

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*

<https://standards.iteh.ai/catalog/standards/iec-60335-2-61-2002>



Reference number
IEC 60335-2-61:2002(E)

Publication numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series. For example, IEC 34-1 is now referred to as IEC 60034-1.

Consolidated editions

The IEC is now publishing consolidated versions of its publications. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

Further information on IEC publications

The technical content of IEC publications is kept under constant review by the IEC, thus ensuring that the content reflects current technology. Information relating to this publication, including its validity, is available in the IEC Catalogue of publications (see below) in addition to new editions, amendments and corrigenda. Information on the subjects under consideration and work in progress undertaken by the technical committee which has prepared this publication, as well as the list of publications issued, is also available from the following:

- **IEC Web Site** (www.iec.ch)

- **Catalogue of IEC publications**

The on-line catalogue on the IEC web site (http://www.iec.ch/searchpub/cur_fut.htm) enables you to search by a variety of criteria including text searches, technical committees and date of publication. On-line information is also available on recently issued publications, withdrawn and replaced publications, as well as corrigenda.

- **IEC Just Published**

This summary of recently issued publications (http://www.iec.ch/online_news/justpub/jp_entry.htm) is also available by email. Please contact the Customer Service Centre (see below) for further information.

- **Customer Service Centre**

If you have any questions regarding this publication or need further assistance, please contact the Customer Service Centre:

Email: custserv@iec.ch

Tel: +41 22 919 02 11

Fax: +41 22 919 03 00

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*

<https://standards.iteh.ai/catalog/standards/sist/367e5-b531-4589-a69b-866b5eab5d9f/iec-60335-2-61-2002>

© IEC 2002 — Copyright - all rights reserved

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

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



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE

R

For price, see current catalogue

CONTENTS

FOREWORD	3
INTRODUCTION	5
1 Scope	6
2 Normative references.....	6
3 Definitions	7
4 General requirement.....	7
5 General conditions for the tests	7
6 Classification	8
7 Marking and instructions	8
8 Protection against access to live parts	9
9 Starting of motor-operated appliances	9
10 Power input and current.....	10
11 Heating.....	10
12 Void	12
13 Leakage current and electric strength at operating temperature	12
14 Transient overvoltages.....	12
15 Moisture resistance.....	12
16 Leakage current and electric strength	12
17 Overload protection of transformers and associated circuits.....	12
18 Endurance	13
19 Abnormal operation.....	13
20 Stability and mechanical hazards	14
21 Mechanical strength.....	15
22 Construction	15
23 Internal wiring	16
24 Components	16
25 Supply connection and external flexible cords.....	16
26 Terminals for external conductors	17
27 Provision for earthing.....	17
28 Screws and connections	17
29 Clearances, creepage distances and solid insulation	17
30 Resistance to heat and fire	17
31 Resistance to rusting	17
32 Radiation, toxicity and similar hazards	17
Annexes.....	19
Bibliography.....	19
Figure 101 – Device for determining the air temperature rise	18
Table 101 – Temperature rises of surfaces	12

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.
- 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.

<https://www.intelstandards.com/iec60335-2-61-2002>
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.

[IEC 60335-2-61:2002](https://standards.iteh.ai/)

<https://standards.iteh.ai/catalog/standards/iec/535367e5-b531-4589-a69b-866b5eab5d9f/iec-60335-2-61-2002>

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.

[IEC 60335-2-61:2002](https://standards.iteh.ai/Document/iec-60335-2-61-2002)

<https://standards.iteh.ai/catalog/standards/iec/535367e5-b531-4589-a69b-866b5eab5d9f/iec-60335-2-61-2002>

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

<https://standards.iteh.ai/catalog/standards/iec/535367e5-b531-4589-a69b-866b5eab5d9f/iec-60335-2-61-2002>

<https://standards.iteh.ai/catalog/standards/iec/535367e5-b531-4589-a69b-866b5eab5d9f/iec-60335-2-61-2002>

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: