INTERNATIONAL STANDARD

IEC 60335-2-61

Second edition
2002-10

Household and similar electrical appliances – Safety –

Part 2-61: Particular requirements for thermal-storage room heaters

Appareils électrodomestiques et analogues – Sécurité –

Partie 2-61: Règles particulières pour les appareils de chauffage à accumulation

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International Electrotechnical Commission, 3, rue de Varembé, 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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-61: Particular requirements for thermal-storage room heaters

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.
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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.
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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 1992 and its amendment 1 (2000).

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

FDIS	Report on voting
61/2173/FDIS	61/2254/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 electric thermal-storage room 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.

– 7.1: All thermal-storage room heaters have to be marked with a warning against covering (Sweden).

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. 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.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-61: Particular requirements for thermal-storage room heaters

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric **thermal-storage room heaters** for household and similar purposes that are intended to heat the room in which they are located, their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances.

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.

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 Attention is drawn to the fact that

– this standard only applies to self-contained **thermal-storage room heaters.** However, it may be used as a guide, in so far as it reasonably applies, to determine the requirements and test specifications for other **thermal-storage room heaters**;
– for heaters incorporating direct-acting heating elements, IEC 60335-2-30 is also applicable;
– for heaters 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;
– heaters incorporated in the building structure;
– central heating systems;
– heaters for saunas (IEC 60335-2-53);
– flexible sheet heating elements for room heating (IEC 60335-2-96);
– heaters intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas).

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60335-2-30, *Household and similar electrical appliances – Safety – Part 2-30: Particular requirements for room heaters*

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

The heater is operated in cycles, each cycle having a duration of 24 h and consisting of a charging period and a discharging period. The charging period is terminated when all heating elements are disconnected for the first time by the devices controlling the temperature of the core (charge controls).

3.101
thermal-storage room heater
heater constructed to store heat obtained from electrical energy in a heat-accumulating core and to discharge it at any time

3.102
controlled-output heater
thermal-storage room heater, the heat output of which can be controlled by means such as fans, shutters or flaps

3.103
free-output heater
thermal-storage room heater, the heat output of which is discharged by natural convection and radiation and can only be varied by adjusting the charge

3.104
rated charging period
longest uninterrupted charging period assigned to the heater by the manufacturer

3.105
rated charge
energy consumption assigned to the heater by the manufacturer for a **rated charging period**

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

5.5 *Addition:*

*For **controlled-output heaters** having auxiliary air-outlets, air is discharged only through the main outlet into the room where the heater is situated.*

NOTE 101 Movable parts include accessories supplied with the heater, such as shelves and humidifiers.

5.6 *Addition:*

***Thermostats** sensitive to the room air temperature, such as those having a sensing element located in the air-inlet, are short-circuited.*

5.9 *Addition:*

When it is specified that direct-acting heating elements are operated together with the storage heating elements, this only applies if allowed by the construction.

6 Classification

The clause of Part 1 is applicable except as follows.

6.1 *Modification:*

Thermal-storage room heaters shall be **class I**, **class II** or **class III**.

7 Marking and instructions

The clause of Part 1 is applicable except as follows.

7.1 *Modification:*

Appliances shall be marked with **rated power input**.

Addition:

Appliances shall be marked with

– the **rated charging period**, in hours;
– the mass of the assembled appliance, in kilograms.

For appliances provided with more than one means of connection to the supply, each supply circuit shall be marked with **rated voltage**, **rated power input** and the symbol for nature of supply.

Appliances shall be marked with “Do not cover” or with symbol 5641 of IEC 60417-1 if the temperature rises determined during the tests of Clause 19 exceed the limits specified in Clause 11.

7.6 *Addition*:

[symbol 5641 of IEC 60417-1] do not cover

7.10 *Addition:*

Charging controls shall not be marked with the **off position** unless they have a contact separation in all poles to provide full disconnection under overvoltage category III conditions.

7.12 *Addition:*

The instructions shall be given on a durable card or in a booklet and shall include the substance of the following:

– these instructions should be retained for future reference;
– fumes may be emitted during the first few operations of the heater and the room should be kept well ventilated.

The instructions shall also include

– the **rated charge**;
– the minimum distance to be maintained between the heater and combustible materials, such as furniture and curtains.

If the temperature rises determined during the tests of Clause 19 exceed the limits specified in Clause 11, the instructions shall include the substance of the following:

– do not cover;
– do not place objects in contact with the heater.

If symbol 5641 of IEC 60417-1 is marked on the appliance, its meaning shall be explained.

7.12.1 *Addition:*

The installation instructions shall include the substance of the following:

– the installation of the heater should be carried out by trained personnel;
– if, during reassembly of the heater, a part of the thermal insulation shows damage or deterioration, it should be replaced by an identical part;
– to maintain stability, it is essential that the heater is placed on a level surface and care should be taken to avoid irregular surfaces, such as may result from carpets or tiled surrounds partially protruding under the heater.

The installation instructions shall also include

– a circuit diagram with a clear indication of the terminals;
– details for fixing the heater to the floor or for fixing the heater to the wall, including the minimum mounting height (if applicable).

7.14 *Addition:*

The height of symbol 5641 of IEC 60417-1 shall be at least 15 mm.

The height of the words “Do not cover” shall be at least 3 mm.

Compliance is checked by measurement.

7.15 *Addition:*

The marking concerning covering shall be visible after the heater has been installed.

8 Protection against access to live parts

This clause of Part 1 is applicable.

9 Starting of motor-operated appliances

This clause of Part 1 is not applicable.

10 Power input and current

This clause of Part 1 is applicable except as follows.

10.1 *Addition:*

Heaters are installed as specified in 11.2.

The power input of the storage heating elements is measured during the charging period, any fans, shutters, flaps and similar devices being adjusted to cause minimum heat discharge.

The power input of direct-acting heating elements is measured during a discharge period, any fans, shutters, flaps and similar devices being adjusted to cause maximum heat discharge.

The total power input for each means of connection to the supply is measured with all controls adjusted to the position resulting in the highest power input.

NOTE 101 For heaters incorporating motors, the tolerances specified for heating appliances apply.

10.101 The heater shall accept at least 100 % of the **rated charge**.

*Compliance is checked by measuring the energy consumption for one **rated charging period**. The heater is initially at room temperature and is operated at **rated power input**. Charge controls, if adjustable by the user, are placed at the maximum setting. Any fans, shutters, flaps and similar devices are adjusted to cause minimum heat discharge.*

11 Heating

The clause of Part 1 is applicable except as follows.

11.2 *Replacement:*

***Built-in appliances** are built in.*

Other heaters are placed in a test corner.

Dull black-painted plywood approximately 20 mm thick is used for the test corner and for the installation of built-in heaters. The test corner extends at least 300 mm beyond the heater. A wooden board, having a height of 120 mm and a thickness of 15 mm, is fixed along the full length of the walls of the test corner and in contact with the floor.

Apertures on the underside of the heater that are within 25 mm of the floor are blocked.

Heaters are positioned in the test corner as follows:

- *heaters normally used on a floor are placed on the floor as near to the walls as possible;*
- *heaters normally fixed to a wall are mounted on one of the walls, as near to the other wall and to the floor as is likely, unless otherwise stated in the installation instructions.*

*If a **stationary heater** has an opening at floor level, a felt pad 20 mm thick is placed on the floor and pushed without appreciable force into the opening as far as the construction will permit. If a guard is provided or if the opening is too small to permit the entry of the pad, the pad is pushed as close as possible against the opening.*

NOTE The purpose of the felt pad is to simulate a carpet that might restrict the airflow.

A dull black-painted plywood block having dimensions of 75 mm x 75 mm x 20 mm is placed on the floor of the test corner under the hottest part of the heater, if possible.

11.3 *Addition:*

The temperature rises of the felt pad and the plywood block are also determined by means of thermocouples attached to the small blackened disks.

Thermocouples are placed on the surface of the felt pad and on the centre of the plywood block.

11.6 *Replacement:*

***Combined appliances** are operated as **heating appliances**.*

11.7 *Replacement:*

***Controlled-output heaters** are subjected to three cycles of **normal operation** and **free-output heaters** are subjected to two cycles of **normal operation**.*

The heater is charged until the charge control operates for the first time.

*For **controlled-output heaters**, during the discharge period for the first and third cycles of operation, shutters, flaps and similar devices are adjusted to cause minimum heat discharge. During this period, fans are operated at minimum speed or are switched off, if possible. For the second cycle of operation, fans, shutters and similar devices are adjusted to cause maximum heat discharge during the discharge period and are operated 15 min after the end of the charging period.*

*If it is likely that higher temperature rises will result if fans, shutters, flaps and similar devices are adjusted to cause intermediate heat discharge, an additional cycle of **normal operation** is carried out under these conditions.*

If direct-acting heating elements can be operated simultaneously, they are energised during the test.

11.8 *Addition:*

In Table 3, heaters are considered liable to be operated continuously for long periods.

The temperature rises of surfaces of heaters shall not exceed the values shown in Table 101, the measurements commencing 20 min after the end of the charging period.

Table 101 – Temperature rises of surfaces

Surface	*Temperature rise* *K*
Air-outlet grilles and their immediate surrounds [a] that are accessible to the test rod [b]:	
– heaters incorporating fans having the air-outlet grille located on the sides or front of the heater	*175*
– other heaters	*130*
Other surfaces that are accessible to the test rod [b]	*85*
Surface of the felt pad or plywood block	*60*
[a] *Immediate surrounds are the surfaces within a distance of 100 mm from the air-outlet grille measured vertically above the openings and within a distance of 25 mm in the other directions.*	
[b] *The test rod is 75 mm in diameter, of unrestricted length and with a hemispherical end.*	

12 Void

13 Leakage current and electric strength at operating temperature

This clause of Part 1 is applicable except as follows.

13.1 *Modification:*

The tests are carried out at the end of the charging period of the last cycle of operation specified in 11.7, before operation of the charge control.

The tests are also carried out with motors and direct-acting heating elements operating during the discharge period.

14 Transient overvoltages

This clause of Part 1 is applicable.

15 Moisture resistance

This clause of Part 1 is applicable except as follows.

15.2 *Addition:*

For appliances having a horizontal surface at the top, 0,25 l of water containing approximately 1 % NaCl is poured over the top of the appliance during a period of 5 s.

16 Leakage current and electric strength

This clause of Part 1 is applicable.

17 Overload protection of transformers and associated circuits

This clause of Part 1 is applicable.

18 Endurance

This clause of Part 1 is not applicable.

19 Abnormal operation

This clause of Part 1 is applicable except as follows.

19.1 *Modification:*

Instead of the tests specified, appliances are subjected to the tests of 19.3, 19.11, 19.12 and 19.101.

Appliances incorporating motors are also subjected to the test of 19.7.

19.3 *Replacement:*

Appliances are operated as specified in Clause 11 but under the conditions of 19.3.101 to 19.3.104, the power input being 1,24 times ***rated power input****.*

19.3.101 ***Controlled-output heaters*** *are subjected to one cycle of* ***normal operation*** *under conditions of minimum heat discharge.*

19.3.102 *Heaters are subjected to one cycle of* ***normal operation*** *under conditions of maximum heat discharge.*

During the discharge period, a woollen blanket having a specific mass of approximately 470 g/m² and having the same width as the heater is placed from the wall, over the top and down the front of the heater.

NOTE The blanket between the wall and the heater is allowed to drop behind the heater. Care is to be taken to ensure that the blanket is not held away from the front of the heater.

The temperature rise of the surface of the heater under the blanket is determined.

19.3.103 *Heaters are subjected to one cycle of* ***normal operation*** *under conditions of maximum heat discharge.*

During the discharge period, a black-painted plywood board is placed in the most unfavourable position against the front surface of the heater. The board has a thickness of 13 mm, its height is at least equal to the height of the heater and its width equal to 75 % of the width of the heater or 60 cm, whichever is greater.

Direct-acting heating elements are in operation.

The temperature rise of the board is determined by means of thermocouples attached to the back of small blackened disks of copper or brass 15 mm in diameter and 1 mm thick. The front of the disk is flush with the surface of the board.

19.3.104 *Heaters are subjected to one cycle of* ***normal operation*** *under conditions of maximum heat discharge.*

During the discharge period, a folded woollen blanket having a specific mass of approximately 470 g/m² is placed on top of the heater. The blanket has the same width as the length of the heater and is folded into six thicknesses, each fold being equal in width to the distance from the front of the heater to the wall.

The temperature rise of the surface of the heater under the blanket is determined.

The temperature rise of the air is determined, commencing 20 min after the end of the charging period. The measurement is made at a distance of 10 mm from the air-outlet grille using the device shown in Figure 101.

19.13 *Addition:*

During the tests of 19.3, the temperature rises of the plywood board and the surfaces of the heater under the blanket shall not exceed 180 K.

The temperature rise of the air shall not exceed 180 K.

19.101 *Appliances are operated under **normal operation** and supplied at **rated voltage**. The following fault conditions are introduced one at a time for one cycle of operation, fans, shutters, flaps and similar devices being adjusted to cause the most unfavourable conditions:*

- *interrupting one of the phases of the supply;*
- *short-circuiting any control that operates during the test of Clause 11;*
- *simulating failure of the air-mixing device in the most unfavourable position, unless it can only fail in a safe position.*

NOTE 1 Failure of the air-mixing device can be simulated by rendering the control inoperative. If the air-mixing device is provided with more than one control, these are rendered inoperative in turn.

NOTE 2 The tests are limited to those conditions that may be expected to give the most unfavourable results.

During the test simulating failure of the air-mixing device, temperature rises shall not exceed

- *for air-outlet grilles and immediate surrounds*
  - *180 K, for heaters incorporating fans and having the air-outlet grille located on the front or sides,*
  - *180 K, for other heaters during the first 5 min and 155 K after this period;*
- *140 K, for other external surfaces of the heater;*
- *100 K, for the floor of the test corner.*

19.102 Appliances provided with outlets to supply air to more than one room shall not be damaged by a reverse airflow in any of the outlets or ducts.

*The appliance is operated as specified for the first cycle of operation in 11.7 and supplied at **rated voltage.** Air is injected at a pressure of 25 Pa to each air-outlet in turn, all other outlets being closed and fans switched off. The test is carried out until steady conditions are established.*

The temperature rises shall not exceed

- *150 K, for surfaces of the heater;*
- *60 K, for walls and floor of the test corner.*

The heater shall not be damaged to such an extent that compliance with this standard is impaired.

20 Stability and mechanical hazards

This clause of Part 1 is applicable except as follows.

20.1 *Modification:*

Instead of the test on the plane inclined at an angle of 15°, the appliance is placed on a horizontal surface and a force of 200 N is applied to the top of the heater in the most unfavourable horizontal direction.

The heater shall not overturn.

NOTE 101 Suitable means may be used to prevent the heater from sliding.

21 Mechanical strength

This clause of Part 1 is applicable except as follows.

Addition:

A mass of 80 kg is placed gently on the top of the heater over an area of 230 mm diameter. There shall be no distortion of the enclosure to such an extent that compliance with this standard is impaired.

22 Construction

This clause of Part 1 is applicable except as follows.

22.17 *Addition:*

NOTE 101 The requirement only applies after the appliance has been installed.

22.101 Appliances shall be constructed so that compliance with this standard is not impaired if objects are inserted through air-outlet grilles or heated particles from the heat-accumulating core, thermal insulation or other material penetrates into air ducts within the heater.

Compliance is checked by inspection.

22.102 Appliances shall be constructed so that heating elements maintain their original position during normal use. It shall not be possible for parts of a broken heating element to fall out of the appliance or be blown through air-outlet grilles.

Compliance is checked by inspection.

22.103 Appliances shall be constructed so that it is not possible for molten or flaming material to fall through the base of the heater.

Compliance is checked by inspection.

NOTE This requirement is considered to be met if the heating element cannot be seen through the base of the heater.

22.104 Appliances shall be constructed so that the components can be easily assembled during installation. The heat-accumulating core and the heating elements shall be arranged so that they can be placed in position before making the internal connections.

Internal wiring and terminals shall be arranged and marked so that incorrect connections are unlikely. If the internal connections are made by means of multiple-pin connectors, they shall be polarized.

Compliance is checked by inspection and, if necessary, by assembling the heater.

22.105 Appliances shall be constructed to allow the resetting of **thermal cut-outs** and the replacement of controls and heating elements without damaging thermal insulation.

Compliance is checked by inspection.

22.106 Appliances shall be constructed so that objects are prevented from falling or being inserted behind the heater. Guards provided for this purpose shall not be more than 50 mm below the top of the heater and not more than 50 mm from the sides.

These requirements do not apply if the heater is provided with spacers ensuring a distance of at least 75 mm between the rear face of the heater and the wall.

The height of any recess provided for a skirting board shall not exceed 250 mm.

Compliance is checked by inspection and by measurement.

22.107 The mass of the appliance in the dry condition shall not exceed 1,1 times the marked mass.

Compliance is checked by measurement.

23 Internal wiring

This clause of Part 1 is applicable.

24 Components

This clause of Part 1 is applicable except as follows.

24.101 At least one **thermal cut-out** that limits the temperature of the heat-accumulating core shall be non-self resetting. The use of a **tool** shall be necessary to reset it or to gain access to it.

Thermal cut-outs shall operate independently from any control limiting the temperature during the tests of Clause 11.

Compliance is checked by inspection and by manual test.

25 Supply connection and external flexible cords

This clause of Part 1 is applicable except as follows.

25.1 Not applicable.

25.3 *Addition:*

Appliances shall have means for permanent connection to fixed wiring.

26 Terminals for external conductors

This clause of Part 1 is applicable.

27 Provision for earthing

This clause of Part 1 is applicable.

28 Screws and connections

This clause of Part 1 is applicable.

29 Clearances, creepage distances and solid insulation

This clause of Part 1 is applicable except as follows.

29.2 *Addition:*

For appliances incorporating a fan, the microenvironment is pollution degree 3 unless the insulation is enclosed or located so that it is unlikely to be exposed to pollution during normal use of the appliance.

30 Resistance to heat and fire

This clause of Part 1 is applicable except as follows.

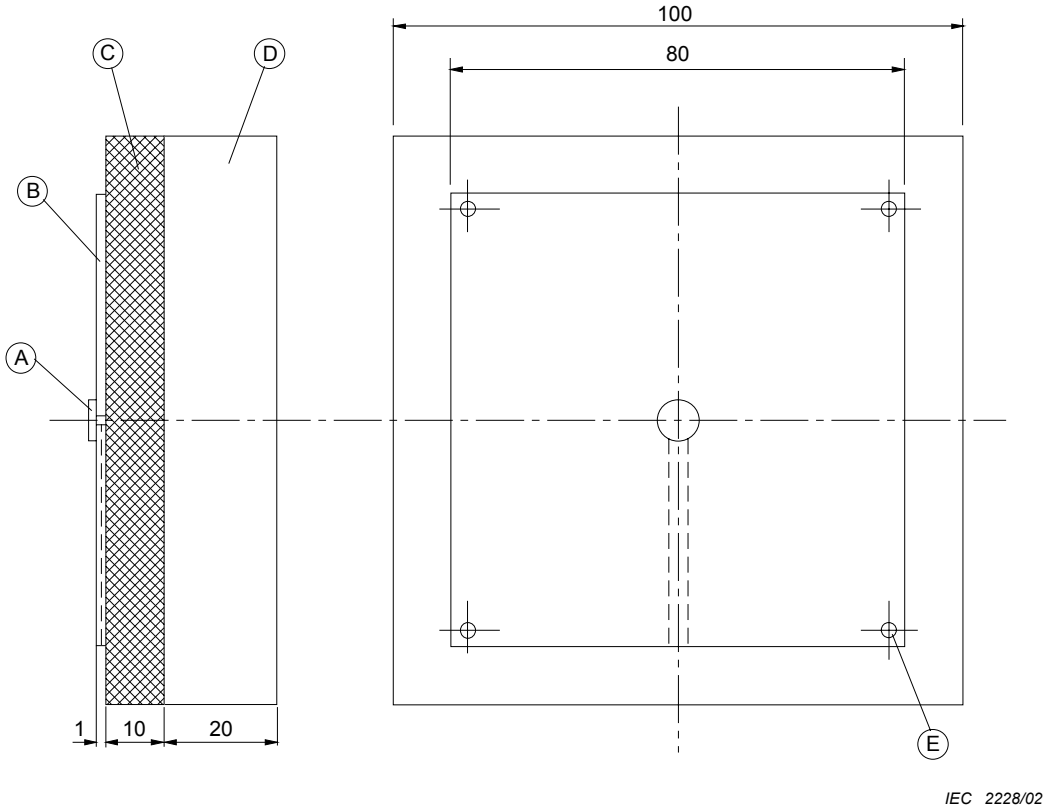
30.2.2 Not applicable.

31 Resistance to rusting

This clause of Part 1 is applicable.

32 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.



Dimensions in millimetres

NOTE 1 The thermal insulating material is not to be compressed between the copper plate and the hardwood.

NOTE 2 The thermocouple wires are positioned between the copper plate and the thermal insulating material.

Key

A Thermocouple fixed to the centre of the copper plate

B Square copper plate

C Thermal insulating material

D Square block of hardwood

E Location of fixing holes

Figure 101 – Device for determining the air temperature rise

Annexes

The annexes of Part 1 are applicable.

Bibliography

The bibliography of Part 1 is applicable except as follows.

Addition:

IEC 60335-2-53, *Household and similar electrical appliances – Safety – Part 2-53: Particular requirements for sauna heating appliances*

IEC 60335-2-96, *Household and similar electrical appliances – Safety – Part 2-96: Particular requirements for flexible sheet heating elements for room heating*

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Q1 Please report on **ONE STANDARD** and **ONE STANDARD ONLY**. Enter the exact number of the standard: *(e.g. 60601-1-1)*

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Q2 Please tell us in what capacity(ies) you bought the standard *(tick all that apply).* I am the/a:

purchasing agent ❑
librarian ❑
researcher ❑
design engineer ❑
safety engineer ❑
testing engineer ❑
marketing specialist ❑
other.....

Q3 I work for/in/as a: *(tick all that apply)*

manufacturing ❑
consultant ❑
government ❑
test/certification facility ❑
public utility ❑
education ❑
military ❑
other.....

Q4 This standard will be used for: *(tick all that apply)*

general reference ❑
product research ❑
product design/development ❑
specifications ❑
tenders ❑
quality assessment ❑
certification ❑
technical documentation ❑
thesis ❑
manufacturing ❑
other.....

Q5 This standard meets my needs: *(tick one)*

not at all ❑
nearly ❑
fairly well ❑
exactly ❑

Q6 If you ticked NOT AT ALL in Question 5 the reason is: *(tick all that apply)*

standard is out of date ❑
standard is incomplete ❑
standard is too academic ❑
standard is too superficial ❑
title is misleading ❑
I made the wrong choice ❑
other .....

Q7 Please assess the standard in the following categories, using the numbers:
(1) unacceptable,
(2) below average,
(3) average,
(4) above average,
(5) exceptional,
(6) not applicable

timeliness.....
quality of writing.....
technical contents.....
logic of arrangement of contents .....
tables, charts, graphs, figures.....
other .....

Q8 I read/use the: *(tick one)*

French text only ❑
English text only ❑
both English and French texts ❑

Q9 Please share any comment on any aspect of the IEC that you would like us to know:

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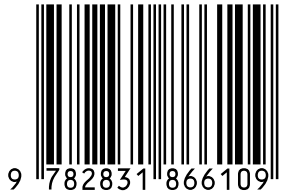

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