

**Majapidamis- ja muud taolised elektriseadmed. Ohutus.
Osa 2-17: Erinõuded tekkidele, patjadele,
riietusesemetele ja muudele taolistele paindpehmetele
soojendusseadmetele (IEC 60335-2-17:2012)**

**Household and similar electrical appliances - Safety -
Part 2-17: Particular requirements for blankets, pads,
clothing and similar flexible heating appliances (IEC
60335-2-17:2012)**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 60335-2-17:2013 sisaldab Euroopa standardi EN 60335-2-17:2013 ingliskeelset teksti.	This Estonian standard EVS-EN 60335-2-17:2013 consists of the English text of the European standard EN 60335-2-17:2013.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 22.02.2013.	Date of Availability of the European standard is 22.02.2013.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 13.120, 97.040.50

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Aru 10, 10317 Tallinn, Eesti; www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:
Aru 10, 10317 Tallinn, Estonia; www.evs.ee; phone 605 5050; e-mail info@evs.ee

English version

**Household and similar electrical appliances -
Safety -
Part 2-17: Particular requirements for blankets, pads, clothing and similar
flexible heating appliances
(IEC 60335-2-17:2012)**

Appareils électrodomestiques et
analogues -
Sécurité -
Partie 2-17: Exigences particulières pour
les couvertures, coussins, vêtements et
appareils chauffants souples analogues
(CEI 60335-2-17:2012)

Sicherheit elektrischer Geräte für den
Hausgebrauch und ähnliche Zwecke -
Teil 2-17: Besondere Anforderungen an
Wärmezudecken, Wärmeunterbetten,
Heizkissen, Kleidung und ähnliche
schmiegsame Wärmegeräte
(IEC 60335-2-17:2012)

This European Standard was approved by CENELEC on 2012-04-30. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 61/4336/FDIS, future edition 3 of IEC 60335-2-17, prepared by IEC/TC 61 "Safety of household and similar electrical appliances" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60335-2-17:2013.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2013-08-22
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-04-30

This document supersedes EN 60335-2-17:2002 + A1:2006 + A2:2009.

EN 60335-2-17:2013 includes the following significant technical changes with respect to EN 60335-2-17:2002:

- The definition of PTC heating element has been deleted and the definition in Part 1 now applies. A definition of a heating element with PTC characteristics has been introduced instead (3.117). This has resulted in editorial changes to 5.7, 5.8.2, 7.1, 10.101, 11.2, 21.105, 21.111.1 and 21.112.
- The allowance for class I appliances has been deleted and requirements for appliances incorporating a functional earth have been incorporated (6.1, 7.1, 22.115).
- The working voltage of parts of class III construction is limited to 24 V (22.26).
- Some notes have been deleted or converted to normative text (3.107, 3.111, 3.113, 5.2, 5.3, 5.8.2, 11.8, 11.101, 11.102, 15.1, 15.101, 19.1, 19.13, 19.102, 19.103, 19.105, 19.106, 19.108, 19.109, 19.110, 19.111, 19.112, 21.1, 21.102, 21.103, 21.109, 21.110.3, 21.111.1, 21.111.2, 21.111.3, 21.112, 22.103, 22.114, 25.23, Annex AA, Annex CC 3.1.9, 19.201, 19.203).
- Modification of the marking requirements (7.1, 7.14, 7.15).
- Modification of the instructions (7.12).
- Clarification of the heat stroke test (11.101).
- The figure numbers have been updated to take into account deletion of Figure 103 in EN 60335-2-17:2002.

This part 2 is to be used in conjunction with EN 60335-1:2012.

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

This part 2 supplements or modifies the corresponding clauses in EN 60335-1, so as to convert that publication into the European Standard: *Safety requirements for blankets, pads, clothing and similar flexible heating appliances*.

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.

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 60335-2-17:2012 was approved by CENELEC as a European Standard without any modification.

Add to the bibliography of EN 60335-1:2012:

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60335-2-66	NOTE	Harmonized as EN 60335-2-66.
IEC 60335-2-71	NOTE	Harmonized as EN 60335-2-71.
IEC 60335-2-81	NOTE	Harmonized as EN 60335-2-81.
IEC 60601-2-35	NOTE	Harmonized as EN 60601-2-35.

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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Addition to Annex ZA of EN 60335-1:2012:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60320-1 + A1	2001 2007	Appliance couplers for household and similar general purposes - Part 1: General requirements	EN 60320-1 + A1	2001 2007
ISO 2439	-	Flexible cellular polymeric materials - Determination of hardness (indentation technique)	EN ISO 2439	-
ISO 3758	2005	Textiles - Care labelling code using symbols	EN ISO 3758	2005 ¹⁾
ISO/IEC Guide 37	-	Instructions for use of products of consumer interest	-	-

¹⁾ EN ISO 3758:2005 is superseded by EN ISO 3758:2012.

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references	9
3 Terms and definitions	9
4 General requirement.....	11
5 General conditions for the tests	11
6 Classification.....	13
7 Marking and instructions.....	13
8 Protection against access to live parts.....	16
9 Starting of motor-operated appliances	16
10 Power input and current	16
11 Heating	16
12 Void.....	18
13 Leakage current and electric strength at operating temperature.....	18
14 Transient overvoltages	19
15 Moisture resistance	19
16 Leakage current and electric strength.....	20
17 Overload protection of transformers and associated circuits	21
18 Endurance.....	21
19 Abnormal operation	21
20 Stability and mechanical hazards	25
21 Mechanical strength	25
22 Construction.....	32
23 Internal wiring.....	34
24 Components	34
25 Supply connection and external flexible cords	35
26 Terminals for external conductors.....	36
27 Provision for earthing	36
28 Screws and connections.....	36
29 Clearances, creepage distances and solid insulation	36
30 Resistance to heat and fire.....	36
31 Resistance to rusting.....	39
32 Radiation, toxicity and similar hazards.....	39
Annexes	50
Annex A (informative) Routine tests	50
Annex AA (normative) Specification for the thermal insulation.....	52
Annex BB (normative) Equipment for the mechanical strength test for blankets	53
Annex CC (normative) Clothing.....	56
Bibliography.....	59

Figure 101 – Symbol for "Do not use folded or rucked"	39
Figure 102 – Symbol for "Do not insert pins"	39
Figure 103 – Arrangement for measuring leakage current and electric strength of the flexible part.....	40
Figure 104 – Arrangement for the three-thickness fold test	41
Figure 105 – Examples showing the position of the thermal insulation on ruck-resistant blankets and mattresses	42
Figure 106 – Examples of folds and the position of the thermal insulation on pads	43
Figure 107 – Tumbling barrel for testing the mechanical strength of pads	44
Figure 108 – Impact apparatus for testing enclosures of moisture-proof appliances	45
Figure 109 – Shape of the sample for the tear resistance test.....	46
Figure 110 – Equipment for flexing heating elements and internal wiring	46
Figure 111 – Arrangement for the rigidity test of ruck-resistant blankets	47
Figure 112 – Equipment for the spark ignition test	48
Figure 113 – Equipment for the spark ignition test – Details of the mask.....	49
Figure BB.1 – Equipment for the mechanical strength test of blankets	54
Figure BB.2 – Detail of the drum and cylinders	55
Figure BB.3 – Detail of the clamping bar.....	55
Table 101 – Maximum temperatures	17
Table 102 – Maximum temperature rises.....	17
Table A.101 – Test voltages	50

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. 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.

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.

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.

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 2-17: Particular requirements for blankets, pads, clothing and similar flexible heating appliances

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric **blankets, pads**, clothing and other flexible appliances that heat the bed or human body, for household and similar purposes, their **rated voltage** being not more than 250 V.

This standard also applies to **control units** supplied with the appliance.

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 in beauty parlours or by persons in cold ambient temperatures, are within the scope of this standard.

Requirements and tests for clothing are given in Annex CC.

As far as is practicable, this standard deals with the common hazards presented by appliances that are encountered by all persons in and around the home. However, in general, it does not take into account

- persons (including children) whose
 - physical, sensory or mental capabilities; or
 - lack of experience and knowledge prevents them from using the appliance safely without supervision or instruction;
- children playing with the appliance.

NOTE 101 Children are considered to be old enough to use an appliance without supervision when they have been adequately instructed by a parent or guardian and are deemed competent to use the appliance safely.

NOTE 102 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 103 This standard does not apply to

- 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);
- rigid bed warmers, such as those of metal or ceramic material;
- water bed heaters (IEC 60335-2-66);
- heating appliances for breeding and rearing animals (IEC 60335-2-71);
- foot warmers and heating mats (IEC 60335-2-81);
- appliances specifically intended for use under medical supervision (IEC 60601-2-35).

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60320-1:2001, *Appliance couplers for household and similar general purposes – Part 1: General requirements*
Amendment 1 (2007)¹

ISO 2439, *Flexible cellular polymeric materials – Determination of hardness (indentation technique)*

ISO 3758:2005, *Textiles – Care labelling code using symbols*

ISO/IEC Guide 37, *Instructions for use of products of consumer interest*

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1.9 Replacement:

normal operation

operation of the appliance under the following conditions:

- **blankets** and **pads** are placed between sheets of thermal insulation;
- **duvets** are placed on a sheet of thermal insulation but not covered;
- **mattresses** are covered by a sheet of thermal insulation

NOTE 101 The specification for the thermal insulation is given in Annex AA.

The **flexible part** is supported on a plywood base 20 mm thick and positioned not less than 300 mm above the floor. The size of the plywood base is such that the thermal insulation can be fully supported over its entire area. The size of the sheets of thermal insulation is such that the edges extend at least 100 mm beyond the outline of the **heated area**.

Control units held in the hand when they are actuated and cord switches are positioned to hang away from the plywood base. Other **control units** are placed on a supporting surface away from the plywood base.

3.101

flexible part

all layers of material forming the permanent enclosure of the appliance together with the **heating element**, **thermostats** and all other current-carrying parts contained within it

Note 1 to entry: The **flexible part** may be inside a **detachable cover**.

3.102

blanket

appliance comprising a substantially flat **flexible part** that is intended to form part of the bedding, for heating the bed

¹ There exists a consolidated edition 2.1 (2007) that includes edition 2 and its Amendment 1.