IEC 60335-2-102

Edition 3.0 2026-11

INTERNATIONAL STANDARD

COMMENTED VERSION

Household and similar electrical appliances - Safety -
Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections

ICS 97.100.20; 97.100.30; 13.120

ISBN 978-2-8327-1620-5

IEC 60335-2-102:2026-11 CMV (en)

CONTENTS

FOREWORD 3
INTRODUCTION 6
1 Scope 7
2 Normative references 8
3 Terms and definitions 8
4 General requirement 9
5 General conditions for the tests 9
6 Classification 9
7 Marking and instructions 9
8 Protection against access to live parts 10
9 Starting of motor-operated appliances 11
10 Power input and current 11
11 Heating 11
12 ~~Void~~ Charging of metal-ion batteries 12
13 Leakage current and electric strength at operating temperature 12
14 Transient overvoltages 13
15 Moisture resistance 13
16 Leakage current and electric strength 14
17 Overload protection of transformers and associated circuits 14
18 Endurance 14
19 Abnormal operation 14
20 Stability and mechanical hazards 16
21 Mechanical strength 16
22 Construction 16
23 Internal wiring 18
24 Components 18
25 Supply connection and external flexible cords 18
26 Terminals for external conductors 18
27 Provision for earthing 18
28 Screws and connections 19
29 Clearances, creepage distances and solid insulation 19
30 Resistance to heat and fire 19
31 Resistance to rusting 20
32 Radiation, toxicity and similar hazards 20
Annexes 22
Annex B (normative) Battery-operated appliances, separable batteries and detachable batteries for battery-operated appliances 22
Annex AA (informative) Standards for non-electric appliances 23
Annex BB (informative) Standards for fuel safety and control devices 24
Bibliography 25

Figure 101 – Pulse waveform 20

Figure 102 – Probe for measuring surface temperatures 20
Figure 103 – Dimensional details for the loading device in the area of the pressure ball 21
Figure 104 – Measurement before and after the ball pressure test for particle foam material 21

Table 101 – Accessible spark-ignition circuit limits 10
Table 102 – Maximum temperature rises for specified external accessible surfaces under normal operating conditions 12
Table AA.1 – Examples of non-electric appliance standards 23
Table BB.1 – Examples of fuel safety and control device standards 24

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

Household and similar electrical appliances - Safety - Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). 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. 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 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 IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

This commented version (CMV) of the official standard IEC 60335-2-102:2026 edition 3.0 allows the user to identify the changes made to the previous IEC 60335-2-102:2017 edition 2.0. Furthermore, comments from IEC TC 61 experts are provided to explain the reasons of the most relevant changes, or to clarify any part of the content.

A vertical bar appears in the margin wherever a change has been made. Additions are shown in green text, and deletions in red text with strikethrough. Hover over the comment icons to display pop-up notes containing the comments, which are also available in the margin of the publication.

This publication contains the CMV and the official standard.

IEC 60335-2-102 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances. It is an International Standard.

This third edition cancels and replaces the second edition published in 2017. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

– alignment with IEC 60335-1:2020;
– conversion of some Notes to normative text (Clause 1, 8.101, 11.8, 15.101, 16.3);
– clarification of the requirement for moisture resistance (15.101);
– addition of external accessible surface temperature limits for appliances with electric heat sources where there is no relevant IEC 60335 part 2 standard (3.6.102, 3.6.103, 7.12.1, 11.3, 11.8, Table 102, Figure 102);
– application of test probe 19 for parts no more than 850 mm from the floor (7.12.1, 8.1.1, 8.1.3, 20.2);
– addition of requirements for appliances intended for installation in areas with restricted access (3.8.103, 7.12.1, 8.1.1, 11.8, Table 102, 20.2, 22.106);
– limitation of the application of test probes and external accessible surface temperatures for parts of appliances above 850 mm, 1,8 m or 2,3 m after installation (7.12.1, Table 102, 20.2);
– addition of requirements for parts made of particle foam material (3.8.104, 21.2, 22.104, 22.105, 22.106, 30.1, 30.1.101, Figures 103 and 104);
– clarification of requirements for controls and software to align with requirements for fuel control standards and fuel burning appliance standards (19.11.2, 19.11.3, 19.13, 22.46, 24.1, Annex AA, Annex BB).

The text of this International Standard is based on the following documents:

Draft	Report on voting
61/7655/FDIS	61/7694/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments unless that edition precludes it; in that case, the latest edition that does not preclude it is used. It was established on the basis of the sixth edition (2020) 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: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections.

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.

NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations can need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

A list of all parts of the IEC 60335 series, under the general title: *Household and similar electrical appliances - Safety*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,

– withdrawn, or

– revised.

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.

Guidance documents concerning the application of the safety requirements for appliances can be accessed via TC 61 supporting documents on the IEC website

https://www.iec.ch/tc61/supportingdocuments

This information is given for the convenience of users of this International Standard and does not constitute a replacement for the normative text in this standard.

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 and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

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~~ can 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.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

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.

NOTE 2 ~~Horizontal and generic standards~~ Horizontal publications, basic safety publications and group safety publications covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. ~~For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards.~~

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.

NOTE 3 Standards dealing with non-safety aspects of household appliances are:

– IEC standards published by TC 59 concerning methods of measuring performance;
– CISPR 11, CISPR 14-1 and relevant IEC 61000-3 series standards concerning electromagnetic emissions;
– CISPR 14-2 concerning electromagnetic immunity;
– IEC standards published by TC 111 concerning environmental matters.

1 Scope

This clause of Part 1 is replaced by the following.

This part of IEC 60335 deals with the safety of gas, oil and solid-fuel burning appliances having electrical connections, for household and similar purposes, their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances including direct current (DC) supplied appliances and **battery-operated appliances**.

This standard covers the electrical safety and some other safety aspects of these appliances. All safety aspects are covered when the appliance also complies with the relevant standard for the fuel-burning appliance. If the appliance incorporates electric heating sources, safety aspects concerning these electric sources are covered when the appliance also complies with a relevant part 2 of IEC 60335.

Appliances not intended for normal household use but which nevertheless can be a source of danger to the public, such as appliances intended to be used by laypersons in shops, in light industry and on farms, are within the scope of this standard.

~~NOTE 101~~ Examples of appliances within the scope of this standard are:

– central heating boilers;
– commercial catering equipment;
– cooking appliances;
– laundry and cleaning appliances;
– room heaters;
– warm air heaters;
– water heaters.

~~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.~~

~~This standard deals with the reasonably foreseeable hazards presented by appliances that are encountered by all persons.~~

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:

– persons (including children) whose
  - physical, sensory or mental capabilities; or
  - lack of experience and knowledge

  prevents them from using the appliance safely without supervision or instruction;
– children playing with the appliance.

~~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~~ can 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 exclusively for industrial purposes;
– 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).

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60584-1, *Thermocouples - Part 1: EMF specifications and tolerances*

IEC 60695-10-2:2014, *Fire hazard testing - Part 10-2: Abnormal heat - Ball pressure test method*

IEC 61558-2-3, *Safety of transformers, reactors, power supply units and combinations thereof - Part 2-3: Particular requirements and tests for ignition transformers for gas and oil burners*

ISO 3808, *Road vehicles - Unscreened high-voltage ignition cables - General specifications, test methods and requirements*

Bibliography

The Bibliography of Part 1 is applicable except as follows.

Addition:

IEC 60730-2-5, *Automatic electrical controls - Part 2-5: Particular requirements for automatic electrical burner control systems*

ISO 845, *Cellular plastics and rubbers - Determination of apparent density*

ISO 1043-1, *Plastics - Symbols and abbreviated terms - Part 1: Basic polymers and their special characteristics*

ISO 21364-1, *Domestic gas cooking appliances - Safety - Part 1: General requirements*

ISO 21364-21, *Domestic gas cooking appliances - Safety - Part 21: Particular requirements for gas hobs, gas grills and gas griddles*

ISO 21364-22, *Domestic gas cooking appliances - Safety - Part 22: Particular requirements for ovens and compartment grills*

ISO 22967, *Forced draught gas burners*

ISO 22968, *Forced draught oil burners*

ISO 23550, *Safety and control devices for gas and/or oil burners and appliances - General requirements*

ISO 23551-1, *Safety and control devices for gas burners and gas-burning appliances - Particular requirements - Part 1: Automatic and semi-automatic valves*

ISO 23551-2, *Safety and control devices for gas burners and gas-burning appliances - Particular requirements - Part 2: Pressure regulators*

ISO 23551-3, *Safety and control devices for gas burners and gas-burning appliances - Particular requirements - Part 3: Gas/air ratio controls, pneumatic type*

ISO 23551-4, *Safety and control devices for gas burners and gas-burning appliances - Particular requirements - Part 4: Valve-proving systems for automatic shut-off valves*

ISO 23551-6, *Safety and control devices for gas burners and gas-burning appliances - Particular requirements - Part Thermoelectric flame supervision controls*

ISO 23551-8, *Safety and control devices for gas burners and gas-burning appliances - Particular requirements - Part 8: Multifunctional controls*

ISO 23551-9, *Safety and control devices for gas burners and gas-burning appliances - Particular requirements - Part 9: Mechanical gas thermostats*

ISO 23551-10, *Safety and control devices for gas burners and gas-burning appliances - Particular requirements - Part 10: Vent valves*

ISO 23552-1, *Safety and control devices for gas and/or oil burners and gas and/or oil appliances - Particular requirements - Part 1: Fuel/air ratio controls, electronic type*

ISO 23553-1, *Safety and control devices for oil burners and oil-burning appliances - Particular requirements - Part 1: Automatic and semi-automatic valves*

_____