



BSI Standards Publication

Household and similar electrical appliances – Safety

Part 2-74: Particular requirements for portable immersion heaters (IEC 60335-2-74:2002)

National foreword

This British Standard is the UK implementation of EN 60335-2-74:2003+A11:2018. It is derived from IEC 60335-2-74:2002, incorporating amendment 1:2006 and amendment 2:2009. It supersedes BS EN 60335-2-74:2003+A2:2009, which will be withdrawn on 5 October 2021.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to text carry the number of the CENELEC or IEC amendment. For example, text altered by CENELEC amendment A11 is indicated by $\overline{A11}$ $\langle A11 \rangle$; text altered by IEC amendment A1 is indicated by $\overline{A1}$ $\langle A1 \rangle$.

The UK participation in its preparation was entrusted to Technical Committee CPL/61/7, Safety of electrical appliances - Heated appliance group.

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.

© The British Standards Institution 2019
Published by BSI Standards Limited 2019

ISBN 978 0 580 92152 0

ICS 13.120; 97.040.50

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 16 April 2003.

Amendments/corrigenda issued since publication

Date	Text affected
29 September 2006	Implementation of IEC amendment 1:2006 with CENELEC endorsement A1:2006
30 April 2010	Implementation of IEC amendment 2:2009 with CENELEC endorsement A2:2009
28 February 2019	Implementation of CENELEC amendment A11:2018

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

**EN 60335-2-74:2003
+A11**

October 2018

ICS 13.120; 97.040.50

Supersedes EN 60335-2-74:1996

English Version

**Household and similar electrical appliances – Safety
Part 2-74: Particular requirements for portable
immersion heaters (IEC 60335-2-74:2002)**

Appareils électrodomestiques et analogues –
Sécurité
Partie 2-74: Règles particulières pour les
thermoplongeurs mobiles (CEI 60335-2-74:2002)

Sicherheit elektrischer Geräte für den Hausgebrauch
und ähnliche Zwecke
Teil 2-74: Besondere Anforderungen
für ortsveränderliche Tauchheizgeräte
(IEC 60335-2-74:2002)

This European Standard was approved by CENELEC on 2003-03-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European Foreword

The text of the International Standard IEC 60335-2-74:2002 (61/2177/FDIS), prepared by the IEC Technical Committee 61, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 60335-2-74 on 2003-03-01.

This European Standard replaces EN 60335-2-74:1996.

The following dates are applicable:

- latest date by which the EN has to be implemented at national level by (dop) 2004-03-01
publication of an identical national standard or by endorsement
- date on which national standards conflicting with the EN have to be (dow) 2006-03-01
withdrawn

This part 2 has to be used in conjunction with EN 60335-1, Household and similar electrical appliances – Safety – Part 1: General requirements. It was established on the basis of the 2002 edition of that standard. Amendments and revisions of Part 1 have also to be taken into account and the dates when such changes become applicable will be stated in the relevant amendment or revision of Part 1.

This part 2 supplements or modifies the corresponding clauses of EN 60335-1, so as to convert it into the European Standard: Safety requirements for portable electric immersion heaters.

When a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. When this standard states "addition", "modification" or "replacement", the relevant text of Part 1 is to be adapted accordingly.

NOTE 1 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.;
- subclauses, notes and annexes that are additional to those in the IEC standard are prefixed with the letter Z.

NOTE 2 The following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in small roman type.

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

There are no special national conditions causing a deviation from this European Standard, other than those listed in Annex ZA to EN 60335-1.

There are no national deviations from this European Standard, other than those listed in Annex ZB to EN 60335-1.

Introduction

Ⓐ₁₁Text deletedⒶ₁₁

Endorsement notice

The text of the International Standard IEC 60335-2-74:2002 was approved by CENELEC as a European Standard without any modification.

European foreword to amendment A1

The text of document 61/2962/CDV, future amendment 1 to IEC 60335-2-74:2002, prepared by IEC Technical Committee 61, Safety of household and similar electrical appliances, was submitted to the IEC-CENELEC parallel unique acceptance procedure and was approved by CENELEC as amendment A1 to EN 60335-2-74:2003 on 2006-06-01.

The following dates are applicable:

- latest date by which the amendment has to be implemented at national (dop) level by publication of an identical national standard or by endorsement 2007-03-01
- date on which national standards conflicting with the amendment have (dow) to be withdrawn 2009-06-01

This amendment supplements or modifies the corresponding clauses of EN 60335-2-74:2003.

There are no special national conditions causing a deviation from this amendment.

There are no national deviations from this amendment.

Endorsement notice

The text of amendment 1:2006 to the International Standard IEC 60335-2-74:2002 was approved by CENELEC as an amendment to the European Standard without any modification.

European foreword to amendment A2

The text of document 61/3867/FDIS, future amendment 2 to IEC 60335-2-74:2002, prepared by IEC TC 61, Safety of household and similar electrical appliances, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A2 to EN 60335-2-74:2003 on 2009-10-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national (dop) 2010-07-01 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the amend- (dow) 2014-10-01 ment have to be withdrawn

This amendment supplements or modifies the corresponding clauses of EN 60335-2-59:2003.

There are no special national conditions causing a deviation from this amendment.

There are no national deviations from this amendment.

Endorsement notice

The text of amendment 2:2009 to the International Standard IEC 60335-2-74:2002 was approved by CENELEC as an amendment to the European Standard without any modification.

In the Bibliography, add the following note to the standard mentioned:

ISO 13732-1 NOTE Harmonized as EN ISO 13732-1:2008 (not modified).

European foreword to amendment A11

This document (EN 60335-2-74:2003/A11:2018) has been prepared by CLC/TC 61 "Safety of household and similar electrical appliances".

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 (dop) 2019-04-05
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2021-10-05

This amendment supplements or modifies the corresponding clauses of EN 60335-1:2012 including its amendments and EN 60335-2-74:2003 and its A1:2006 and A2:2009.

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 document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative [Annex ZZ](#), which is an integral part of this document.

Annex ZZ
(informative)

Relationship between this European Standard and the safety objectives of Directive 2014/35/EU [2014 OJ L96] aimed to be covered

This European Standard has been prepared under a Commission’s standardization request relating to harmonized standards in the field of the Low Voltage Directive, M/511, to provide one voluntary means of conforming to safety objectives of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits [2014 OJ L96].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in [Table ZZ.1](#) confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding safety objectives of that Directive, and associated EFTA regulations.

Compliance with this Part 1 when used together with the relevant Part 2 provides one means of conformity with the safety objectives.

Table ZZ.1 — Correspondence between this European Standard and Annex I of Directive 2014/35/EU [2014 OJ L96]

Safety objectives of Directive 2014/35/EU	Clause(s) / sub-clause(s) of this EN	Remarks/Notes
1 a)	Clauses 4, 7	None
1 b)	Clauses 4, 7	None
1 c)	Clauses 4, 7	None
2 a)	Clauses 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31	None
2 b)	Clauses 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31	None
2 c)	Clauses 6, 7, 11, 15, 17, 18, 19, 20, 21, 22, 24, 25, 30, 32	None
2 d)	Clauses 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31	None
3 a)	Clauses 6, 7, 11, 17, 18, 19, 20, 21, 22	None
3 b)	Clauses 7, 11, 15, 19, 22, 25, 32	None
3 c)	Clauses 6, 7, 9, 10, 11, 14, 17, 18, 19, 21, 22	None

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard. 

Contents

Page

FOREWORD	ix
INTRODUCTION	xi
1 Scope	1
2 Normative references	1
3 Definitions	1
4 General requirement	2
5 General conditions for the tests	2
6 Classification	2
7 Marking and instructions	2
8 Protection against access to live parts	2
9 Starting of motor-operated appliances	3
10 Power input and current	3
11 Heating	3
12 Void	3
13 Leakage current and electric strength at operating temperature	3
14 Transient overvoltages	3
15 Moisture resistance	3
16 Leakage current and electric strength	3
17 Overload protection of transformers and associated circuits	3
18 Endurance	3
19 Abnormal operation	3
20 Stability and mechanical hazards	4
21 Mechanical strength	4
22 Construction	4
23 Internal wiring	4
24 Components	4
25 Supply connection and external flexible cords	4
26 Terminals for external conductors	4
27 Provision for earthing	5
28 Screws and connections	5
29 Clearances, creepage distances and solid insulation	5
30 Resistance to heat and fire	5
31 Resistance to rusting	5
32 Radiation, toxicity and similar hazards	5
Bibliography	7

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

This part of International Standard IEC 60335 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

This second edition cancels and replaces the first edition published in 1994. It constitutes a technical revision.

The text of this part of IEC 60335 is based on the following documents:

FDIS	Report on voting
61/2177/FDIS	61/2258/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 part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments. It was established on the basis of the fourth edition (2001) of that standard.

NOTE 1 When "Part 1" is mentioned in this standard, it refers to IEC 60335-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Safety requirements for portable electric immersion heaters.

When a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. When this standard states "addition", "modification", or "replacement", the relevant text in Part 1 is to be adapted accordingly.

NOTE 2 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.

NOTE 3 The following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in small roman type.

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

The committee has decided that the contents of this publication will remain unchanged until 2004. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

The following differences exist in the countries indicated below.

- 19.2: The test is carried out with the appliance suspended by its supply cord (Poland).
- Clause 21: The additional test is only carried out on appliances with a non-metallic enclosure (USA).
- 24.101: This requirement is not applicable (USA).

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. ^{A1} It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances. ^{A1}

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules may differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

^{A2} When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 2 Horizontal and generic standards covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards. ^{A2}

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

Household and similar electrical appliances – Safety –

Part 2-74: Particular requirements for portable immersion heaters

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of **portable electric immersion heaters** for household and similar purposes, their **rated voltage** being not more than 250 V.

Appliances not intended for normal household use but which nevertheless may be a source of danger to the public, such as appliances intended to be used by laymen in shops, in light industry and on farms, are within the scope of this standard.

A11 This European Standard deals with the reasonably foreseeable hazards presented by appliances and machines that are encountered by all persons. However, in general, it does not take into account:

- **children** playing with the appliance,
- the use of the appliance by **children**
- user maintenance by **children**, including the necessary cleaning of the appliance.

It is recognized that very vulnerable people may have needs beyond the level addressed in this standard. **A11**

NOTE 101 Attention is drawn to the fact that

- for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements may be necessary;
- in many countries, additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour and similar authorities.

NOTE 102 This standard does not apply to

- appliances intended exclusively for industrial purposes;
- appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas);
- heating elements incorporated in portable appliances, such as appliances for heating liquids (IEC 60335-2-15);
- aquarium heaters (IEC 60335-2-55);
- fixed immersion heaters (IEC 60335-2-73).

2 Normative references

This clause of Part 1 is applicable.

3 Definitions

This clause of Part 1 is applicable except as follows.