IEC 60335-2-118

Edition 2.0 2025-04

Corrected version
2026-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Household and similar electrical appliances – Safety – Part 2-118: Particular requirements for professional ice-cream makers

Appareils électrodomestiques et analogues – Sécurité – Partie 2-118: Exigences particulières pour les fabriques de crème glacée à usage commercial

IEC 60335-2-118:2025-04(en-fr)

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HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-118: Particular requirements for professional ice-cream makers

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.
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IEC 60335-2-118 has been prepared by subcommittee 61C: Safety of refrigeration appliances for household and commercial use, of IEC technical committee 61: Safety of household and similar electrical appliances. It is an International Standard.

This second edition cancels and replaces the first edition published in 2020. 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) scope has been revised (Clause 1);
c) requirements for appliances employing R-744 system have been added (7.1, 7.12.1, 22.7, 22.111);
d) additional requirements for appliances employing flammable refrigerant have been added (7.1, 7.6, 7.12, 7.15, 21.105, 22.110, 22.112, 22.113, 22.114, 22.115, 22.116, 22.117, 22.118, 22.119, 22.120, 22.121, 22.122, 22.123, Annex CC);
e) definition of hermetically sealed system has been revised (3.6.113);
f) reference to flammable refrigerant has been deleted (22.7);
g) new subclauses have been added (22.40, 22.49, 22.51);
h) compatibility tests for winding insulation of motor-compressors used with different types of refrigerants and oils have been introduced (22.9);
i) Annex AA has been modified to cover motors that are supplied at a voltage that is different from the rated voltage of the appliance;
j) Annex BB has been updated to align with the latest edition of IEC 60079-15;
k) text in 3.1.9.101, 3.1.9.102 and 3.1.9.103 has been cancelled and the text copied in 5.102;
l) new informative tightness routine test has been added (Annex A).

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

Draft	Report on voting
61C/928/FDIS	61C/932/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.

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.

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 professional ice-cream makers.

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 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.

The content of the corrigendum 1 (2026-01) has been included in this copy.

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 and SC 61C supporting documents on the IEC websites.

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

https://www.iec.ch/sc61c/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 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 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.

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.

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 2-118: Particular requirements for professional ice-cream makers

1 Scope

This clause of Part 1 is replaced by the following.

This part of IEC 60335 deals with the safety of appliances for making ice cream and artisan gelato exclusively operated by professional users.

Ice cream makers intended for professional use are employed in commercial environments, such as restaurants, hotels, supermarkets, shops, as well as in preparation areas of bars, bakeries, ice cream shops, institutional catering, and other similar professional settings.

Appliances taken into account are those intended for commercial use and similar appliances not intended for normal household use but which can nevertheless be a source of danger to the public, such as appliances intended to be used by laymen in shops, stores, by artisans or on farms, which **rated voltage** is not more than 250 V for single-phase appliances and 480 V for other appliances.

Appliances covered by this standard are provided with a refrigerant condensing unit which is usually incorporated, but for some appliances can be remote.

As far as is practicable, this standard deals with the common hazards presented by these types of appliances including those that use **flammable refrigerants** and appliances employing R-744 refrigerant.

This standard is not applicable to appliances with a mass of **flammable refrigerant** exceeding the limits specified in 22.112 or to appliances with that use refrigerants with a toxicity classification of B according to ISO 817.

It does not cover those features of construction and operation of refrigerating appliances that are dealt with in ISO standards.

This standard also applies to following types of appliances:

– mixers to make ice cream and similar pastry products in which, for the preparation of the product, heating process is made within the appliance before the cooling process;
– appliances for storing whipping cream mix in a refrigerated tank and for whipping the cream for the delivery process;
– freezers designed to produce soft ice cream and dispense it directly into containers;
– machines for soft-serve ice cream;
– batch dispensing freezers.

Attention is drawn to the fact that:

– countries can have additional requirements for appliances incorporating pressure vessels;
– 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;
– for appliances or parts of appliances intended to be used outdoors, additional requirements can be necessary.

This standard does not apply to:

– split systems having a **refrigerant charge** of **flammable refrigerant** exceeding 150 g in any **refrigerating circuit**;
– ice cream appliances for household use (IEC 60335-2-24);
– 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 60079 (all parts), *Explosive atmospheres*

IEC 60079-1:2014, *Explosive atmospheres – Part 1: Equipment protection by flameproof enclosures "d"*

IEC 60079-7:2015, *Explosive atmospheres – Part 7: Equipment protection by increased safety "e"*

IEC 60079-15:2017, *Explosive atmospheres – Part 15: Equipment protection by type of protection "n"*

IEC 60079-29-1:2016, *Explosive atmospheres – Part 29-1: Gas detectors – Performance requirements of detectors for flammable gases*
IEC 60079-29-1:2016/AMD1:2020

IEC 60335-2-34:2024, *Household and similar electrical appliances – Safety – Part 2-34: Particular requirements for motor-compressors*

IEC 60335-2-40:2024, *Household and similar electrical appliances – Safety – Part 2-40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers*

IEC 60730-2-6:2015, *Automatic electrical controls – Part 2-6: Particular requirements for automatic electrical pressure sensing controls including mechanical requirements*
IEC 60730-2-6:2015/AMD1:2019

IEC 60730 (all parts), *Automatic electrical controls*

IEC 60851-4, *Winding wires – Test methods – Part 4: Chemical properties*

IEC 60947-5-1:2024, *Low-voltage switchgear and controlgear – Part 5-1: Control circuit devices and switching elements – Electromechanical control circuit devices*

ISO 817, *Refrigerants – Designation and safety classification*

ISO 4126-2:2018, *Safety devices for protection against excessive pressure – Part 2: Bursting disc safety devices*

ISO 5149-1, *Refrigerating systems and heat pumps – Safety and environmental requirements – Part 1: Definitions, classification and selection criteria*

ISO 7010:2019, *Graphical symbols – Safety colours and safety signs – Registered safety signs*

ISO 14903, *Refrigerating systems and heat pumps – Qualification of tightness of components and joints*

Modification:

Replace

IEC 60598-1:2014, *Luminaires – Part 1: General requirements and tests*
IEC 60598-1:2014/AMD1:2017

with

IEC 60598-1:2020, *Luminaires – Part 1: General requirements and tests*

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1 Definitions relating to physical characteristics

3.1.101
refrigerant charge
mass of refrigerant within a **refrigerating circuit**

3.6 Definitions relating to parts of an appliance

3.6.101
compression-type appliance
appliance in which refrigeration is affected by the vaporisation at low pressure in a heat exchanger (**evaporator**) of a liquid refrigerant, the vapour thus formed being restored to the liquid state by mechanical compression at a higher pressure and subsequent cooling in another heat exchanger (**condenser**)

3.6.102
refrigerating circuit
combination of interconnected refrigerant-containing parts constituting one closed circuit in which the refrigerant is circulated for the purpose of extracting and delivering heat

3.6.103
condenser
heat exchanger in which, after compression, vaporised refrigerant is liquefied by rejecting heat to an external cooling medium

3.6.104
evaporator
heat exchanger in which, after pressure reduction, the liquid refrigerant is vaporised by absorbing heat from the medium to be refrigerated

3.6.105
refrigerant unit
factory assembled unit for performing part of the refrigeration cycle (compressing gas, condensation or gas cooling) comprising one or more refrigerant compressors with motors, **condensers**, liquid receivers, interconnecting pipe work and ancillary equipment all mounted on a common base

3.6.106
potential leak point
point in a **refrigerating circuit** where refrigerant can leak

Note 1 to entry: The following are considered to be **potential leak point**:

– interconnecting joints between parts of the **refrigerating circuit**;
– internal brazed joints of heat exchangers, capped valves and capped service ports;
– pipes with a bended radius, measured along the centre line, of less than 2,5 times the external pipe diameter;

Note 2 to entry: The following are not considered to be **potential leak points**:

– pipes with a bend radius, measured along the centre line, equal to or greater than 2,5 times the external pipe diameter;
– welded telescopic joints of the motor-compressor;
– welding of the pipes through the motor-compressor housing;
– welding of hermetic terminal.

3.6.107
heating system

heating element with associated components such as timers, switches, **thermostats** and other controls

3.6.108
ancillary heating element
heating device which performs an auxiliary function, such as a defrost heater, door heater or anti-condensation heater

3.6.109
pasteurising cycle
cycle during which the mixture is brought to the pasteurising temperature and then immediately cooled down to a preservation temperature ≤ 5 °C

3.6.110
free space
any space with a volume exceeding 60 l where a child can be entrapped and which is accessible after opening any door, lid or drawer and removing any detachable internal parts, including shelves, containers or drawers which are only accessible after opening any door, lid or drawer

In calculating the volume, a space with any single dimension not exceeding 150 mm or any two orthogonal dimensions each of which do not exceed 200 mm is ignored.

Note 1 to entry: Evaluation of the ignored volume can be checked by applying a 150 mm ± 0,5 mm diameter sphere or a square with 200 ± 0,5 mm side without appreciable force. The volume can be ignored if the sphere or square cannot fit inside.

3.6.111
maximum allowable pressure
PS
maximum pressure that a **refrigerating circuit** or a part of a **refrigerating circuit** or component is designed for, as specified by the manufacturer

Note 1 to entry: E.g. a **refrigerating circuit** can have the high side, low side or intermediate PS.

3.6.112
pressure relief device
pressure sensing device, intended to reduce pressure automatically when pressures within the refrigeration system exceed the setting pressure of the device during abnormal operation

3.6.113
hermetically sealed system
system in which all refrigerant containing parts are made tight by welding, brazing or a similar permanent connection which may include capped valves and capped service ports that allow proper repair or disposal and which have a tested tightness control level of less than 3 g per year under a pressure of at least a quarter of the **maximum allowable pressure**

Note 1 to entry: Sealed systems as defined in ISO 5149-1:2014 are equal to **hermetically sealed systems**.

3.6.114
gas cooler
heat exchanger in which, after compression, the refrigerant is cooled down, by transferring heat to an external cooling medium, without changing state

Note 1 to entry: A **gas cooler** is normally used in **transcritical refrigeration systems**.

3.6.115
transcritical refrigeration system

refrigeration system where the pressure in the high-pressure side is above the pressure where the vapour and liquid states of the refrigerant can coexist in thermodynamic equilibrium

3.7 Definitions relating to safety components

3.7.101
bursting disc
disc or foil which bursts at a predetermined pressure to reduce a pressure in a refrigeration system

3.8 Definitions relating to miscellaneous matters

3.8.101
flammable refrigerant
refrigerant with a safety classification of Class 2L, Class 2 or Class 3 in accordance with ISO 817

Note 1 to entry: For refrigerant blends which have more than one safety classification, the most unfavourable classification is taken for the purposes of this definition.

3.8.102
qualified person
person having the appropriate technical training and experience necessary to be aware of hazards to which he or she is exposed in performing a task and of measures to minimise the danger to themselves or other persons

4 General requirement

This clause of Part 1 is applicable except as follows.

Addition:

The use of **flammable refrigerants** involves some additional hazards that are not associated with appliances which use non-**flammable refrigerants**.

This standard addresses the additional hazards due to the potential leakage of **flammable refrigerants**.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

5.2 *Addition*:

At least one additional specially prepared sample is required for the tests of 22.113.

Unless the motor-compressor complies with IEC 60335-2-34, at least one additional specially prepared sample is required for the tests of 22.111.

Unless the motor-compressor complies with IEC 60335-2-34 and is classified as being protected by a motor-compressor protection system, at least one additional specially prepared sample is required for the test of 19.1.

At least one additional sample of the fan motor, thermal motor protector combination can be required for the test of 19.1.

The tests of 22.7 and 22.110 may be performed on separate samples.

Due to the potentially hazardous nature of the tests of 22.113, 22.114, 22.115 and 22.116 and 22.118, special precautions shall be taken when performing the tests.

5.3 *Addition:*

The test of 15.101 is carried out immediately after the test of 15.2.

5.4 *Replacement:*

For appliances intended to be connected to water supply, water is supplied at the appropriate rated pressure, according to the instructions.

5.7 *Addition:*

Tests according to Clause 10, Clause 11, Clause 13 are carried out at an ambient temperature of:

– *32 °C ± 1 °C on appliances of extended temperate (SN) and temperate (N) classes;*
– *38 °C ± 1 °C on appliances of subtropical (ST) class;*
– *43 °C ± 1 °C on appliances of tropical (T) class;*