

**SLOVENSKI**  
**STANDARD**

**SIST EN 60335-2-  
96:2003/A1:2004**

maj 2004

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**Gospodinjski in podobni električni aparati - Varnost - 2-96. del: Posebne zahteve za grelne elemente z zvijavimi ploščami za sobno gretje (IEC 60335-2-96:2002/A1:2003)**

Household and similar electrical appliances - Safety - Part 2-96: Particular requirements for flexible sheet heating elements for room heating (IEC 60335-2-96:2002/A1:2003)

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[SIST EN 60335-2-96:2003/A1:2004](https://standards.iteh.ai/catalog/standards/sist/2b7a239d-9a28-4d37-ba99-cfacc8cd4273/sist-en-60335-2-96-2003-a1-2004)  
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ICS 13.120; 97.100.10

Referenčna številka  
SIST EN 60335-2-96:2003/A1:2004(en)

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EUROPEAN STANDARD

**EN 60335-2-96/A1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2004

ICS 13.120;97.100.10

English version

**Household and similar electrical appliances –  
Safety  
Part 2-96: Particular requirements for flexible sheet  
heating elements for room heating  
(IEC 60335-2-96:2002/A1:2003)**

Appareils électrodomestiques  
et analogues –  
Sécurité  
Partie 2-96: Règles particulières  
pour les films souples chauffants  
pour le chauffage des locaux  
(CEI 60335-2-96:2002/A1:2003)

Sicherheit elektrischer Geräte für den  
Hausgebrauch und ähnliche Zwecke  
Teil 2-96: Besondere Anforderungen an  
Flächenheizelemente  
(IEC 60335-2-96:2002/A1:2003)

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This amendment A1 modifies the European Standard EN 60335-2-96:2002; it was approved by CENELEC on 2003-12-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 amendment 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**

## Foreword

The text of document 61/2429/FDIS, future amendment 1 to IEC 60335-2-96:2002, prepared by the IEC Technical Committee 61, Safety of household and similar electrical appliances, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 60335-2-96:2002 on 2003-12-01.

The following dates are applicable:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2004-09-01
- date on which national standards conflicting with the amendment have to be withdrawn (dow) 2006-12-01

This amendment supplements or modifies the corresponding clauses of EN 60335-2-96:2002.

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

There are no national deviations from this amendment.

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Endorsement notice

The text of amendment 1:2003 to the International Standard IEC 60335-2-96:2002 was approved by CENELEC as an amendment to the European Standard without any modification.

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### 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 3864	- <sup>1)</sup>	Safety colours and safety signs	-	-

<sup>1)</sup> Undated reference.

NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD

CEI  
IEC

60335-2-96

2002

AMENDEMENT 1  
AMENDMENT 1  
2003-08

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Amendement 1

**Appareils électrodomestiques et analogues –  
Sécurité –**

**Partie 2-96:  
Règles particulières pour les films souples  
chauffants pour le chauffage des locaux**

[SIST EN 60335-2-96:2003/A1:2004](https://standards.itec.ai/catalog/standards/sist/2b7a239d-9a28-4d37-ba99-clacc8cd4273/sist-en-60335-2-96-2003-a1-2004)

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Amendment 1

**Household and similar electrical appliances –  
Safety –**

**Part 2-96:  
Particular requirements for flexible sheet  
heating elements for room heating**

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## FOREWORD

This amendment has been prepared by technical committee 61: Safety of household and similar electrical appliances.

This bilingual version (2005-07) replaces the English version.

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

FDIS	Report on voting
61/2429/FDIS	61/2464 /RVD

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

The French version of this amendment has not been voted upon.

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

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## 2 Normative references

*Addition:*

ISO 3864, *Safety colours and safety signs*

## 3 Definitions

*Add the following:*

### 3.2.7 Replacement:

#### **supply leads**

set of wires intended for connecting the appliance to fixed wiring

## 5 General conditions for the tests

### 5.2 Add the following:

The test of 22.105 is carried out on the same sample as that used for the test of 13.2.

Two samples of the additional layer of material, of sufficient size to cover the **heating unit**, are required if the test of 21.104 is carried out.

Add the following:

### 5.3 Addition:

The test of 22.105 is carried out after the test of 13.2.

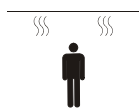
**5.101 Heating units** intended to be installed in walls above a height of 2,3 m are subjected to the tests for installation in ceilings.

## 7 Marking and instructions

### 7.1 Delete note 101.

Add the following:

### 7.6 Addition:



Direct ceiling heating



Direct floor heating



Floor storage heating



Installation in concrete

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These symbols are information signs and, except for the colours, the rules of ISO 3864 apply.

### 7.12.1

Replace item a) by the following:

a) an explanation of the marking and symbols, if necessary;

Replace the text of the third dash of the second paragraph of item b) by:

- a description of the intended orientation and a statement that the heating unit is to be installed in this way (for heating units having non-symmetric construction).

Replace the beginning of the third sentence of the first dash of item c) and the text of the first bullet by the following:

This statement is not required for **class III heating units** and for applications in

- timber floors provided that the instructions for installation state that there is to be an air gap between the heating unit and the floor;

Add the following:

- l) in applications in timber floors, a statement indicating that heating units having basic insulation only shall be covered by additional electrical insulation or supplied through an isolating transformer. This statement is not required if the heating units are class II.

#### 7.12.101 b)

Replace the first sentence by the following:

When the heating units have been positioned, they must be covered with an additional layer of material for mechanical protection.

Replace the text of the first dash by the following:

- screened insulated heating wires are covered with a sheath complying with 21.103;

#### 7.14 Addition:

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If symbols are used relating to the intended installation or heating mode, the superimposed rectangle shall have a height of at least 15 mm.

## 11 Heating

**11.2.103** Replace the first paragraph by the following:

**Heating units** intended to be installed in a timber floor are placed in a test framework, as shown in Figure 103. **Heating units** intended to be installed on top of a timber floor are placed in a test framework as shown in Figure 107. An area of at least 4 m<sup>2</sup> having a shorter dimension not less than 2 m is covered by at least three **heating units**, the unit under test being placed in the middle. Thermal insulation having a thermal resistance of approximately 5 m<sup>2</sup> K/W is located below the **heating units**. The **heating units** are installed in accordance with the instructions for installation, attention being paid to where they can be located over parts of the timber structure such as cross-members. The upper side of the framework is covered with the most unfavourable floor with regard to the total thermal resistance in accordance with the instructions for installation, an air gap being maintained as shown in the figures, if specified in the instructions.

In the first sentence of the third paragraph, replace “Figure 103” by “Figures 103 and 107”.



Replace the fourth and fifth paragraphs by the following:

**Heating units** intended to be installed in a floor of concrete or similar material are placed as shown in Figure 104. **Heating units** intended to be installed above a floor of concrete or similar material are placed as shown in Figure 108. **Heating units** are installed in accordance with the instructions for installation, any specified additional electrical insulation being placed over them. An area of at least 4 m<sup>2</sup>, having a shorter dimension not less than 2 m, is covered by at least three **heating units**, the unit under test being placed in the middle. Thermal insulation having a thermal resistance of approximately 2,5 m<sup>2</sup> K/W is located underneath the **heating units**. For **heating units** intended to be installed in concrete or similar material, the thermal insulation is supported by a dull black painted plywood board approximately 20 mm thick.

The **heating units** are covered with the additional layer, if specified in the instructions. They are then covered with a layer of concrete approximately 40 mm thick or the thickness stated in the instructions, whichever is greater. Instead of pouring concrete, the concrete layer may consist of concrete slabs 40 mm thick and having dimensions at least 500 mm x 500 mm, the gaps between the slabs being filled with dry sand. If the **heating unit** is intended for a **storage heating application**, the thickness of the concrete is increased to 80 mm. The concrete layer is not included for **heating units** intended to be installed on top of a concrete floor. A grid is included in the test arrangement if specified. The floor is covered with the most unfavourable flooring material listed in the instructions for installation. There is a free space of at least 1,5 m above the floor.

In the first sentence of the sixth paragraph, replace "Figure 104" by "Figures 104 and 108".

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## 16 Leakage current and electric strength

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16.3 In the third line of the fourth paragraph, replace "this insulation" by "this additional insulation".

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Add the following:

For **heating units** with **basic insulation** only, other than those supplied through an isolating transformer, that are provided with additional electrical insulation for application in timber floors, this additional insulation shall withstand the test voltage specified for **supplementary insulation**.

## 19 Abnormal operation

19.1 Delete the addition.

19.101 Delete this subclause.

## 21 Mechanical strength

Add the following before the last paragraph of the addition:

The additional layer of material covering **heating units** in floors of concrete or similar material, or under tiles, is subjected to the test of 21.104.