



**SLOVENSKI STANDARD**  
**SIST EN 60335-2-81:1998**

01-junij-1998

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Safety of household and similar electrical appliances -- Part 2-81: Particular requirements for foot warmers and heating mats

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke -- Teil 2-81: Besondere Anforderungen an Fußwärmer und Heizmatten

Sécurité des appareils électrodomestiques et analogues -- Partie 2-81: Règles particulières pour les chancelières et les carpettes chauffantes électriques

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**Ta slovenski standard je istoveten z: EN 60335-2-81:1997**

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**ICS:**

13.120	Varnost na domu	Domestic safety
97.100.10	Ò\ dã } ä ! ^ } ä ä	Electric heaters

**SIST EN 60335-2-81:1998**

**en**

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EUROPEAN STANDARD

EN 60335-2-81

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 1997

ICS 97.100

Descriptors: Household electrical appliances, heating household appliance, safety requirements, protection against electric shock, protection against mechanical hazard, fire protection

English version

**Safety of household and similar electrical appliances**  
**Part 2: Particular requirements for foot warmers and heating mats**  
 (IEC 60335-2-81:1997)

Sécurité des appareils  
 électrodomestiques et analogues  
 Partie 2: Règles particulières pour les  
 chancelières et les carpettes  
 chauffantes électriques  
 (CEI 60335-2-81:1997)

Sicherheit elektrischer Geräte für den  
 Hausgebrauch und ähnliche Zwecke Teil  
 2: Besondere Anforderungen an  
 Fußwärmer und Heizmatten  
 (IEC 60335-2-81:1997)

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This European Standard was approved by CENELEC on 1997-10-01. 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, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, 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

### Foreword

The text of document 61/1285/FDIS, future first edition of IEC 60335-2-81 prepared by the IEC Technical Committee 61, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60335-2-81 on 1997-10-01.

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) 1998-07-01
- date on which national standards conflicting with the EN have to be withdrawn (dow) 2000-07-01

For products which have complied with the relevant national standard before 2000-07-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2005-07-01.

This standard has to be used in conjunction with EN 60335-1, Safety of household and similar electrical appliances, Part 1: General requirements. It was established on the basis of the 1994 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 foot warmers and heating mats.

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.

Subclauses and figures which are additional to those in part 1 are numbered starting with 101.

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.

NOTE - 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 2. When a definition of part 1 concerns an adjective, the adjective and the associated noun are also in bold.

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### Endorsement notice

The text of the International Standard IEC 60335-2-81:1997 was approved by CENELEC as a European Standard without any modification.

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NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD

CEI  
IEC

60335-2-81

Première édition  
First edition  
1997-10

**Sécurité des appareils électrodomestiques  
et analogues**

**Partie 2:  
Règles particulières pour les chancelières  
et les carpettes chauffantes électriques**

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**Safety of household and similar  
electrical appliances**

**Part 2:  
Particular requirements for foot warmers  
and heating mats**

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES

Part 2: Particular requirements for foot warmers  
and heating mats

## 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 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.

It forms the first edition of IEC 60335-2-81.

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

FDIS	Report on voting
61/1285/FDIS	61/1359/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 third edition (1991) of that standard.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert it into the IEC standard: Safety requirements for electric foot warmers and heating mats.

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

NOTE 1 – 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 2. When a definition of part 1 concerns an adjective, the adjective and the associated noun are also in bold.

NOTE 2 – Subclauses and figures which are additional to those in part 1 are numbered starting from 101.

The following additional differences exist in some countries:

- 2.2.9: Different test conditions are used (USA).
- 6.1: Class 0 appliances are allowed if their rated voltage does not exceed 150 V (Japan).
- 6.1: Class 0 and class I appliances are allowed (USA).
- 19.2: The test is different (USA).
- 21.101: The test is different (USA).
- 22.101: The tests are different (USA).

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## SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES

### Part 2: Particular requirements for foot warmers and heating mats

#### 1 Scope

This clause of part 1 is replaced by:

This standard deals with the safety of electric **foot warmers** and **heating mats** 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.

So far as is practicable, this standard deals with the common hazards presented by appliances which are encountered by all persons in and around the home.

This standard does not in general take into account

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

NOTE 1 – 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;
- for appliances intended to be used in tropical countries, special 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 2 – This standard does not apply to

- appliances specifically intended for use under medical supervision;
- electric blankets and pads (IEC 60335-2-17);
- electrically heated carpets;
- electrical heating appliances for breeding and rearing animals (IEC 60335-2-71).

#### 2 Definitions

This clause of part 1 is applicable except as follows:

##### 2.2.9 Replacement:

**normal operation:** Operation of the appliance under the following conditions:

**Foot warmers** are empty.

**Heating mats** are placed horizontally and covered by a block of expanded polystyrene having dimensions approximately 300 mm × 150 mm × 50 mm.

NOTE – The density of the polystyrene is approximately 4,2 kg/m<sup>3</sup>.

2.101 **foot warmer**: Appliance into which the user's feet are inserted in order to warm them.

2.102 **heating mat**: Appliance having an area not exceeding 0,5 m<sup>2</sup>, on which the user's feet are placed in order to warm them.

### 3 General requirement

This clause of part 1 is applicable.

### 4 General conditions for the tests

This clause of part 1 is applicable except as follows:

#### 4.2 Addition:

*A length of 15 m of heating element or internal wiring is required for the tests of 21.102.*

*Twelve samples of the enclosure material of **foot warmers**, each having dimensions 200 mm × 100 mm, are required for the test of 30.101.*

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#### 4.3 Addition:

*Before testing is started, the appliance is laundered or cleaned twice in accordance with the instructions for use.*

#### 4.5 Addition:

*If the appliance is provided with a **detachable cover**, the test is carried out with or without this cover, whichever is more unfavourable.*

### 5 Void

### 6 Classification

This clause of part 1 is applicable except as follows:

#### 6.1 Modification:

Appliances shall be of **class II** or **class III**.

#### 6.2 Addition:

Appliances shall be at least IPX1.

## 7 Marking and instructions

This clause of part 1 is applicable except as follows:

### 7.12 Addition:

The instructions shall state that the appliance is not to be used if there are signs of damage.

The instructions shall state that the appliance is not to be used for warming animals.

The instructions for **foot warmers** shall include the substance of the following:

Remove outdoor shoes before use.

The instructions shall contain details regarding laundering or cleaning.

The instructions for **heating mats** shall state that the appliance has to be repaired or replaced if the cover is worn. They shall explain how such wear can be noticed.

## 8 Protection against access to live parts

This clause of part 1 is applicable.

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## 9 Starting of motor-operated appliances

This clause of part 1 is not applicable. [SIST EN 60335-2-81:1998  
https://standards.iteh.ai/catalog/standards/sist/9f42dd99-f8ca-49df-b374-6bcc7549f12f/sist-en-60335-2-81-1998](https://standards.iteh.ai/catalog/standards/sist/9f42dd99-f8ca-49df-b374-6bcc7549f12f/sist-en-60335-2-81-1998)

## 10 Power input and current

This clause of part 1 is applicable.

## 11 Heating

This clause of part 1 is applicable except as follows:

### 11.2 Addition:

*Appliances are placed as near as possible to one wall of the test corner and away from the other wall.*

### 11.3 Addition:

*Thermocouples attached to the small blackened disks are also used for measuring the temperature rise of the surface of the appliance.*

### 11.7 Replacement:

*Appliances are operated until steady conditions are established.*