



BSI Standards Publication

Household and similar electrical appliances — Safety

Part 2-89: Particular requirements for commercial refrigerating appliances with an incorporated or remote refrigerant condensing unit or compressor

This is a preview of "BS EN 60335-2-89:201...". [Click here to purchase the full version from the ANSI store.](#)

National foreword

This British Standard is the UK implementation of EN 60335-2-89:2010+A2:2017. It is derived from IEC 60335-2-89:2010, incorporating amendment 1:2012 and amendment 2:2015. It supersedes BS EN 60335-2-89:2010+A1:2016, which will be withdrawn on 3 July 2020.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to IEC text carry the number of the IEC amendment. For example, text altered by IEC amendment 1 is indicated by $\boxed{A_1}$ $\langle A_1 \rangle$.

Where a common modification to an IEC amendment has been introduced, the tags carry the number of the amendment. For example, the common modifications introduced by CENELEC to IEC amendment 1 are indicated by $\boxed{C_1}$ $\langle C_1 \rangle$.

The UK participation in its preparation was entrusted to Technical Committee CPL/61, Safety of household and similar electrical appliances.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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Amendments/corrigenda issued since publication

Date	Text affected
31 March 2016	Implementation of IEC amendment 1:2012 with CENELEC common modifications
31 July 2018	Implementation of IEC amendment 2:2015 with CENELEC common modifications

EUROPÄISCHE NORM

ICS 97.130.20

English Version

Household and similar electrical appliances — Safety — Part 2-89: Particular requirements for commercial refrigerating appliances with an incorporated or remote refrigerant condensing unit or compressor (IEC 60335-2-89:2010)

Appareils électrodomestiques et analogues —
Sécurité — Partie 2-89: Règles particulières pour
les appareils de réfrigération à usage commercial
avec une unité de condensation du fluide frigorigène
ou un compresseur incorporés ou à distance
(IEC 60335-2-89:2010)

Sicherheit elektrischer Geräte für den
Hausgebrauch und ähnliche Zwecke — Teil 2-89:
Besondere Anforderungen für gewerbliche
Kühl-/Gefriergeräte mit eingebautem oder
getrenntem Verflüssigersatz oder Motorverdichter
(IEC 60335-2-89:2010)

This European Standard was approved by CENELEC on 2010-03-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.



CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European Foreword

The text of document 61C/460/FDIS, future edition 2 of IEC 60335-2-89, prepared by SC 61X of the IEC Technical Committee 61, Safety of household and similar electrical appliances, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60335-2-89 on 2010-03-01.

This European Standard supersedes EN 60335-2-89:2002, EN 60335-2-89:2002/A1:2005, EN 60335-2-89:2002/A2:2007 and EN 60335-2-89:2002/A11:2004.

The principal changes in this edition as compared with EN 60335-2-89:2002 are as follows (minor changes are not listed):

- aligns the text with EN 60335-1, and its Amendments 1, 2, 11, 12 and 13;
- introduces requirements for appliances using transcritical refrigerant systems (3.107, 3.108, 3.109, 3.110, 3.111, 7.1, 7.6, 7.12.1, 22.103, 24.1.4, 24.102);
- introduces an enhanced flexing test (23.3).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates were fixed:

- | | |
|---|------------|
| - latest date by which the document has to be implemented at national level (dop)
by publication of an identical national standard or by endorsement | 2010-12-01 |
| - latest date by which the national standards conflicting with the document (dow)
have to be withdrawn | 2013-03-01 |

This Part 2 has to be used in conjunction with EN 60335-1, Household and similar electrical appliances – Safety – Part 1: General requirements. It was established on the basis of the 2002 edition of that standard. Amendments and revisions of Part 1 have also to be taken into account and the dates when such changes become applicable will be stated in the relevant amendment or revision of Part 1.

This Part 2 supplements or modifies the corresponding clauses of EN 60335-1, so as to convert it into the European Standard: Safety requirements for electric appliances - Safety - Part 2-89: Particular requirements for commercial refrigerating appliances with an incorporated or remote refrigerant condensing unit or compressor.

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 of Part 1 is to be adapted accordingly.

NOTE 1 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.;
- subclauses, notes and annexes that are additional to those in the IEC standard are prefixed with the letter Z.

NOTE 2 The following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in small roman type.

This is a preview of "BS EN 60335-2-89:201...". [Click here to purchase the full version from the ANSI store.](#)

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.

There are no special national conditions causing a deviation from this European Standard, other than those listed in Annex ZA to EN 60335-1.

There are no national deviations from this European Standard, other than those listed in Annex ZB to EN 60335-1.

Endorsement notice

The text of the International Standard IEC 60335-2-89:2010/A2:2015 was approved by CENELEC as a European Standard with agreed common modifications.

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Foreword to amendment A1

This document (EN 60335-2-89:2010/A1:2016) consists of the text of IEC 60335-2-89:2010/A1:2012 prepared by SC 61C "Safety of refrigeration appliances for household and commercial use" of IEC/TC 61 "Safety of household and similar electrical appliances", together with the common modifications prepared by CLC/TC 61, "Safety of household and similar electrical appliances".

The following dates are fixed:

- latest date by which the document has to be implemented at national level (dop) 2016-08-12
by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the document(dow) 2019-02-12
have to be withdrawn

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This amendment supplements or modifies the corresponding clauses of EN 60335-1:2012 and EN 60335-2-89:2010.

Clauses, subclauses, notes, tables and annexes which are additional to those in IEC 60335-2-89:2010/A1:2012 or in IEC 60335-1:2010 are prefixed "Z".

For the relationship with EU Directive 2006/42/EC, see informative Annex ZZ, which is an integral part of this document.

Endorsement notice

The text of the International Standard IEC 60335-2-89:2010/A1:2012 was approved by CENELEC as a European Standard with agreed common modifications.

This is a preview of "BS EN 60335-2-89:201...". [Click here to purchase the full version from the ANSI store.](#)

Foreword to amendment A2

This document (EN 60335-2-89:2010/A2:2017) consists of the text of IEC 60335-2-89:2010/A2:2015 prepared by SC 61C "Safety of refrigeration appliances for household and commercial use", of IEC/TC 61 "Safety of household and similar electrical appliances", together with the common modifications prepared by CLC/TC 61, "Safety of household and similar electrical appliances".

The following dates are fixed:

- latest date by which the document has to be implemented at national level (dop) 2018-07-03
by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the document(dow) 2020-07-03
have to be withdrawn

This amendment supplements or modifies the corresponding clauses of EN 60335-1:2012 including its amendments and EN 60335-2-89:2010EN 60335-2-89:2010 and its amendment A1:2016.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is available in EN 60335-2-89:2010/A1:2016.

Endorsement notice

The text of the International Standard IEC 60335-2-89:2010/A2:2015 was approved by CENELEC as a European Standard with agreed common modifications.

This is a preview of "BS EN 60335-2-89:201...". Click here to purchase the full version from the ANSI store.

Annex ZC (normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60079-4 ¹⁾	—	Electrical apparatus for explosive gas atmospheres — Part 4: Method of test for ignition temperature	—	—
C₂ Text deleted				
IEC 60079-15	2010	Explosive atmospheres — Part 15: Equipment protection by type of protection "n"	EN 60079-15	2010 C₁
IEC 60079-15	2005	Electrical apparatus for explosive gas atmospheres — Part 15: Construction, test and marking of type of protection "n" electrical apparatus	EN 60079-15	2005
C₁ Text deleted				
IEC 60335-2-5	—	Household and similar electrical appliances — Safety — Part 2-5: Particular requirements for dishwashers	EN 60335-2-5	2003 2009
IEC 60335-2-34	2002	Household and similar electrical appliances — Safety — Part 2-34: Particular requirements for motor-compressors	EN 60335-2-34	2002
+ A1	2004		+ A1	2005
+ A2	2008		+ A2	2009
			+ A11	2004
ISO 817	—	A₁ Refrigerants — Designation and safety classification A₁	—	—

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Publication	Year	Title	EN/HD	Year
ISO 3864-1	—	Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs in workplaces and public areas	—	—
ISO 4126-2	2003	Safety devices for protection against excessive pressure — Part 2: Bursting disc safety devices	—	—
^{A1} ISO 5149-1	—	Refrigerating systems and heat pumps — Safety and environmental requirements — Part 1: Definitions, classification and selection criteria ^{A1}	—	—
^{C1} ISO 7010 ^{C1}	2011	Graphical symbols — Safety colours and safety signs — Registered safety signs	EN ISO 7010	2012
—	—	Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles	EN 614-1+A1	2009
		Safety of machinery — Ergonomic design principles — Part 2: Interactions between the design of machinery and work tasks	EN 614-2+A1	2008
ISO 14159	2008	Safety of machinery — Hygiene requirements for the design of machinery	EN ISO 14159	2008
^{C2} IEC 60079-20-1	—	Explosive atmospheres — Part 20-1: Material characteristics for gas and vapour classification — Test methods and data	EN 60079-20-1	— ^{C2}

1) IEC 60079-4 is superseded by IEC 60079-20-1: 2010.

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Annex ZE
(informative)

**Specific additional requirements for appliances and machines
intended for commercial use**

This annex of Part 1 is not applicable.

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Annex ZF (informative)

Criteria applied for the allocation of products covered by standards in the EN 60335 series, under LVD or MD

This annex of Part 1 is not applicable.

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Annex ZZ (informative)

Coverage of Essential Requirements of Directive 2006/42/EU

WARNING: Other requirements and other EU Directives may be applicable to the products falling within the scope of this standard. 

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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) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. 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 subcommittee 61C: Household appliances for refrigeration, of IEC technical committee 61: Safety of household and similar electrical appliances.

The principal changes in this edition as compared with the first edition of IEC 60335-2-89 are as follows (minor changes are not listed):

- aligns the text with IEC 60335-1, and its Amendments 1 and 2;
- introduces requirements for appliances using transcritical refrigerant systems ([3.107](#), [3.108](#), [3.109](#), [3.110](#), [3.111](#), [7.1](#), [7.6](#), [7.12.1](#), [22.103](#), [24.1.4](#), 24.102)
- introduces an enhanced flexing test ([23.3](#))

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This is a preview of "BS EN 60335-2-89:201...". Click here to purchase the full version from the ANSI store.

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 commercial refrigerating appliances with an incorporated or remote refrigerant unit or compressor.

Where a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. Where 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 in the text are defined in [Clause 3](#). When a definition concerns an adjective, the adjective and the associated noun are also in bold.

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.

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.

- [22.101](#): E12 and E17 lamp holders are checked as specified for E14 and B15 lamp holders. E26 lamp holder is checked as specified for E27 and B22 lamp holders (Japan).
- [22.109](#): For unsealed glass tube heaters, the temperature requirements are different (Japan).

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

The contents of the interpretation sheet of July 2014 have been included in this copy.

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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 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 and generic standards 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 which 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.

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Household and similar electrical appliances — Safety —

Part 2:

Particular requirements for commercial refrigerating appliances with an incorporated or remote refrigerant condensing unit or compressor

1 Scope

This clause of Part 1 is replaced by the following.

C1 This standard applies to commercial refrigerators and freezers used for the display of food products, including beverages, for retail sale. **C1**

This International Standard specifies safety requirements for electrically operated commercial refrigerating appliances that have an incorporated compressor or that are supplied in two units for assembly as a single appliance in accordance with the manufacturer's instructions (split system).

A1 *Text deleted* **A1**

NOTE 101 Examples of appliances that are within the scope of this standard are

- **refrigerated display and storage cabinets;**
- refrigerated trolley cabinets;
- service counters and self-service counters;
- blast chillers and blast freezers.

C1 NOTE Z101 **Commercial use** of these refrigerating appliances is for example their use in restaurants, canteens, hospitals and commercial enterprises such as bakeries, butcheries, supermarkets etc. **C1**

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

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

C1 In many countries additional requirements on the safe use of the equipment covered may be specified by the national health authorities, the national authorities responsible for the protection of labour, the national water supply authorities and similar authorities. **C1**

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;

C1 *Text deleted* **C1**

C1 — for scrapping of appliances, additional requirements may be necessary. **C1**

NOTE 103 This standard does not apply to

- domestic refrigerating appliances (IEC 60335-2-24)
- industrial refrigerating systems;
- motor-compressors (IEC 60335-2-34);