



SLOVENSKI STANDARD SIST EN 60335-2-24:2001

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Nadomešča:

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Varnost gospodinjskih in podobnih električnih aparatov - 2-24. del: Posebne zahteve za hladilnike, zamrzovalnike in aparate za pripravo ledu (IEC 60335-2-24:2000)

Safety of household and similar electrical appliances -- Part 2-24: Particular requirements for refrigerating appliances, ice-cream appliances and ice-makers

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke -- Teil 2-24: Besondere Anforderungen für Kühl-/Gefriergeräte und Speiseeis- und Eisbereiter

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Sécurité des appareils électrodomestiques et analogues -- Partie 2-24: Règles particulières pour les appareils de réfrigération, les appareils de glaces à la crème et les fabriques de glace

Ta slovenski standard je istoveten z: EN 60335-2-24:2000

ICS:

13.120	Varnost na domu	Domestic safety
97.040.30	Hladilni aparati za dom	Domestic refrigerating appliances

SIST EN 60335-2-24:2001

en

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EUROPEAN STANDARD

EN 60335-2-24

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2003

ICS 97.040.30

Supersedes EN 60335-2-24:2000

English version

**Household and similar electrical appliances -
Safety**
**Part 2-24: Particular requirements for refrigerating appliances,
ice-cream appliances and ice-makers**
(IEC 60335-2-24:2002)

Appareils électrodomestiques
et analogues -
Sécurité
Partie 2-24: Règles particulières
pour les appareils de réfrigération,
les appareils de glaces à la crème
et les fabriques de glace
(CEI 60335-2-24:2002)

Sicherheit elektrischer Geräte für den
Hausgebrauch und ähnliche Zwecke
Teil 2-24: Besondere Anforderungen
für Kühl-/Gefriergeräte,
Speiseeis- und Eisbereiter
(IEC 60335-2-24:2002)

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This European Standard was approved by CENELEC on 2003-03-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of the International Standard IEC 60335-2-24:2002 (61C/213/FDIS), prepared by SC 61C of the IEC Technical Committee 61, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 60335-2-24 on 2003-03-01.

This European Standard replaces EN 60335-2-24:2000 + corrigendum July 2001.

The following dates are applicable:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2004-03-01
- date on which national standards
conflicting with the EN have to be withdrawn (dow) 2007-08-01

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 refrigerating appliances, ice-cream appliances and ice-makers.

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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.

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.

National deviations from this European Standard are listed in Annex ZB and are in addition to those in EN 60335-1.

p NOTE In this document, p is used in the margin to indicate instructions for preparing the printed version.

Introduction

p Add:

An investigation by CENELEC TC 61 has shown that all risks from products within the scope of this standard are fully covered by the Low Voltage Directive, 73/23/EEC. For products having mechanical moving parts, a risk assessment in accordance with the Machinery Directive, 98/37/EC, has shown that the risks are mainly of electrical origin and consequently this directive is not applicable. However, the relevant essential safety requirements of the Machinery Directive are covered by this standard together with the principal objectives of the Low Voltage Directive.

Endorsement notice

The text of the International Standard IEC 60335-2-24:2002 was approved by CENELEC as a European Standard without any modification.

p In the third dashed item of 7.1, delete the word "only".

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p Add:

Annex ZB (informative)

A-deviations

Addition:

Clause Deviation

7.12 **Denmark** (Danish Heavy Current Regulations, Section 6, Clause 801.471.2; Item 2 and 3)

The instructions for stationary Class I appliances for household use shall include the substance of the following:


This refrigerator (food freezer) shall be protected against indirect contact in accordance with the Heavy Current Regulations. This requirement also applies to refrigerators (food freezers) replacing an appliance, which was not protected against indirect contact.

The purpose of protection against indirect contact is to protect the user against electric shock in the event of a fault.

In homes built after April 1st, 1975, all socket-outlets in kitchens and possibly also in sculleries will provide protection against indirect contact.

In homes built before April 1st, 1975, protection against indirect contact is provided if an earth-leakage circuit-breaker (RCCB) having a rated tripping fault-current of 0,03 A is installed in the supply to the socket-outlet to which the refrigerator (food freezer) is to be connected.

In both cases:

- a three-pin plug shall be used if the socket-outlet is suitable for a three-pin plug, and the conductor having a green/yellow insulation shall be connected to the earthing terminal (marked  - 417-IEC-5019-a),
- a two-pin plug shall be used if the socket-outlet is suitable for a two-pin plug. The conductor having a green/yellow insulation shall be cut off inside the plug as close to the inlet opening as possible.

In all other cases, an authorised electrician should propose the most favourable way of establishing protection against indirect contact for the refrigerator (food freezer).

The Electricity Council recommends to establish the required protection by means of an earth-leakage circuit-breaker (RCCB) having a rated tripping fault-current of 0,03 A.

Annex ZC
(normative)

**Normative references to international publications
with their corresponding European publications**

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60079	Series	Electrical apparatus for explosive gas atmospheres	—	—
IEC 60079-4A	— ¹⁾	Electrical apparatus for explosive gas atmospheres – Part 4: Method of test for ignition temperatures – First supplement	—	—
IEC 60079-15	1987	Electrical apparatus for explosive gas atmospheres – Part 15: Electrical apparatus with type of protection 'n'	—	—
IEC 60079-20	1996	Electrical apparatus for explosive gas atmospheres – Part 20: Data for flammable gases and vapours, relating to the use of electrical apparatus	—	—
IEC 60335-2-34	— ¹⁾	Household and similar electrical appliances – Safety – Part 2-34: Particular requirements for motor compressors	EN 60335-2-34	2002 ²⁾
ISO 817	1974	Organic refrigerants – Number designation	—	—
ISO 3864	1984	Safety colours and safety signs	—	—
ISO 5149	1993	Mechanical refrigerating systems used for cooling and heating – Safety requirements	—	—

¹⁾ undated reference

²⁾ valid edition at date of issue

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INTERNATIONAL STANDARD

IEC 60335-2-24

Fifth edition
2000-07

Safety of household and similar electrical appliances –

Part 2-24: Particular requirements for refrigerating appliances, ice-cream appliances and ice-makers

Sécurité des appareils électrodomestiques et analogues –

*Partie 2-24:
Règles particulières pour les appareils de réfrigération,
les appareils de glaces à la crème et les fabriques de glace*

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Commission Electrotechnique Internationale
International Electrotechnical Commission
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –

**Part 2-24: Particular requirements for refrigerating appliances,
ice-cream appliances and ice-makers**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60335-2-24 has been prepared by subcommittee 61C: Household appliances for refrigeration, of IEC technical committee 61: Safety of household and similar electrical appliances.

It forms the fifth edition of IEC 60335-2-24 and replaces the fourth edition published in 1997, its amendment 1 (1998) and amendment 2 (1999).

The text of this standard is based on the fourth edition, amendments 1 and 2 and the following documents:

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FDIS	Report on voting
61C/176/FDIS	61C/183/RVD

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

Annex AA forms an integral part of this standard.

Annex BB is for information only.

This part 2-24 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 third edition (1991) of that standard.

This part 2-24 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Safety requirements for **refrigerating appliances, ice-cream appliances and ice-makers**.

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 1 In this standard, the following print types are used:

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

Words in **bold** in the text are defined in clause 2. When a definition of part 1 concerns an adjective, the adjective and the associated noun are also in **bold**.

NOTE 2 Subclauses, notes, tables and figures which are additional to those in part 1 are numbered starting from 101, annexes which are additional to those in part 1 are lettered AA, BB, etc.

The following additional differences exist in some countries:

- 6.101: Only appliances of tropical class T are allowed (Australia, Israel, New Zealand).

A bilingual version of this standard may be issued at a later date.

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SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –

Part 2-24: Particular requirements for refrigerating appliances, ice-cream appliances and ice-makers

1 Scope

This clause of part 1 is replaced by:

This standard deals with the safety of the following appliances, their **rated voltage** being not more than 250 V for single-phase appliances, 480 V for other appliances and 24 V d.c. for appliances when battery operated.

- **refrigerating appliances** for household and similar use;
- **ice-makers** incorporating a motor-compressor and **ice-makers** intended to be incorporated in frozen food storage compartments;
- **refrigerating appliances** and **ice-makers** for use in camping, touring caravans and boats for leisure purposes.

These appliances may be operated from the mains, from a separate battery or operated either from the mains or from a separate battery.

This standard also deals with the safety of **ice-cream appliances** intended for household use, their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances.

It also deals with **compression-type appliances** for household and similar use, which use **flammable refrigerants**.

This standard does not cover features of the construction and operation of those **refrigerating appliances** which are dealt with in ISO standards.

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.

As far as is practicable, this standard deals with the common hazards presented by appliances which are encountered by all persons in and around the home.

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This standard does not in general take into account

- the use of appliances by young children or infirm persons without supervision;
- playing with the appliance by young children.

NOTE 1 Attention is drawn to the fact that

- for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements may be necessary;
- in many countries additional requirements are specified by national health authorities, the national authorities responsible for the protection of labour and the national authorities responsible for transportation.

NOTE 2 This standard does not apply to

- appliances intended to be used in the open air;
- 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 incorporating a battery intended as a power supply for the refrigerating function;
- appliances assembled on site by the installer;
- appliances with remote motor-compressors;
- motor-compressors (IEC 60335-2-34);
- commercial dispensing appliances and vending appliances (IEC 60335-2-75);
- commercial ice-cream appliances.

2 Definitions

This clause of part 1 is applicable except as follows:

2.2.9 Replacement:

normal operation

operation of the appliance under the following conditions:

2.2.9.1

normal operation of a refrigerating appliance

operation at an ambient temperature according to 4.7, empty, with the doors and lids closed. User-adjustable temperature control devices which control the operation of the motor-compressor in **compression-type appliances**, are short-circuited or otherwise rendered inoperative

2.2.9.2

normal operation of an ice-maker

operation at an ambient temperature according to 4.7, with the supply water at a temperature of $15\text{ °C} \pm 2\text{ °C}$

2.2.9.3

normal operation of an incorporated ice-maker

operation at the normal temperature of the frozen food storage compartment, with the supply water at a temperature of $15\text{ °C} \pm 2\text{ °C}$

2.2.9.4

normal operation of an ice-cream appliance

operation of the appliance using the maximum quantity of the mixture of ingredients indicated in the instructions; the mixture used being that which gives the most unfavourable results, the mixture being at an initial temperature of $23\text{ °C} \pm 2\text{ °C}$

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2.101

refrigerating appliance

enclosed thermally insulated appliance of suitable volume for household use, cooled by an incorporated device and having one or more compartments intended for the preservation of foodstuffs

2.102

compression-type appliance

appliance in which refrigeration is effected by the vaporization 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**)