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Standards

Irish Standard  
I.S. EN 60855-1:2017

# Live working - Insulating foam-filled tubes and solid rods - Part 1: Tubes and rods of a circular cross-section

**I.S. EN 60855-1:2017**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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*This document is based on:*

EN 60855-1:2017

*Published:*

2017-02-10

*This document was published under the authority of the NSAI and comes into effect on:*

2017-03-01

ICS number:

13.260

29.240.20

29.260

NOTE: If blank see CEN/CENELEC cover page

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## National Foreword

I.S. EN 60855-1:2017 is the adopted Irish version of the European Document EN 60855-1:2017, Live working - Insulating foam-filled tubes and solid rods - Part 1: Tubes and rods of a circular cross-section

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EUROPEAN STANDARD

**EN 60855-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2017

ICS 13.260; 29.240.20; 29.260

Supersedes EN 60855:1996

English Version

**Live working - Insulating foam-filled tubes and solid rods - Part 1:  
Tubes and rods of a circular cross-section  
(IEC 60855-1:2016)**

Travaux sous tension - Tubes isolants remplis de mousse  
et tiges isolantes pleines - Partie 1: Tubes et tiges de  
section circulaire  
(IEC 60855-1:2016)

Arbeiten unter Spannung - Isolierende schaumgefüllte  
Rohre und massive Stäbe - Teil 1: Rohre und Stäbe mit  
kreisförmigem Querschnitt  
(IEC 60855-1:2016)

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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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**

**EN 60855-1:2017**

**European foreword**

The text of document 78/1147/FDIS, future edition 2 of IEC 60855-1, prepared by IEC/TC 78 "Live working" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60855-1:2017.

The following dates are fixed:

- latest date by which the document has to be (dop) 2017-08-10  
implemented at national level by  
publication of an identical national  
standard or by endorsement
- latest date by which the national (dow) 2020-02-10  
standards conflicting with the  
document have to be withdrawn

This document supersedes EN 60855:1996.

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The text of the International Standard IEC 60855-1:2016 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated.

IEC 61477

NOTE Harmonized as EN 61477.

**Annex ZA**

(normative)

**Normative references to international publications  
with their corresponding European publications**

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When 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](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60060-1	-	High-voltage test techniques -- Part 1: General definitions and test requirements	EN 60060-1	-
IEC 60060-2	-	High-voltage test techniques -- Part 2: Measuring systems	EN 60060-2	-
IEC 60212	2010	Standard conditions for use prior to and during the testing of solid electrical insulating materials	EN 60212	2011
IEC 61318	-	Live working - Conformity assessment applicable to tools, devices and equipment	EN 61318	-

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**IEC 60855-1**

Edition 2.0 2016-04

# **INTERNATIONAL STANDARD**

## **NORME INTERNATIONALE**

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

**Travaux sous tension – Tubes isolants remplis de mousse et tiges isolantes  
pleines –  
Partie 1: Tubes et tiges de section circulaire**



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**IEC 60855-1**

Edition 2.0 2016-04

# **INTERNATIONAL STANDARD**

## **NORME INTERNATIONALE**

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

**Travaux sous tension – Tubes isolants remplis de mousse et tiges isolantes  
pleines –  
Partie 1: Tubes et tiges de section circulaire**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

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ICS 13.260; 29.240.20; 29.260

ISBN 978-2-8322-3348-1

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## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references.....	7
3 Terms and definitions .....	7
4 Requirements .....	8
4.1 Materials and design .....	8
4.2 Electrical requirements.....	8
4.3 Mechanical requirements.....	8
4.4 Diameters of foam-filled tubes and solid rods.....	8
4.5 Marking.....	9
4.6 Packaging.....	9
5 Tests.....	9
5.1 General.....	9
5.2 Type test conditions .....	9
5.2.1 General .....	9
5.2.2 Groups and test pieces .....	10
5.3 Visual and dimensional checks .....	10
5.3.1 General .....	10
5.3.2 Visual check .....	10
5.3.3 Dimensional check.....	11
5.4 Electrical tests .....	11
5.4.1 General .....	11
5.4.2 Dielectric test before and after exposure to humidity .....	11
5.4.3 Wet test.....	20
5.5 Mechanical tests .....	22
5.5.1 Bending test .....	22
5.5.2 Torsion test.....	24
5.5.3 Crushing test on insulating foam-filled tube.....	26
5.5.4 Electrical test after mechanical ageing.....	27
5.5.5 Dye penetration test.....	28
5.5.6 Durability of marking .....	28
6 Conformity assessment of foam-filled tubes and solid rods having completed the production phase .....	28
7 Modifications .....	29
Annex A (normative) Plan of carrying out of the type tests .....	30
Annex B (normative) Classification of defects and associated requirements and tests .....	31
Bibliography .....	32
Figure 1 – Typical dielectric test arrangement.....	12
Figure 2 – Assembly set-up of the test piece to the guard electrodes .....	13
Figure 3 – Constructional drawings for guard electrodes and parts.....	15
Figure 4 – Drawings for guard electrode parts according to test piece diameters .....	17
Figure 5 – Alternative dielectric test under dry condition – Example of a typical test arrangement .....	19

Figure 6 – Wet test .....	21
Figure 7 – Bending test.....	23
Figure 8 – Torsion test – Examples for fixing foam-filled tube and solid rod .....	25
Figure 9 – Crushing test.....	27
Table 1 – Specified diameters .....	8
Table 2 – Maximum current $I_1$ before exposure to humidity.....	18
Table 3 – Values of $F_d$ , $f$ and $F_r$ for bending test .....	24
Table 4 – Values of $C_d$ , $a_d$ and $C_r$ for torsion test .....	26
Table 5 – Values of $F_d$ and $F_r$ for crushing test .....	26
Table A.1 – Chronological order of the type tests.....	30
Table B.1 – Classification of defects and associated requirements and tests .....	31

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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### **LIVE WORKING – INSULATING FOAM-FILLED TUBES AND SOLID RODS –**

#### **Part 1: Tubes and rods of a circular cross-section**

#### **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 60855-1 has been prepared by technical committee 78: Live working.

This second edition cancels and replaces the first edition published in 2009. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- reintroduction of specific diameters of foam-filled tubes and solid rods of circular cross-section with its tolerances;
- reintroduction of the dielectric tests before and after exposure to humidity, as included in IEC 60855-1:2009;
- specification of an alternative test (after exposure to immersion) in case of foam-filled tubes and solid rods having completed the production phase;
- review of phase angle maximum specified values;

- review of the wet test procedure and the improvement of the associated test arrangement.

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

FDIS	Report on voting
78/1147/FDIS	78/1156/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 in the IEC 60855 series, published under the general title *Live working – Insulating foam-filled tubes and solid rods*, can be found on the IEC website.

Terms defined in Clause 3 are given in *italic* print throughout this standard.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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

This part of IEC 60855 has been prepared in accordance with the requirements of IEC 61477.

The product covered by this part of IEC 60855 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 short-term or long-term, and occur at the global, regional or local level.

This part of IEC 60855 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.

Technical committee 78 is considering the preparation of IEC 60855-2, which would cover foam-filled tubes and solid rods of cross-section other than circular.



## LIVE WORKING – INSULATING FOAM-FILLED TUBES AND SOLID RODS –

### Part 1: Tubes and rods of a circular cross-section

#### 1 Scope

This part of IEC 60855 is applicable to *insulating foam-filled tubes* and solid rods, of a circular cross-section, made of synthetic materials with reinforced fibreglass and intended to be used in the manufacture and construction of tools, devices and equipment for carrying out live working on electrical systems operating at voltages above 1 kV.

Foam-filled tubes and solid rods of cross-section other than circular and/or made with material other than synthetic materials with reinforced fibreglass are not covered by this part of IEC 60855.

#### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 60060-2, *High-voltage test techniques – Part 2: Measuring systems*

IEC 60212:2010, *Standard conditions for use prior to and during the testing of solid electrical insulating materials*

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

#### 3 Terms and definitions

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

##### 3.1

##### **foam**

insulating material composed of closed cells, generally made of polyurethane, used to prevent the ingress and migration of moisture

Note 1 to entry: *Foam* is the inner support to manufacture the *foam*-filled tubes covered by this part of IEC 60855.

[SOURCE: IEC 60050-651:2014, 651-22-03, modified – The note has been changed to refer specifically to the *foam* filled tubes covered by this part of IEC 60855.]

##### 3.2

##### **insulating foam-filled tube**

##### **foam-filled tube**

tube of uniform circular cross-section supplied in straight lengths, manufactured on a *foam* and constructed or formed of synthetic insulating rigid material with reinforced fibreglass

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