SLOVENSKI STANDARD
SIST EN 60832:2001

01-september-2001

Izolacijski drogovi (izolacijske palice) in univerzalni nastavki za orodja za delo pod napetostjo (IEC 60832:1988, spremenjen)

Insulating poles (insulating sticks) and universal tool attachments (fittings) for live working

Isolierende Arbeitsstangen und zugehörige Arbeitsköpfe zum Arbeiten unter Spannung

Perches isolantes et outils adaptables pour travaux sous tension

Ta slovenski standard je istoveten z: **EN 60832:1996**

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

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60832

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ICS 13.340.20

Supersedes HD 542 S1:1990

Descriptors: Live working, electrical equipment, insulating tube, tool, characteristic, test, interchangeability

English version

Insulating poles (insulating sticks) and universal tool attachments (fittings) for live working
(IEC 832:1988, modified)

Perches isolantes et outils adaptables pour travaux sous tension
(CEI 832:1988, modifiée)

Isolierende Arbeitsstangen und zugehörige Arbeitsköpfe zum Arbeiten unter Spannung
(IEC 832:1988, modifiziert)

This European Standard was approved by CENELEC on 1996-03-05. 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and 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

Foreword

The text of the International Standard IEC 832:1988, prepared by IEC TC 78, Tools for live working, was approved by CENELEC as HD 542 S1 on 1989-11-01.

This Harmonization Document, together with common modifications prepared by the Technical Committee CENELEC TC 78, was submitted to the formal vote and was approved by CENELEC as EN 60832 on 1996-03-05.

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) 1997-03-01

- latest date by which national standards conflicting with the EN have to be withdrawn (dow) 1997-03-01

For products which have complied with HD 542 S1:1990 before 1997-03-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2002-03-01.

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given only for information.
In this standard, annex A is informative, annexes B to E and annex ZA are normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 832:1988 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

CONTENTS

Replace "Section Three - Sampling and routine tests" by:

Section Three - Routine tests, Quality assurance plan and Acceptance tests

Replace "24 Sampling tests" by:

24 Quality assurance plan and acceptance tests

Replace "Section Six - Sampling and routine tests" by:

Section Six - Routine tests, Quality assurance plan and Acceptance tests

Replace "62 Sampling tests" by:

62 Quality assurance plan and acceptance tests

Replace "Appendix" by "Annex"

Add (informative) after Annex A.

Add (normative) after Annex B, Annex C, Annex D and Annex E.

24 Sampling tests

Replace the entire clause by:

24 Quality Assurance plan and acceptance tests

24.1 *General*

In order to assure the delivery of products that meet this standard, the manufacturer shall employ an approved quality assurance plan that complies with the provisions of the ISO 9000 series.

The quality assurance plan shall ascertain that the products meet the requirements contained in this standard.

In the absence of an accepted quality assurance plan as specified above the sampling tests contained in 24.2 shall be carried out.

24.2 *Sampling tests*

After agreement between the manufacturer and the customer all the type tests described above, or only some of them, shall be carried out again as sampling tests. They shall be made under the responsibility of the manufacturer who shall make the results available to the customer.

Sampling tests shall be carried out only for lots made of more than 90 tools. For lots made of 90 tools or less, sampling tests shall be replaced by acceptance tests (see annex A) at the request of the customer.

The sampling plan and the acceptable quality level shall be as in table IX.

Table IX - Sampling plan

Lot or batch size	Sample size	Acceptance number	Rejection number
91 to 150	8	0	1
151 to 500	13	1	2
501 to 1 200	20	1	2
1 201 to 10 000	32	2	3

The tools tested at more than 125 % of a rated value given by the manufacturer shall not be re-used.

24.3 *Acceptance tests*

If the customer requests from the manufacturer additional requirements and tests, the manufacturer shall keep all additional test results for inspection by the customer (see annex A).

62 Sampling tests

Replace the entire clause by:

62 Quality assurance plan and acceptance tests

62.1 *General*

In order to assure the delivery of products that meet this standard, the manufacturer shall employ an approved quality assurance plan that complies with the provisions of the ISO 9000 series.

The quality assurance plan shall ascertain that the products meet the requirements contained in this standard.

In the absence of an accepted quality assurance plan as specified above the sampling tests contained in 62.2 shall be carried out.

62.2 *Sampling tests*

After agreement between the manufacturer and the customer all the type tests described above, or only some of them, shall be carried out again as sampling tests. They shall be made under the responsibility of the manufacturer who shall make the results available to the customer.

Sampling tests shall be carried out only for lots made of more than 90 tool attachments. For lots made of 90 or less tool attachments, sampling tests shall be replaced by acceptance tests (see annex A) on request by the customer.

The sampling plan and the acceptable quality level shall be as in table XIV.

Table XIV - Sampling plan

Lot or batch size	Sample size	Acceptance number	Rejection number
91 to 150	8	0	1
151 to 500	13	1	2
501 to 1 200	20	1	2
1 201 to 10 000	32	2	3

The tool attachments tested at more than 125 % of a rated value given by the manufacturer shall not be re-used.

62.3 *Acceptance tests*

If the customer requests from the manufacturer additional requirements and tests, the manufacturer shall keep all additional test results for inspection by the customer (see annex A).

Annexes

Replace the headings of the appendices by:

Annex A
(informative)

Annex B
(normative)

Annex C
(normative)

Annex D
(normative)

Annex E
(normative)

Add the following new annex:

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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 50(151)	1978	International Electrotechnical Vocabulary (IEV) Chapter 151: Electrical and magnetic devices	-	-
IEC 60	series	High-voltage test techniques	HD 588.1 S1 EN 60060-2	1991 1994
IEC 212	1971	Standard conditions for use prior to and during the testing of solid electrical insulating materials	HD 437 S1	1984
IEC 410	1973	Sampling plans and procedures for inspection by attributes	-	-
IEC 743	1983	Terminology for tools and equipment to be used in live working	EN 60743[1)]	1996
IEC 855 (mod)	1985	Insulating foam-filled tubes and solid rods for live working	EN 60855	1996

1) EN 60743 includes A1:1995 to IEC 743.

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Perches isolantes et outils adaptables pour travaux sous tension

Insulating poles (insulating sticks) and universal tool attachments (fittings) for live working

Publication
832: 1988

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INSULATING POLES (INSULATING STICKS) AND UNIVERSAL TOOL ATTACHMENTS (FITTINGS) FOR LIVE WORKING

FOREWORD

1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

PREFACE

This standard has been prepared by IEC Technical Committee No. 78: Tools for Live Working.

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

Six Months' Rule	Report on Voting
78(CO)14	78(CO)20

Full information on the voting for the approval of this standard can be found in the Voting Report indicated in the above table.

The following IEC publications are quoted in this standard:

Publications Nos. 50(151)(1978): International Electrotechnical Vocabulary (IEV), Chapter 151: Electrical and magnetic devices.
60: High-voltage test techniques.
212(1971): Standard conditions for use prior to and during the testing of solid electrical insulating materials.
410(1973): Sampling plans and procedures for inspection by attributes.
743(1983): Terminology for tools and equipment to be used in live working.
855(1985): Insulating foam-filled tubes and solid rods for live working.

INSULATING POLES (INSULATING STICKS) AND UNIVERSAL TOOL ATTACHMENTS (FITTINGS) FOR LIVE WORKING

INTRODUCTION

This standard covers general matters. It should not be considered complete in itself and it leaves to each customer the task of establishing his own detailed requirements. These will cover, for example, required mechanical performance and conditions of interchangeability with equipment already in service.

1. Scope

This standard is applicable to insulating poles (insulating sticks) and tool attachments (fittings) and is divided into three chapters.

Chapter I: Specifies the required characteristics for insulating poles with permanently attached fittings and the tests (electrical and mechanical) which shall be satisfied by these tools.

Chapter II: Specifies the required characteristics for parts which may be attached to and detached from the ends of poles described in Chapter I, and the tests which shall be satisfied by these tools.

Chapter III: Specifies the special clauses applicable to insulating poles and universal tool attachments.

The insulating poles mentioned in this standard shall be built with insulating tubes and rods in accordance with IEC Publication 855.

2. Definitions

2.1 *IEV Definitions*

The following terms are defined in accordance with IEC Publication 50 (151) and IEC Publication 410.

Type test

A test of one or more devices made to a certain design to show that the design meets certain specifications (IEV 151-04-15).

Routine test

A test to which each individual device is subjected during or after manufacture to ascertain whether it complies with certain criteria (IEV 151-04-16).

Sampling test

A test on a number of devices taken at random from a batch (IEV 151-04-17).

Acceptance test

A contractual test to prove to the customer that the device meets certain conditions of its specification (IEV 151-04-20).

Rated value

A quantity value assigned, generally by a manufacturer, for a specified operating condition of a component, device or equipment (IEV 151-04-03).

Minor defect

A minor defect is a defect that is not likely to reduce materially the usability of the unit of product for its intended purpose, or is a departure from established standards having little bearing on the effective use or operation of the unit (IEC Publication 410, Sub-clause 2.1.3).

Major defect

A major defect is a defect, other than critical, that is likely to result in failure, or to reduce materially the usability of the unit of product for its intended purpose (IEC Publication 410, Sub-clause 2.1.2).

Critical defect

A critical defect is a defect that judgment and experience indicate is likely to result in hazardous or unsafe conditions for individuals using, maintaining or depending upon the product, or a defect that judgment and experience indicate is likely to prevent performance of the function of a major end item (IEC Publication 410, Sub-clause 2.1.1).

2.2 *Definitions of special terms used in this standard*

End fitting

Part (generally metallic) permanently fitted to the ends of insulating tube or rod (IEC Publication 743, Sub-clause 1.2.1).

Type of tool

Tools which have the same design and equal dimensions.

Family of tools

It includes all the types of tools which have the same function (utilization, use, etc.).

MIDCT

"Minor defect control test". It consists of applying a certain force or torque (specified in this standard) to a tool and verifying whether any minor defect has occurred.

MADCT

"Major defect control test". It consists of applying a certain force or torque (specified in this standard) to a tool and verifying whether any major or critical defect has occurred.

T_N: Rated torque given by the manufacturer for a tool and testing purposes.

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

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

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

CHAPTER I: INSULATING POLES WITH PERMANENTLY ATTACHED FITTINGS

SECTION ONE — TECHNICAL CHARACTERISTICS

3. General

Care shall be taken to ensure that adequate attention is given to minimize the weight and size to optimize the handling of the equipment.

4. Insulation

Insulation shall be obtained by a length of tube or rod in accordance with IEC Publication 855.

5. Dimensional and mechanical characteristics

Dimensional characteristics:

For each type of tool the manufacturer shall indicate the dimensions or operating ranges relating to the specific functions of the tool.

Mechanical characteristics:

For each type of tool the manufacturer shall give rated values corresponding with the characteristics specified in Tables I and II.

TABLE I

Hand poles (hand sticks)

Mechanical tests are not required but only visual inspection (Clause 9) and dimensional checks (Clause 10) on:

— Insulated oiler pole (stick),
— Clip-on ammeter pole (amertong).

Family of tools / Characteristics	Tie pole (tie stick)	Safety hook pole (retractable hook stick)	Hook pole extension (retractable hook stick)	Universal hand pole (universal hand stick)	Wire holding pole (wire holding stick)	Cotter-key plier pole	Wire-cutter
F_{BN}		X	X			X	
F_{TN}		X		X	X	X	
T_N		X	X	X	X	X	
Other special characteristics	Tensile strength of the rotary blade and prong		Tensile strength of the connecting clamp	Torsion strength of the wing screws	Holding capability	Holding capability Torsion strength of the support-handle Torsion strength of the operating handle	Cutting capability