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Majapidamis- ja muude taoliste elektriseadmete ohutus. Osa 2-34: Erinõuded mootorkompressoritele

Household and similar electrical appliances - Safety - Part 2-34: Particular requirements for motor-compressors (IEC 60335-2-34:2012)

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NATIONAL FOREWORD

See Eesti standard EVS-EN 60335-2-34:2013 sisaldab Euroopa standardi EN 60335-2-34:2013 ingliskeelset teksti.	This Estonian standard EVS-EN 60335-2-34:2013 consists of the English text of the European standard EN 60335-2-34:2013.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60335-2-34

June 2013

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Supersedes EN 60335-2-34:2002 + A1:2005 + A2:2009 + A11:2004

English version

Household and similar electrical appliances - Safety - Part 2-34: Particular requirements for motor-compressors

(IEC 60335-2-34:2012)

Appareils électrodomestiques et analogues - Sécurité - Partie 2-34: Exigences particulières pour les motocompresseurs (CEI 60335-2-34:2012)

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke - Teil 2-34: Besondere Anforderungen für Motorverdichter (IEC 60335-2-34:2012)

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

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Foreword

The text of document 61C/508/FDIS, future edition 5 of IEC 60335-2-34, prepared by SC 61C "Safety of refrigeration appliances for household and commercial use" of IEC/TC 61 "Safety of household and similar electrical appliances" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60335-2-34:2013.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2013-12-14
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2015-06-27

This document supersedes EN 60335-2-34:2002 + A1:2005 + A2:2009 + A11:2004.

EN 60335-2-34:2013 includes the following significant technical changes with respect to EN 60335-2-34:2002 + A1:2005 + A2:2009 + A11:2004:

- some notes have been deleted or converted to normative text (1, 6.103, 19.14, 22.7, Figure 101);
- manufacturer must declare the type of motor protection used (5.102, 6.104);
- tests to fault-test **motor-compressors** incorporating **electronic circuits** introduced (19.11.2, AA.5);
- application of the EMP tests clarified (19.11.4);
- testing of contactors and relays associated with **motor-compressors** introduced (19.14);
- Tables 101 and 102 updated and corrected;
- running overload test conditions extended (AA.1, AA.2, AA.3, AA.4, AA.5).

This standard is to be read in conjunction with EN 60335-1:2012 and its amendments.

NOTE 1 When “Part 1” is mentioned in this standard, it refers to EN 60335-1.

This Part 2 supplements or modifies the corresponding clauses in EN 60335-1, so as to convert that publication into the European Standard: *Safety requirements for electrical motor-compressors.*.

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 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.

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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 standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 60335-2-34:2012 was approved by CENELEC as a European Standard without any modification.

The Bibliography of EN 60335-1:2012 is applicable with the addition of the following notes for the standards indicated:

IEC 60335-2-11	NOTE	Harmonised as EN 60335-2-11.
IEC 60335-2-24	NOTE	Harmonised as EN 60335-2-24.
IEC 60335-2-40	NOTE	Harmonised as EN 60335-2-40.
IEC 60335-2-75	NOTE	Harmonised as EN 60335-2-75.
IEC 60335-2-89	NOTE	Harmonised as EN 60335-2-89.

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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 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.

For **motor-compressors**, testing in accordance with this standard is an option and cannot be required as a precondition for testing the complete appliance, for example by reference in Clause 24 of a part 2 of IEC 60335. However, testing of the appliance should be reduced if an incorporated **motor-compressor** including its protection system or control system, if any, complies with this standard.

If testing of the **motor-compressor** includes testing in accordance with Annex AA, temperatures of the **motor-compressor** windings, **housing** and other parts related to the **motor-compressor**, such as terminals, internal wiring and insulating materials, are not measured when the complete appliance in which the **motor-compressor** is used is tested.

These requirements apply to sealed (hermetic and semi-hermetic type) **motor-compressors** with their associated starting, cooling capacity control and protection systems, tested separately under the most severe conditions of the refrigerating system operation which, within reasonable limits, could occur in the applications for which they are used.

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In particular, the construction detail inspection and locked-rotor testing may be done separately on the **motor-compressor,** thereby eliminating the need for inspection and testing when the **motor-compressor** is applied to many different appliances and factory-built assemblies.

Operational tests may also be conducted on the **motor-compressor** separately in certain circumstances. The specification for this type testing is provided in Annex AA. However, the tests of the existing standards relevant to the given kind of application, such as IEC 60335-2-24 and IEC 60335-2-40, may need to be conducted on the final application and used as the final determination of acceptability.

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HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-34: Particular requirements for motor-compressors

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1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of sealed (hermetic and semi-hermetic type) **motor-compressors**, their protection and control systems, if any, which are intended for use in equipment for household and similar purposes and which conform with the standards applicable to such equipment. It applies to **motor-compressors** tested separately, under the most severe conditions that may be expected to occur in normal use, their **rated voltage** being not more than 250 V for single-phase **motor-compressors** and 480 V for other **motor-compressors**.

NOTE 101 Examples of equipment which contain **motor-compressors** are

– refrigerators, food freezers and ice makers (IEC 60335-2-24);

– air-conditioners, electric heat pumps and dehumidifiers (IEC 60335-2-40);

– commercial dispensing appliances and vending machines (IEC 60335-2-75);

– factory-built assemblies for transferring heat in applications for refrigerating, air-conditioning or heating purposes or a combination of such purposes.

This standard does not supersede the requirements of standards relevant to the particular appliance in which the **motor-compressor** is used. However, if the **motor-compressor** type used complies with this standard, the tests for the **motor-compressor** specified in the particular appliance standard may not need to be made in the particular appliance or assembly. If the **motor-compressor control system** is associated with the particular appliance control system, additional tests may be necessary on the final appliance.

So far as is practical, this standard deals with the common hazards presented by **motor-compressors** used in appliances which are encountered by all persons in and around the home. However, it does not in general take into account

– the use of appliances by young children or infirm persons without supervision;

– playing with the appliances by young children.

NOTE 102 Attention is drawn to the fact that

– for **motor-compressors** intended to be used in appliances in vehicles or on board ships, additional requirements may be necessary;

– in many countries, additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour and similar authorities.

NOTE 103 This standard does not apply to

– **motor-compressors** designed exclusively for industrial purposes;

– motor-compressors used in 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).

NOTE 104 If **motor-compressors** for refrigerant R-744 used in appliances with a **transcritical refrigeration system** are equipped with **pressure relief devices**, compliance with the requirements for these devices is checked during the tests on the final appliance.

2 Normative references

This clause of Part 1 is applicable.

3 Terms and definitions

This clause of Part 1 is applicable, except as follows.

3.101
motor-compressor
appliance consisting of the mechanical mechanism of the compressor and the motor, both of which are enclosed in the same sealed **housing**, with no external shaft seals, and with the motor operating in a refrigerant atmosphere with or without oil

Note 1 to entry: The **housing** may be permanently sealed, such as by welding or brazing (**hermetic motor-compressor**), or may be sealed by gasketted joints (**semi-hermetic motor-compressor**). A terminal box, a terminal box cover, and other electrical components or an electronic control system may be included.

Note 2 to entry: Hereafter, the term **motor-compressor** will be used to designate either a **hermetic motor-compressor** or **semi-hermetic motor-compressor**.

3.102
housing
sealed enclosure for the **motor-compressor**, which contains the compressor mechanism and the motor, and which is subjected to refrigerant pressures

3.103
thermal motor-protector
automatic control, built-in or fitted on a **motor-compressor**, that is specifically intended to protect the **motor-compressor** against over-heating due to running overload and failure to start

Note 1 to entry: This control carries **motor-compressor** current and is sensitive to one or both of the following:

– **motor-compressor** temperature;

– **motor-compressor** current.

Note 2 to entry: The control is capable of being reset (either manually or automatically) when its temperature falls to the reset value.

3.104
motor-compressor protection system
thermal motor protector and associated components, if any, or **protective electronic circuit** fully or partly separate or integrated into the **motor-compressor control system** and which is specifically intended to protect the **motor-compressor** against over-heating due to running overload or failure to start

Note 1 to entry: The control carries **motor-compressor** current and is sensitive to one or both of the following:

– **motor-compressor** temperature;

– **motor-compressor** current.

3.105
motor-compressor control system
system comprising one or more electrical or **electronic components,** or **electronic circuits** that provides at least one of the following:

– **motor-compressor** starting control functions;

– **motor-compressor** cooling capacity control functions

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