corrigenda November 2007 and March 2010

Boxes and enclosures for electrical accessories for household and similar fixed electrical installations —

Part 1: General requirements

ICS 29.120.10



This British Standard is the UK implementation of EN 60670-1:2005+A1:2013, incorporating corrigenda November 2007 and March 2010. It is derived from IEC 60670-1:2002, incorporating corrigendum February 2003 and amendment 1:2011. It supersedes BS EN 60670-1:2005, which will be withdrawn on 31 December 2017.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to IEC text carry the number of the IEC amendment. For example, text altered by IEC amendment 1 is indicated by A) (A).

The CENELEC common modifications have been implemented at the appropriate places in the text. The start and finish of each common modification is indicated in the text by tags \square \square .

Where a common modification has been introduced by amendment, the tags carry the number of the amendment. For example, the common modifications introduced by CENELEC amendment A1 are indicated by [7] (1].

National Annex NA (informative) reproduces CENELEC Interpretation Sheet 1, June 2009.

The UK participation in its preparation was entrusted to Technical Committee PEL/23, Electrical accessories.

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

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

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 20 October 2005

© The British Standards Institution 2013. Published by BSI Standards Limited 2013

Amendments/corrigenda issued since publication

Date	Comments
29 February 2008	Implementation of CENELEC corrigendum November 2007 [changes to EN Foreword and Annex ZC]
30 April 2010	Implementation of CENELEC corrigendum March 2010; Annex ZB, Clause 12.9 amended
31 July 2011	Addition of National Annex NA, reproducing CENELEC Interpretation Sheet 1
31 October 2013	Implementation of IEC amendment 1:2011 with CENELEC modifications. Annexes ZA and ZB updated

ISBN 978 0 580 63319 5

NORME EUROPEENNE

EUROPÄISCHE NORM

April 2013

ICS 29.120.10

English version

Boxes and enclosures for electrical accessories for household and similar fixed electrical installations Part 1: General requirements

(IEC 60670-1:2002 + corrigendum 2003, modified)

Boîtes et enveloppes pour appareillage électrique pour installations électriques fixes pour usages domestiques et analogues Partie 1: Règles générales (CEI 60670-1:2002 + corrigendum 2003, modifiée) Dosen und Gehäuse für Installationsgeräte für Haushalt und ähnliche ortsfeste elektrische Installationen Teil 1: Allgemeine Anforderungen (IEC 60670-1:2002 + Corrigendum 2003, modifiziert)

This European Standard was approved by CENELEC on 2004-09-22. 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, 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

roreword

The text of the International Standard IEC 60670-1:2002, prepared by SC 23B, Plugs, socket-outlets and switches, of IEC TC 23, Electrical accessories, together with the common modifications prepared by the Technical Committee CENELEC TC 23B, Switches for household and similar fixed electrical installations, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 60670-1 on 2004-09-22.

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) 2005-10-01

 latest date by which the national standards conflicting with the EN have to be withdrawn

(dow) 2009-07-01

In this standard, the following print types are used:

- requirements proper: in roman type;
- test specifications: in italic type;
- notes: in smaller roman type.

Figures and annexes which are additional to those in IEC 60670-1 are prefixed "Z".

Endorsement notice

The text of the International Standard IEC 60670-1:2002 + corrigendum February 2003 was approved by CENELEC as a European Standard with agreed common modifications.

Foreword to amendment A1

This document (EN 60670-1:2005/A1:2013) consists of the text of IEC 60670-1:2002/A1:2011 prepared by IEC/SC 23B "Plugs, socket-outlets and switches" of IEC/TC 23 "Electrical accessories", together with the common modifications prepared by CLC/TC 23BX "Switches, boxes and enclosures for household and similar purposes, plugs and socket outlets for d.c. and for the charging of electrical vehicles including their connectors".

The following dates are fixed:

latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement

latest date by which the national standards conflicting (dow) 2017-12-31 with this document have to be withdrawn

Annexes which are additional to those in IEC 60670-1:2002/A1:2011 are prefixed "Z".

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

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 60670-1:2002/A1:2011 was approved by CENELEC as a European Standard with agreed common modifications

CONTENTS

	1	Scope	5
	2	Normative references	5
	3	Definitions	6
	4	General requirements	8
	5	General notes on tests	8
	6	Ratings	8
	7	Classification	9
	8	Marking	10
	9	Dimensions	11
	10	Protection against electric shock	11
	11	Provision for earthing	12
	12	Construction	13
	13	Resistance to ageing, protection against ingress of solid objects and against harmful ingress of water	23
	14	Insulation resistance and electric strength	28
	15	Mechanical strength	29
	16	Resistance to heat	33
	17	Creepage distances, clearances and distances through sealing compound	33
	18	Resistance of insulating material to abnormal heat and fire	34
	19	Resistance to tracking	35
	20	Resistance to corrosion	35
	21	Electromagnetic compatibility (EMC)	36
	Anr	nex A (informative) Examples of enclosures and parts thereof	54
	Anr	nex ZA (normative) Normative references to international publications with their corresponding European publications	56
	Anr	nex ZB (normative) Special national conditions	57
	Anr	nex ZC (informative) A-deviations	58
	Bib	liography	55
	Nat	ional Annex NA (informative) CENELEC Interpretation Sheet 1	59
	Fig	ure 1 – Examples of membranes and grommets	36
	Fig	ure 2 – Void	36
	Fig	ure 3 – Void	36
	Fig	ure 4 – Void	36
A ₁	Fig	ure 5 – Test wall (see 13.3.2) 街	37
	Fig	ure 6 – Reference surfaces for boxes and enclosures	38
A ₁		ure 7 – Mounting block for flush type boxes and enclosures in order to apply blows the rear surface (see 15.3) 🔄	39
	Fig	ure 8 – Apparatus for impact test at low temperature (see 15.1)	40
A ₁	Fig	ure 9 – Height of fall for blows for part A (see 15.3) 街	41
	Fig	ure 10 – Sequence of blows for parts A, B, C, D, E, F and G (see 15.3)	42
	Fig	ure 11 – Apparatus for testing the cable anchorage (see 12.6)	43
	Fig	ure 12 – Arrangement for test on covers or cover-plates (see 12.1.2.2)	44

Figure 13 – Gauge (thickness about 2 mm) for the verification of the outline of lids, covers or cover-plates (see 12.1.2.3)	44
Figure 14 – Examples of application of the gauge of Figure 13 on covers fixed without screws on a mounting surface or supporting surface (see 12.1.2.3)	45
Figure 15 – Examples of application of the gauge of Figure 13 (see 12.1.2.3)	46
Figure 16 – Gauge for verification of grooves, holes and reverse tapers (see 12.1.2.4)	47
Figure 17 – Sketch showing the direction of application of the gauge of Figure 16 (see 12.1.2.4)	47
Figure 18 – Verification of fixing means for boxes and enclosures classified according to 7.2.1.3 (see 12.11)	48
Figure 19 – Void	48
Figure 20 – Void	48
Figure 21 – Diagrammatic representation of the glow-wire test (see Clause 18)	49
Figure 22 – Example of mounting block for boxes to be embedded in masonry (flush type and semi-flush type) according to 12.10	50
Figure 23 – Example of the fixing of the auxiliary device mounted on a specimen according to 12.10	51
Figure 24 - Example of test apparatus for the test according to 12.10	52
Figure 25 – Example of the protected volume (see 13.3.4)	53
Figure 26 - Demonstration of the non-penetration of the internal volume (see Clause 10)	53
Figure A.1 – Examples of enclosures and parts of thereof	54
Table 1 – Classification of boxes and enclosures	9
Table 2 – Forces to be applied to covers, cover-plates or actuating members whose fixing is not dependent on screws	14
Table 3 – Forces and torques to be applied to cable anchorages	17
Table 4 – Tightening torques for the verification of the mechanical strength of screws	20
Table 5 – Torque test values for cable glands	22
Table 6 – Test voltage for electric strength test	
Table 7 – Determination of parts A, B, C, D E, F and G	
Table 8 – Height of fall for impact test	32

BOXES AND ENCLOSURES FOR ELECTRICAL ACCESSORIES FOR HOUSEHOLD AND SIMILAR FIXED ELECTRICAL INSTALLATIONS –

Part 1: General requirements

1 Scope

This part of IEC 60670 applies to boxes, enclosures and parts of enclosures (hereafter called "boxes" and "enclosures") for electrical accessories with a rated voltage not exceeding 1 000 V a.c. and 1 500 V d.c. intended for household or similar fixed electrical installations, either indoors or outdoors.

NOTE Requirements for particular types of boxes and enclosures are given in the relevant parts 2 of IEC 60670.

Boxes and enclosures complying with this standard are suitable for use at ambient temperature not normally exceeding 25 °C but occasionally reaching 35 °C.

This International Standard is intended to apply to boxes and enclosures for electrical accessories within the scope of IEC technical committee 23.

NOTE This standard may also be used as a reference document for other IEC technical committees and subcommittees

A box or an enclosure which is an integral part of an electrical accessory and provides protection for that accessory against external influences (for example mechanical impact, ingress of solid objects or water, etc.) is covered by the relevant standard for such an accessory.

This standard does not apply to

- ceiling roses;
- luminaire supporting couplers;
- boxes, enclosures and parts of enclosures specifically designed to be used for cable trunking and ducting systems complying with IEC 61084 and which are not intended to be installed outside of these systems.

2 Normative references

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.

IEC 60068-2-75:1997, Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests

IEC 60112:1979, Method for determining the comparative and the proof-tracking indices of solid insulating materials under moist conditions

IEC 60423:1993, Conduits for electrical purposes – Outside diameters of conduits for electrical installations and threads for conduits and fittings

IEC 60529:1989, Degrees of protection provided by enclosures (IP Code)