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**Gospodinjski in podobni električni aparati - Varnost - 2-17. del: Posebne zahteve za grelne odeje, blazine in podobne zvižave grelne aparate (IEC 60335-2-17:2002)**

Household and similar electrical appliances - Safety - Part 2-17: Particular requirements for blankets, pads and similar flexible heating appliances

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ICS 13.120; 97.030

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EUROPEAN STANDARD

**EN 60335-2-17**

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2002

ICS 13.120; 97.040.50

Supersedes EN 60335-2-17:1999

English version

**Household and similar electrical appliances -  
Safety  
Part 2-17: Particular requirements for blankets,  
pads and similar flexible heating appliances  
(IEC 60335-2-17:2002)**

Appareils électrodomestiques et  
analogues - Sécurité  
Partie 2-17: Règles particulières  
pour les couvertures, coussins et  
appareils chauffants souples analogues  
(CEI 60335-2-17:2002)

Sicherheit elektrischer Geräte für den  
Hausgebrauch und ähnliche Zwecke  
Teil 2-17: Besondere Anforderungen  
an Wärmездеcken, Wärmeunterbetten,  
Heizkissen und ähnliche schmiegsame  
Wärmegeräte  
(IEC 60335-2-17:2002)

This European Standard was approved by CENELEC on 2002-11-01. 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.

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**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

## Foreword

The text of document 61/2168/FDIS, future second edition of IEC 60335-2-17, prepared by the IEC Technical Committee 61, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60335-2-17 on 2002-11-01.

This European Standard replaces EN 60335-2-17:1999.

The following dates are applicable:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2003-08-01
- date on which national standards conflicting with the EN have to be withdrawn (dow) 2005-11-01

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 electric blankets, pads 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 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* (standards.iteh.ai)
- 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.

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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.

Annexes AA and BB are normative and form an integral part of this standard.

p NOTE In this document, p is used in the margin to indicate instructions for preparing the printed version.

## Introduction

p Add:

An investigation by CENELEC TC 61 has shown that all risks from products within the scope of this standard are fully covered by the Low Voltage Directive, 73/23/EEC. For products having mechanical moving parts, a risk assessment in accordance with the Machinery Directive, 98/37/EC, has shown that the risks are mainly of electrical origin and consequently this directive is not applicable. However, the relevant essential safety requirements of the Machinery Directive are covered by this standard together with the principal objectives of the Low Voltage Directive.

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## Endorsement notice

The text of the International Standard IEC 60335-2-17:2002 was approved by CENELEC as a European Standard without any modification.

p Add:

## Annex ZC (normative)

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

*Addition:*

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 2439	- <sup>1)</sup>	Flexible cellular polymeric materials – Determination of hardness (indentation technique)	EN ISO 2439	2000 <sup>2)</sup>
ISO 3758	- <sup>1)</sup>	Textiles – Care labelling code using symbols	EN 23758	1993 <sup>2)</sup>

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<sup>1)</sup> undated reference

<sup>2)</sup> valid edition at date of issue

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# INTERNATIONAL STANDARD

# IEC 60335-2-17

Second edition  
2002-10

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## Household and similar electrical appliances – Safety –

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

*Appareils électrodomestiques et analogues –  
Sécurité –*

*Partie 2-17:  
Règles particulières pour les couvertures, coussins  
et appareils chauffants souples analogues*

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International Electrotechnical Commission, 3, rue de Varembe, PO Box 131, CH-1211 Geneva 20, Switzerland  
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch



Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –  
SAFETY –

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

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 1998. It constitutes a technical revision.

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

FDIS	Report on voting
61/2168/FDIS	61/2249/RVD

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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 electric blankets, pads and similar flexible heating appliances.

NOTE 2 Annex AA contains provisions from ISO 2439.

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 3 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 4 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.

- 6.1: Class 0 products are allowed (Japan and USA).
- 19.108: The fuse is not required to rupture (Australia).
- 22.102: Thermostats and thermal cut-outs are not allowed in the flexible part of underblankets (Australia and New Zealand).
- Annex AA: Felt is used for the thermal insulation (USA).

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

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## 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.

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.

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.

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.

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## HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

### Part 2-17: Particular requirements for blankets, pads 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** 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.

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

- the use of appliances by young children or infirm persons without supervision;
- playing with the appliance by young children.

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 60335-2-74);
- foot warmers and heating mats (IEC 60335-2-81);
- appliances specifically intended for use under medical supervision (IEC 60601-2-35).

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#### 2 Normative references

This clause of Part 1 is applicable except as follows.

*Addition:*

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

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

### 3 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**.

#### 3.8.4 Replacement

##### **PTC heating element**

**heating element** consisting of two conductors separated by conductive material that has a rapid non-linear increase in resistance when the temperature is raised through a particular range

#### 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 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

#### 3.103

##### **underblanket**

**blanket** intended to be used under the occupant of the bed

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#### 3.104

##### **ruck-resistant blanket**

**underblanket** that has sufficient rigidity to prevent rucking of the **flexible part**

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#### 3.105

##### **overblanket**

**blanket** intended to be used over the occupant of the bed

#### 3.106

##### **duvet**

quilted **overblanket** intended to be used without additional bedding over the occupant of the bed, the **heating element** providing supplementary heat

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**3.107****pad**

appliance comprising a **flexible part** having a **heated area** not exceeding 0,2 m<sup>2</sup> on each face and which is intended to heat part of the human body

**3.108****mattress**

appliance for supporting the bedding and which incorporates an upholstered **flexible part** for heating the bed

**3.109****controlled appliance**

appliance incorporating means in the **flexible part** for sensing changes in temperature when the appliance is operated under **normal operation**, thus automatically controlling the average power input

**3.110****heating element**

heating conductor, including the core on which it is wound and the insulation, together with any other integrated conductor

**3.111****heated area**

area of the **flexible part** enclosed within the outer perimeter of the **heating element**. It includes a margin outside the perimeter that has a width equal to 0,5 times the average distance between adjacent runs of the **heating element**.

NOTE 1 The **heated area** includes the return length of the **heating element** if the average distance between this part and the adjacent **heating element** does not exceed the average distance between adjacent runs of the **heating element**.

NOTE 2 If a **blanket** or **mattress** has two separate **heated areas**, the surface between the two areas is considered to be part of the **heated areas**, if at any place the distance between the two **heating elements** does not exceed 1,5 times the average distance between adjacent runs of the **heating element**.

**3.112****moisture-proof appliance**

appliance having a **flexible part** that is suitable for use under moist conditions

**3.113****bonded enclosure**

enclosure of the **flexible part** that has the opposite faces joined together by means of an adhesive or by welding

NOTE The bonded enclosure may include several bonded layers of material.

**3.114****control unit**

device, external to the **flexible part**, by means of which the average power input of the appliance can be adjusted or regulated

NOTE 1 **Control units** may be incorporated in the **supply cord** or at the end of an **interconnection cord**.

NOTE 2 Multi-position cord switches are not considered to be **control units** unless they incorporate components for regulating the power input.

## 4 General requirement

This clause of Part 1 is applicable.