD 437 S1	1984
IEC 60417	-	Graphical symbols for use on equipment	-	-
IEC 60855-1	-	Live working - Insulating foam-filled tubes and solid rods - Part 1: Tubes and rods of a circular cross-section	FprEN 60855-1	-
IEC 61318	2007	Live working - Conformity assessment applicable to tools, devices and equipment	EN 61318	2008
IEC 61477	-	Live working - Minimum requirements for the utilization of tools, devices and equipment	EN 61477	-
ISO 8486-1	1996	Bonded abrasives - Determination and designation of grain size distribution - Part 1: Macrogrits F4 to F220	-	-

IEC 60832-1

Edition 1.0 2010-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Live working – Insulating sticks and attachable devices – Part 1: Insulating sticks

Travaux sous tension – Perches isolantes et outils adaptables – Partie 1: Perches isolantes

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LIVE WORKING – INSULATING STICKS AND ATTACHABLE DEVICES –

Part 1: Insulating sticks

FOREWORD

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International Standard IEC 60832-1 has been prepared by IEC technical committee 78: Live working.

The first edition of IEC 60832-1 and that of IEC 60832-2 cancel and replace the first edition of IEC 60832 published in 1988. The two parts have been created to clearly separate the requirements and testing of insulating sticks from those of attachable devices.

Compared to IEC 60832, the major changes included in IEC 60832-1 are:

- integration of a cold impact test on the end fitting;
- creation of an electrical category of end fittings;
- integration of a test of the dielectric strength of internal insulation;
- modification of the dye penetration test (disappearance of fuchsine);

- application of conformity assessment for products having completed the production phase, according to IEC 61318:2007 (Edition 3), focusing on the classification of defects and the introduction of alternative testing in case of production follow-up.

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

FDIS	Report on voting
78/838/FDIS	78/844/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.

A list of all parts of the IEC 60832 series, published under the general title *Live working – Insulating sticks and attachable devices,* can be found on the IEC website.

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.

INTRODUCTION

The purpose of this standard is to provide essential requirements. Each user may supplement it with their own requirements. For example, the user may add requirements regarding the use of insulating sticks on d.c. electrical installations or the mechanical performance or compatibility and interchangeability with tools already in service. In such cases, caution should be taken to maintain or improve the performance of the products.

This publication has been prepared in accordance with the requirements of IEC 61477.

The products designed and manufactured according to this standard contribute to the safety of the users provided they are used by skilled persons, in accordance with safe methods of work and the instructions for use.

The product covered by this standard may have an impact on the environment during some or all stages of its life cycle. These impacts can range from slight to significant, be of short-term or long-term, and occur at the global, regional or local level.

Except for a disposal statement in the instructions for use, and special considerations for the selection of a dye (see 5.6), this standard does not include requirements and test provisions for the manufacturers of the product, or recommendations to the users of the product for environmental improvement. However, all parties intervening in its design, manufacture, packaging, distribution, use, maintenance, repair, reuse, recovery and disposal are invited to take account of environmental considerations.

LIVE WORKING – INSULATING STICKS AND ATTACHABLE DEVICES –

Part 1: Insulating sticks

1 Scope

This part of IEC 60832 gives the essential requirements for insulating sticks for live working for use on a.c. electrical installations.

Part 2 of IEC 60832 covers devices that can be attached onto and removed from the fitting of the insulating sticks.

The products designed and manufactured according to this standard contribute to the safety of the users provided they are used by skilled persons, in accordance with safe methods of work and the instructions for use.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this international standard. 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 60212:1971, *Standard conditions for use prior to and during the testing of solid electrical insulating materials*

IEC 60417, *Graphical symbols for use on equipment*

IEC 60855-1, *Live working – Insulating foam-filled tubes and solid rods – Part 1: Tubes and rods of a circular cross-section*

IEC 61318:2007, *Live working – Conformity assessment applicable to tools, devices and equipment*

IEC 61477, *Live working – Minimum requirements for the utilization of tools, devices and equipment*

ISO 8486-1:1996, *Bonded abrasives – Determination and designation of grain size distribution – Part 1: Macrogrits F4 to F220*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61318 and the following apply.

3.1.1
insulating stick
insulating tool essentially made of insulating tube and/or rod with end fitting(s)

[Definition 2.5.1 of IEC 60743 and IEV 651-02-01, modified]

3.1.2
rated value
value of a quantity used for specification purposes, established for a specified set of operating conditions of a component, device, equipment or system

[IEV 151-16-08]

3.1.3
end fitting
part permanently fitted to the end of the insulating tube or rod

[Definition 2.4.1 of IEC 60743 and IEV 651-02-02 modified]

3.1.4
type of tool
family of tools which are of the same design and application

3.1.5
rated voltage
U_r
maximum r.m.s. voltage for using the stick, which corresponds to the phase-to-phase voltage of three-phase networks

3.2 Symbols

T_N rated torque given by the manufacturer for a given tool and for testing purposes

F_{TN} rated tensile force given by the manufacturer for a given tool and for testing purposes

F_{CN} rated compression force given by the manufacturer for a given tool and for testing purposes

F_{BN} rated bending force given by the manufacturer for a given tool and for testing purposes

4 Requirements

4.1 General

The following requirements have been prepared in order that the products covered by this standard are designed and manufactured to contribute to the safety of the users, provided they are used by persons skilled for live working, in accordance with safe method of work and the instructions for use.

It shall be ensured that all appropriate measures have been taken to minimize size and weight of the insulating sticks so as to facilitate their handling.

4.2 Electrical insulation

The tools covered by this standard shall only use foam-filled tube and/or solid rod with a circular cross-section that are in accordance with IEC 60855-1.

NOTE 1 Appropriate value of insulation should be achieved by using an appropriate length of tube or rod according to the method of work and taking into account the minimum approach distances (see IEC 61472) and the flashover characteristics of the stick.

NOTE 2 The electrical insulating characteristics of raw material used for insulating stick with non circular cross section will be covered by a future publication in the IEC 60855 series of standards.

The end fitting(s) shall be designed such as to avoid any internal insulation failure.

4.3 Electrical category of end fittings

End fittings shall be categorized according to their maximum use voltage:

- category A for use where U_r is lower than or equal to 550 kV;
- category B for use where U_r is larger than 550 kV but lower than or equal to 800 kV.

4.4 Dimensional and mechanical requirements

4.4.1 Dimensional requirements

For each type of tool complying with this part of the standard, the manufacturer shall provide in writing the dimensions or operating ranges relating to the specific functions of the tool.

4.4.2 Mechanical requirements

For each type of tool listed in Tables 1 and 2 and complying with this part of the standard, the manufacturer shall provide in writing the rated values corresponding to the characteristics specified in Tables 1 and 2.

The clip-on ammeter stick does not require mechanical tests to be performed on it, only visual inspection (see 5.2) and dimensional check (see 5.3) shall be carried out.

In case of tools equipped with wing screw(s), the wing screw(s) shall withstand the torsion stress of normal use.