IEC 60335-2-49

Edition 5.1 2025-08

INTERNATIONAL STANDARD

CONSOLIDATED VERSION

Household and similar electrical appliances - Safety -
Part 2-49: Particular requirements for commercial electric appliances for keeping food and crockery warm

ICS 97.030

ISBN 978-2-8327-0702-9

IEC 60335-2-49:2021-11+AMD1:2025-08 CSV(en)

CONTENTS

FOREWORD 3
INTRODUCTION 6
1 Scope 7
2 Normative references 8
3 Terms and definitions 8
4 General requirement 10
5 General conditions for the tests 10
6 Classification 11
7 Marking and instructions 11
8 Protection against access to live parts 14
9 Starting of motor-operated appliances 14
10 Power input and current 15
11 Heating 16
12 Charging of metal-ion batteries 19
13 Leakage current and electric strength at operating temperature 19
14 Transient overvoltages 20
15 Moisture resistance 20
16 Leakage current and electric strength 21
17 Overload protection of transformers and associated circuits 21
18 Endurance 21
19 Abnormal operation 21
20 Stability and mechanical hazards 23
21 Mechanical strength 24
22 Construction 24
23 Internal wiring 25
24 Components 26
25 Supply connection and external flexible cords 26
26 Terminals for external conductors 26
27 Provision for earthing 26
28 Screws and connections 27
29 Clearances, creepage distances and solid insulation 28
30 Resistance to heat and fire 28
31 Resistance to rusting 28
32 Radiation, toxicity and similar hazards 28
Annexes 31
~~Annex B (normative) Battery-operated appliances, separable batteries and detachable batteries for battery-operated appliances ..... 33~~
Annex P (informative) Guidance for the application of this standard to appliances used in tropical climates 33
Bibliography 34

Figure 101 – Probe for measuring surface temperatures 28

Figure 102 – Identification of surfaces for temperature measurement 29
Figure 103 – Splash apparatus 30

Table 101 – Maximum temperature rises for specified external accessible surfaces under normal operating conditions 18
Table 102 – Maximum temperature rises of external accessible surfaces for appliances intended to be installed in areas open to the public under normal operating conditions 19
Table 103 – Assembling torques for screwed connections providing earthing continuity 27

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

Household and similar electrical appliances - Safety - Part 2-49: Particular requirements for commercial electric appliances for keeping food and crockery warm

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 shall not be held responsible for identifying any or all such patent rights.

This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 60335-2-49 edition 5.1 contains the fifth edition (2021-11) [documents 61/6365/FDIS and 61/6411/RVD] and its amendment 1 (2025-08) [documents 61/7460/FDIS and 61/7490/RVD].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

IEC 60335-2-49 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2002, Amendment 1:2008 and Amendment 2:2017. This edition constitutes a technical revision.

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

a) the text has been aligned with IEC 60335-1:2020;
b) introduction of requirements for appliances intended for use in areas open to the public, including external accessible surface temperatures (Clause 1, 7.12, 11.8, Table 102);
c) exclusion of battery-operated appliances (Clause 1);
d) clarification of applicable standard for appliances for use by laymen (Clause 1, 7.12);
e) relocation of cleaning instructions from 7.12.1 to 7.12;
f) relocation of 24.101 to 22.106;
g) conciliation of the text of IEC 60335-2-49 with other standards under IEC/TC61/MT32;
h) some notes have been converted to normative text, modified or deleted (Clause 1, 7.1, 7.15, 11.3, 11.7, 15.2, 19.2, 22.101, 23.3);
i) additional requirements for measurement of input current;
j) clarification of the testing procedure in 15.1.1;
k) clarification of the test conditions in 20.1 and 23.3;
l) clarifications of the requirements in 25.3.

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

FDIS	Report on voting
61/6365/FDIS	61/6411/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/standardsdev/publications.

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

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 commercial electric appliances for keeping food and crockery warm.

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 document and its amendment 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.

NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may 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.

The following differences exist in the countries indicated below.

– 6.1: Class 01 appliances are allowed (Japan).

– 13.2: Leakage current limits are different (Japan).

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 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 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.

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 for 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 electrically operated commercial appliances for keeping food and crockery warm, their **rated voltage** being not more than 250 V for single-phase appliances connected between one phase and neutral, and 480 V for other appliances.

Examples of appliances that are within the scope of this standard are:

– **hot cupboards**, with or without **heated tops**;
– **heated tops**;
– **heated display cases**;
– **heated crockery dispensers**;
– **heated tables**;
– **radiant heaters**.

~~These appliances are not intended for household and similar purposes. They are used for commercial purposes, processing of food, also in **areas open to the public**, for example in kitchens of restaurants, canteens, hospitals and in commercial enterprises, such as bakeries and butcheries.~~

These appliances are not intended for household and similar purposes. They are used:

– by experts or instructed persons for commercial processing of food in areas that are not **areas open to the public**, for example in kitchens of restaurants, canteens, hospitals and in commercial enterprises such as bakeries and butcheries; or
– by laypersons in **areas open to the public**, for example hotel/motel common areas, canteens and self-service restaurants.

The electrical part of appliances making use of other forms of energy is also within the scope of this standard.

As far as is practicable, this standard deals with the common hazards presented by these types of appliances.

Attention is drawn to the fact that:

– for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements can be necessary;
– in many countries, additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour, the national water supply authorities and similar authorities;
– in many countries, additional requirements are specified for pressure appliances.

This standard does not apply to:

– appliances designed 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);
– appliances for continuous mass production of food;
– commercial electric bains-marie (IEC 60335-2-50);
~~– **battery-operated appliances**;~~
– warming plates and similar appliances for household use covered by IEC 60335-2-12 used in the following environments by laymen:

- staff kitchen areas in shops, offices and other working environments;
- farm houses;
- hotel~~s~~ rooms, motel~~s~~ rooms and other residential type environments;
- bed and breakfast type environments.

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60436, *Electric dishwashers for household use – Methods for measuring the performance*

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

ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel – Part 1: Bolts, screws and studs with specified property classes – Coarse thread and fine pitch thread*

ISO 3506-1, *Fasteners – Mechanical properties of corrosion-resistant stainless steel fasteners – Part 1: Bolts, screws and studs with specified grade and property classes*

ISO 3506-2, *Fasteners – Mechanical properties of corrosion-resistant stainless steel fasteners – Part 2: Nuts with specified grade and property classes*

ISO 3506-3, *Mechanical properties of corrosion-resistant stainless steel fasteners – Part 3: Set screws and similar fasteners not under tensile stress*

ISO 3506-4, *Mechanical properties of corrosion-resistant stainless steel fasteners – Part 4: Tapping screws*

CONTENTS

FOREWORD ... 3
INTRODUCTION ... 6
1 Scope ... 7
2 Normative references ... 8
3 Terms and definitions ... 8
4 General requirement ... 10
5 General conditions for the tests ... 10
6 Classification ... 10
7 Marking and instructions ... 11
8 Protection against access to live parts ... 14
9 Starting of motor-operated appliances ... 14
10 Power input and current ... 15
11 Heating ... 16
12 Charging of metal-ion batteries ... 19
13 Leakage current and electric strength at operating temperature ... 19
14 Transient overvoltages ... 20
15 Moisture resistance ... 20
16 Leakage current and electric strength ... 21
17 Overload protection of transformers and associated circuits ... 21
18 Endurance ... 21
19 Abnormal operation ... 21
20 Stability and mechanical hazards ... 23
21 Mechanical strength ... 24
22 Construction ... 24
23 Internal wiring ... 25
24 Components ... 26
25 Supply connection and external flexible cords ... 26
26 Terminals for external conductors ... 26
27 Provision for earthing ... 26
28 Screws and connections ... 27
29 Clearances, creepage distances and solid insulation ... 28
30 Resistance to heat and fire ... 28
31 Resistance to rusting ... 28
32 Radiation, toxicity and similar hazards ... 28
Annexes ... 31
Annex P (informative) Guidance for the application of this standard to appliances used in tropical climates ... 32
Bibliography ... 33

Figure 101 – Probe for measuring surface temperatures ... 28
Figure 102 – Identification of surfaces for temperature measurement ... 29
Figure 103 – Splash apparatus ... 30

Table 101 – Maximum temperature rises for specified external accessible surfaces under normal operating conditions 18

Table 102 – Maximum temperature rises of external accessible surfaces for appliances intended to be installed in areas open to the public under normal operating conditions 19

Table 103 – Assembling torques for screwed connections providing earthing continuity 27

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

Household and similar electrical appliances - Safety - Part 2-49: Particular requirements for commercial electric appliances for keeping food and crockery warm

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 shall not be held responsible for identifying any or all such patent rights.

This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 60335-2-49 edition 5.1 contains the fifth edition (2021-11) [documents 61/6365/FDIS and 61/6411/RVD] and its amendment 1 (2025-08) [documents 61/7460/FDIS and 61/7490/RVD].

This Final version does not show where the technical content is modified by amendment 1. A separate Redline version with all changes highlighted is available in this publication.

IEC 60335-2-49 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2002, Amendment 1:2008 and Amendment 2:2017. This edition constitutes a technical revision.

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

a) the text has been aligned with IEC 60335-1:2020;
b) introduction of requirements for appliances intended for use in areas open to the public, including external accessible surface temperatures (Clause 1, 7.12, 11.8, Table 102);
c) exclusion of battery-operated appliances (Clause 1);
d) clarification of applicable standard for appliances for use by laymen (Clause 1, 7.12);
e) relocation of cleaning instructions from 7.12.1 to 7.12;
f) relocation of 24.101 to 22.106;
g) conciliation of the text of IEC 60335-2-49 with other standards under IEC/TC61/MT32;
h) some notes have been converted to normative text, modified or deleted (Clause 1, 7.1, 7.15, 11.3, 11.7, 15.2, 19.2, 22.101, 23.3);
i) additional requirements for measurement of input current;
j) clarification of the testing procedure in 15.1.1;
k) clarification of the test conditions in 20.1 and 23.3;
l) clarifications of the requirements in 25.3.

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

FDIS	Report on voting
61/6365/FDIS	61/6411/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/standardsdev/publications.

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

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 commercial electric appliances for keeping food and crockery warm.

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 document and its amendment 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.

NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may 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.

The following differences exist in the countries indicated below.

– 6.1: Class 01 appliances are allowed (Japan).

– 13.2: Leakage current limits are different (Japan).

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 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 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.

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 for 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 electrically operated commercial appliances for keeping food and crockery warm, their **rated voltage** being not more than 250 V for single-phase appliances connected between one phase and neutral, and 480 V for other appliances.

Examples of appliances that are within the scope of this standard are:

– **hot cupboards**, with or without **heated tops**;
– **heated tops**;
– **heated display cases**;
– **heated crockery dispensers**;
– **heated tables**;
– **radiant heaters**.

These appliances are not intended for household and similar purposes. They are used:

– by experts or instructed persons for commercial processing of food in areas that are not **areas open to the public**, for example in kitchens of restaurants, canteens, hospitals and in commercial enterprises such as bakeries and butcheries; or
– by laypersons in **areas open to the public**, for example hotel/motel common areas, canteens and self-service restaurants.

The electrical part of appliances making use of other forms of energy is also within the scope of this standard.

As far as is practicable, this standard deals with the common hazards presented by these types of appliances.

Attention is drawn to the fact that:

– for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements can be necessary;
– in many countries, additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour, the national water supply authorities and similar authorities;
– in many countries, additional requirements are specified for pressure appliances.

This standard does not apply to:

– appliances designed 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);
– appliances for continuous mass production of food;
– commercial electric bains-marie (IEC 60335-2-50);
– warming plates and similar appliances for household use covered by IEC 60335-2-12 used in the following environments by laymen:
    - staff kitchen areas in shops, offices and other working environments;
    - farm houses;
    - hotel rooms, motel rooms and other residential type environments;
    - bed and breakfast type environments.

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60436, *Electric dishwashers for household use – Methods for measuring the performance*

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

ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel – Part 1: Bolts, screws and studs with specified property classes – Coarse thread and fine pitch thread*

ISO 3506-1, *Fasteners – Mechanical properties of corrosion-resistant stainless steel fasteners – Part 1: Bolts, screws and studs with specified grade and property classes*

ISO 3506-2, *Fasteners – Mechanical properties of corrosion-resistant stainless steel fasteners – Part 2: Nuts with specified grade and property classes*

ISO 3506-3, *Mechanical properties of corrosion-resistant stainless steel fasteners – Part 3: Set screws and similar fasteners not under tensile stress*

ISO 3506-4, *Mechanical properties of corrosion-resistant stainless steel fasteners – Part 4: Tapping screws*