

INTERNATIONAL STANDARD

IEC
60335-2-53

Third edition
2002-10

Household and similar electrical appliances – Safety –

Part 2-53: Particular requirements for sauna heating appliances

*Appareils électrodomestiques et analogues –
Sécurité –*

*Partie 2-53:
Règles particulières pour les appareils de chauffage
de sauna*



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CONTENTS

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

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –

Part 2-53: Particular requirements for sauna 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 third edition cancels and replaces the second edition published in 1997. It constitutes a technical revision.

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

FDIS	Report on voting
61/2234/FDIS	61/2308/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 sauna 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 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.

- 6.1: Class 0I appliances are allowed (Japan).
- 11.2: The temperature rises in front of the sauna heater are not measured (USA).
- 11.8: The temperature rise limits are different (USA).
- 13.2: Leakage current tests are carried out on sauna heaters having a supply cord (USA).
- 16.2: Leakage current tests are carried out on sauna heaters having a supply cord (USA).
- 19.1: The volume of the sauna room is different (USA).
- 19.5: The test is also carried out on appliances intended to be permanently connected to fixed wiring (Norway).
- 19.101: The test is not applicable (USA).
- 22.101: The mass of rocks is different (USA).
- 22.103: The requirement is not applicable (USA).
- 24.102: The 125 °C limit is not applicable (USA).
- 25.7: The supply cords are different (USA).
- Annex AA: The sauna room is different (USA).

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.

<https://standards.iteh.ai/>

<https://standards.iteh.ai/cst/standards/iec/353e15d7-e28b-42d2-bb1e-c4168d659101/iec-60335-2-53-2002>

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-53: Particular requirements for sauna heating appliances

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric **sauna heating appliances** having a **rated power input** not exceeding 20 kW, their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances.

NOTE 101 **Sauna heating appliances** may be of the thermal storage type.

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 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);
- appliances intended to cause perspiration to only a part of the human body;
- sweating baths where the head of the user remains outside the heated space;
- tents and other collapsible sauna baths.

2 Normative references

This clause of Part 1 is applicable.

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

Sauna heating appliances are installed in the sauna room specified in Annex AA and in accordance with the instructions. The volume of the sauna room is the minimum value specified in the instructions.

The rock container is filled in accordance with the instructions. If the capacity of the rock container is adjustable, the container is filled with the most unfavourable quantity of rocks. If the rock container has a lid, the lid is positioned in accordance with the instructions.

Prefabricated saunas are installed in accordance with the instructions.

3.101**sauna heater**

appliance incorporating heating elements having a container filled with appropriate rocks

3.102**sauna heating appliance**

appliance comprising a **sauna heater**, controls, **protective devices** and control board

3.103**prefabricated sauna**

assembly comprising a sauna room and a **sauna heating appliance**

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.

5.2 Addition:

*If the appliance comprises more than one **sauna heater**, these are tested together.*

5.101 *If a ventilating fan operates independently of the heating element, the tests are carried out with or without the fan in operation, whichever is more unfavourable.*

6 Classification

This clause of Part 1 is applicable except as follows.

6.1 Modification:

Appliances shall be **class I**, **class II** or **class III**.

6.2 Addition:

Sauna heaters, controls and **protective devices** intended to be mounted inside the sauna room shall be at least IPX4.

Electrical components of **prefabricated saunas** shall be at least IPX4.

7 Marking and instructions

This clause of Part 1 is applicable except as follows.

7.1 Addition:

Sauna heaters shall be marked with the substance of the following:

See instructions for additional important information.

They shall also be marked with

- the minimum distance between the top of the heater and the ceiling of the sauna room;
- the minimum distance between the bottom of the heater and the floor of the sauna room, unless this distance is determined by the construction of the heater;
- the minimum horizontal distance between the heater and any combustible material of the sauna room, including a protective rail, unless these distances are determined by the construction of the heater;
- the maximum depth and minimum width of the recess for **sauna heaters** intended to be installed in a recess.

Sauna heaters shall be marked with the substance of the following:

WARNING: Covering causes fire risk

The inside wall of **prefabricated saunas** shall be marked near the **sauna heater** with the substance of the following:

WARNING: Covering the heater causes fire risk

Sauna heaters shall be marked with the substance of the following:

WARNING: An inadequately filled rock container causes fire risk

NOTE 101 This warning is not required if the **sauna heater** complies with Clause 11 without rocks in the container.

7.7 Addition:

Control boards shall have a connection diagram that gives details of the electrical connections for controls and **protective devices**.

NOTE 101 The connection diagram may also show connections, other than those required, provided the additional information does not cause confusion.

NOTE 102 If more than one control board is provided, the connection diagram may be divided so that each control board has its own connection diagram and a reference to the other control boards.

7.12 Addition:

The instructions for **sauna heaters** shall state how to fill the rock container.

The instructions for appliances for public saunas that do not have a timer shall state that the appliance is to be continuously attended. The instructions for use for other **sauna heating appliances** shall state that the sauna room is to be inspected before restarting the timer.

7.12.1 Addition:

The installation instructions for **prefabricated saunas** shall give details on how to assemble the appliance.

The installation instructions for other appliances shall include the following details:

- the minimum and maximum volume, in cubic metres, of the sauna room in which the **sauna heater** is intended to be installed;
- the minimum height of the sauna room;
- the materials to be used for the walls and the ceiling of the sauna room;
- the arrangement of the separate protective rail, if applicable;
- the means of ventilating the sauna room;