

Insulating foam-filled tubes and solid rods for live working

ICS 13.340.99

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Power Electrical Engineering Standards Policy Committee (PEL/-) to Technical Committee PEL/88, upon which the following bodies were represented:

- Association of Manufacturers Allied to the Electrical and Electronic Industry (BEAMA Ltd.)
- BECCAMA (BEAMA Electrical Cable Connector and Accessories Manufacturer's Association)
- British Railways Board
- Department of Trade and Industry
- Department of Trade and Industry (Consumer Safety Unit, CA Division)
- Electricity Association
- Federation of British Hand Tool Manufacturers
- GAMBICA (BEAMA Ltd.)
- Industrial Safety (Protective Equipment) Manufacturers' Association
- International Powered Access Federation
- National Association of Glove Manufacturers

This British Standard, having been prepared under the direction of the Power Electrical Engineering Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 November 1993

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Amendments issued since publication

Amd. No.	Date	Comments
9365	January 1997	
13576 Corrigendum No. 1	11 July 2002	Replacement of solvent in first line of 8.1.1 and addition of note and replacement of solvent in first line of 8.2.1

The following BSI references relate to the work on this standard:
Committee reference PEL/88
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National foreword

This British Standard has been prepared by Technical Committee PEL/78 (formerly PEL/88). It is the English language version of EN 60855:1996 *Insulating foam-filled tubes and solid rods for live working*, published by the European Committee for Electrotechnical Standardization (CENELEC). It was derived from IEC 60855:1987, including Corrigendum July 1999, published by the International Electrotechnical Commission (IEC).

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

CENELEC made four small editorial changes to IEC 60855 for the following reasons.

Clause 5 to make sure clause 6 is referred to for the procedure for visual inspection and dimensional check.

Clause 7 to remove “Torr” as this is not an SI unit.

Subclause 8.1.3 to clarify the text.

Appendix A to specify what corresponds to the value of 10 000 Ω .

Further changes were introduced by CENELEC when the IEC text was adopted as a European Standard. All such changes are indicated at the appropriate point by a line in the margin.

The graphics, signs, symbols and letters used may be found in the following documents.

BS 3939, *Graphical symbols for electrical power, telecommunications and electronics diagrams*.

Part 1:1986, *General information, general index*.

Part 2:1985, *Symbol elements, qualifying symbols and other symbols having general application*.

Part 3:1985, *Conductors and connecting devices*.

From 1 January 1997, all IEC publications have the number 60000 added to the old number. For instance, IEC 27-1 has been renumbered as IEC 60027-1. For a period of time during the change over from one numbering system to the other, publications may contain identifiers from both systems.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 31 and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

Sidelining in this document indicates the most recent changes by amendment.

Descriptors: Live working, insulating foam-filled tube, insulating solid rod, making, characteristic, test

English version

Insulating foam-filled tubes and solid rods for live working

(IEC 60855:1985, modified)

Tubes isolants remplis de mousse et tiges
isolantes pleines pour travaux sous tension
(CEI 60855:1985, modifiée)

Isolierende schaumgefüllte Rohre und massive
Stäbe zum Arbeiten an unter Spannung
stehenden Teilen
(IEC 60855:1985, 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

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Foreword

This Harmonization Document was approved by CENELEC on 1987-12-02.

The English and French versions of this Harmonization Document are provided by the text of the IEC publication and the German version is the official translation of the IEC text. The German translation is available. All texts prepared by CENELEC exist in three official versions (English, French and German).

According to the CENELEC Internal Regulations the CENELEC member National Committees are bound:

- to announce the existence of this Harmonization Document at national level by or before 1988-06-01
- to publish their new harmonized national standard by or before 1988-12-01
- to withdraw all conflicting national standards by or before 1988-12-01.

Harmonized national standards are listed on the HD information sheet, which is available from the CENELEC National Committees or from the CENELEC Central Secretariat.

The CENELEC National Committees are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

Foreword to amendment A1

The text of the International Standard IEC 855:1985, prepared by IEC TC 78, Tools for live working, was approved by CENELEC as HD 496 S1 on 1987-12-02.

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 60855 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 496 S1 S1:1988 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, Annex B, Annex C, Annex D and Annex ZA and Annex ZC are normative, Annex ZB is informative.

Annex ZA, Annex ZB and Annex ZC have been added by CENELEC.

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Section 1. General

Introduction

A specification of tests to verify the electrical and mechanical performance of insulating tubes and rods is dependent in part on their construction. This standard covers foam-filled tubes and solid rods such as those currently available without excluding possible future developments of tubes protected internally in other ways and tubes and solid rods protected externally. Any proposed equipment of different design may call for re-examination of the tests, so that they may be adapted to the construction proposed.

1 Scope

This standard is applicable to insulating foam-filled tubes and solid rods made of synthetic materials and intended for tools and equipment for live work on systems operating at voltages above 1 kV.

Separate special technical standards give details of tests for fittings and attachments to these poles and rods, adaptable tools and complete tools.

2 Definitions

The following terms are defined in accordance with IEC Publication 60050(151): International Electrotechnical Vocabulary (IEV), Chapter 151: Electrical and Magnetic Devices.

2.1

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)

2.2

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)

2.3

sampling test

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

2.4

acceptance test

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

2.5

Other definitions

For the definitions of general terms used in this standard, reference should be made to the International Electrotechnical Vocabulary (IEC Publication 60050) or to special definitions laid down in IEC Publication 60743: Terminology for Tools and Equipment to be Used in Live Working.

Section 2. Technical characteristics

3 Materials

3.1 Insulating tubes or insulating rods

Insulating tubes or insulating rods shall be made from synthetic materials which may be reinforced with mineral or artificial fibre. The colour of the tube or rod shall be specified by the purchaser.

3.2 Interior of insulating foam-filled tube

The foam filling shall be bonded to the wall of the insulating tube, and neither the foam nor the bond shall deteriorate during the following tests, other than those leading to destruction of the parts.

4 Diameters of tubes and rods

All measured diameters shall fall within the tolerance limits specified in Table I below.

The difference between any two diameters at a given section shall be less than 1 mm.

Table I — Specified diameters

Item	External diameter (mm)	Tolerance on external diameter (mm)
Rod	10	±1
	15	±1
Tube	32	±1
	39	±1.1
	51	±1.2
	64	±1.3
	77	±1.5

All information and testing values relating to other diameters will be given in an amendment to this standard.