

**Majapidamis- ja muud taolised elektriseadmed.
Ohutus. Osa 2-95: Erinõuded olmekasutuslikele
vertikaalselt liikuvatele garaažiustele**

Household and similar electrical appliances - Safety -
Part 2-95: Particular requirements for drives for
vertically moving garage doors for residential use

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 60335-2-95:2005 sisaldab Euroopa standardi EN 60335-2-95:2004 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 23.02.2005 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on .

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 60335-2-95:2005 consists of the English text of the European standard EN 60335-2-95:2004.

This standard is ratified with the order of Estonian Centre for Standardisation dated 23.02.2005 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text .

The standard is available from Estonian standardisation organisation.

ICS 13.120, 29.120.01, 91.090

Võtmesõnad:

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
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English version

**Household and similar electrical appliances –
Safety
Part 2-95: Particular requirements for drives for vertically moving
garage doors for residential use
(IEC 60335-2-95:2002, modified)**

Appareils électrodomestiques et
analogues –
Sécurité
Partie 2-95: Règles particulières
pour les motorisations de portes de
garage à ouverture verticale,
pour usage résidentiel
(CEI 60335-2-95:2002, modifiée)

Sicherheit elektrischer Geräte für den
Hausgebrauch und ähnliche Zwecke
Teil 2-95: Besondere Anforderungen
für Antriebe von Garagentoren mit
Senkrechtbewegung zur Verwendung
im Wohnbereich
(IEC 60335-2-95:2002, modifiziert)

This European Standard was approved by CENELEC on 2004-09-01. 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, 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 60335-2-95:2002, prepared by the IEC Technical Committee 61, together with the common modifications prepared by CENELEC TC 61, was submitted to the Unique Acceptance Procedure. At the Athens meeting in November 2003 it was decided to submit additional modifications from document 61(Sec)1433 to the formal vote.

This second draft was circulated in June 2004 and was approved by CENELEC as EN 60335-2-95 on 2004-09-01.

This European Standard supersedes EN 60335-2-95:2001.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2005-07-01
- date on which the national standards conflicting with the EN have to be withdrawn (dow) 2007-09-01

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 drives for vertically moving garage doors for residential use.

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.

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

p NOTE 3 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.

The intended use of the drives covered by this standard is for them to be installed together with doors and the necessary ancillary components (e.g. controls, safety devices) to create a power operated garage door, the safety of which is ensured by this standard and the product standard for doors EN 13241-1.

These standards are to be used as follows:

- | | | |
|---|---|--|
| A | Drives that are intended to be used with specific types of doors, the limitations of which regarding e.g. load and size are specified in the instructions provided with the drive | Hazards resulting from the movement of the power operated door are covered by this standard |
| B | Doors that are intended to be used with specific drives specified in the instructions provided with the door | Hazards resulting from the movement of the power operated door are covered by EN 13241-1 |
| C | Doors and drives the combination of which is not specified in the instructions provided with either the door or the drive | Hazards resulting from the movement of the power operated door are covered by this standard and EN 13241-1 |

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Endorsement notice

The text of the International Standard IEC 60335-2-95:2002 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

1 Scope

- p Add to the paragraph starting with “This International Standard”: “It does not cover hazards related to the mechanisms of the door itself or to wicket doors.”.
- p Delete the second sentence of Note 103.
- p Add after the second dashed item of Note 105:
 - for garage doors higher than 3,5 m;
 - that are activated automatically.

3 Definitions

- p **3.101** In the note, delete the word “inherent”.
- p **3.102** Replace the text by “Void”.
- p **3.103** Replace the text by “Void”.
- p Add:

3.Z101

entrapment protection system

part of the **drive** that provides protection against entrapment

NOTE 1 Entrapment is trapping that could result in the human body being squeezed or crushed by the door.

NOTE 2 An **entrapment protection system** may consist of one or more devices, such as pressure sensitive edges, passive infrared and active light sensing devices.

NOTE 3 An **entrapment protection system** may be incorporated in the motor assembly or be installed separately.

NOTE 4 A **biased-off switch** may be used as an **entrapment protection system**.

3.Z102

rated operating time

duration of uninterrupted sequence of operating cycles assigned to the **drive** by the manufacturer

NOTE An operating cycle consists of an opening and closing movement of the door.

3.Z103

rated number of operating cycles

number of uninterrupted operating cycles assigned to the **drive** by the manufacturer

5 General conditions for the tests

- p Add:

5.7 Addition:

*If **drives** are intended to operate beyond the ambient temperature range of +5 °C to +40 °C, the tests of Clause 20 are carried out at the most unfavourable marked temperature.*

6 Classification

- p **6.101** Replace the text by "Void".

7 Marking and instructions

- p **7.1** Replace the addition by:

Drives shall be marked with the minimum and maximum ambient temperatures in which they are intended to operate.

Drives supplied without a door shall be marked with:

- the **rated load** in newtons or in newton-metres;
- the **rated operating time** in minutes, unless the **drive** is intended for continuous operation.

Drives supplied with a door shall be marked with the **rated number of operating cycles**, unless the **drive** is intended for continuous operation.

Devices used in the **entrapment protection system** to be installed separately shall be marked at least with the manufacturer name and type or model identification.

- p Add:

7.6 Addition:



Upper limit of temperature (ISO 7000/0533)



Lower limit of temperature (ISO 7000/0534)

- p **7.12** In the fifth dashed item, replace "40 mm" by "50 mm" and add "(for **drives** incorporating an **entrapment protection system** depending on contact with the bottom edge of the door)".

- p Add:

The instructions shall

- indicate which maintenance operations can be performed by the user;
- identify critical maintenance operations which may prove hazardous;
- specify the minimum frequency for any maintenance operation.

- p **7.12.1** In the second paragraph, delete "including any non-inherent protection device".

- p Add to the second paragraph:

"... and the necessary limitations, e.g. load and size of the doors."

- p Add after the third dashed item:

NOTE Z101 If removable, the actuating member should be stored in direct vicinity of the door.

- p In the last dashed item, replace "40 mm" by "50 mm" and add "(for **drives** incorporating an **entrapment protection system** depending on contact with the bottom edge of the door)".

- p Add the following dashed items:

- after installation, ensure that the parts of the door do not extend over public footpaths or roads;
- after installation, ensure that the drive prevents or stops the opening movement when the door is loaded with a mass of 20 kg, fixed centrally on the bottom edge of the door (for **drives** that can be used with doors having openings larger than 50 mm in diameter).

- p Add:

7.15 Addition:

When it is not practical for the marking to be visible after the **drive** has been installed, the marking shall also be included in the instructions.

- p **7.101** Replace the second paragraph and the note by:

The text may be replaced by the warning sign shown in Figure 102.

- p **7.102** Replace "**Drives**" by "**Drives** incorporating an **entrapment protection system** depending on contact with the bottom edge of the door" and replace "40 mm" by "50 mm".

- p Add:

7.Z101 If the **drive** is intended to be installed higher than 2,5 m above the floor or other access level, the packaging shall be marked accordingly. This information shall also be given in the installation instructions.

Compliance is checked by inspection.

7.Z102 If the **drive** is not to be used with doors having openings exceeding 10 mm in diameter or having edges or protruding parts a person could grip or stand on, the packaging shall be marked accordingly. This information shall also be given in the instructions.

Compliance is checked by inspection.

11 Heating

- p **11.7** Replace the text by:

Drives for continuous operation are operated for consecutive operating cycles until steady conditions are established.

Other **drives** are operated as follows:

- **drives** supplied without a door are operated without rest periods for the **rated operating time** but for not less than three cycles of operation or 4 min, whichever is longer;
- **drives** supplied with a door are operated without rest periods for the **rated number of operating cycles** but for not less than three cycles of operation.

15 Moisture resistance

- p Replace the text by:

This clause of part 1 is applicable except as follows:

15.1.2 Addition:

*IPX4 tubular **drives** are installed in a tube that is open at both ends and has the largest diameter specified in the instructions. The tube has a length twice that of the motor and is mounted on a support as in normal use. The support is rotated at a speed of 1 rev/min.*

19 Abnormal operation

- p Add:

19.1 Addition:

Compliance is also checked by the test of 19.Z101.

- p **19.10** Replace the text by:

Addition:

The test is continued for one cycle of operation if this is longer.

- p Add:

19.11.2 Addition:

*If the **drive** can be operated when any of the fault conditions are simulated, the tests of 20.Z101 to 20.Z103 are carried out, the **drive** however being supplied at **rated voltage**.*

The average forces specified in 20.Z103.1 may be exceeded but they shall not be greater than 600 N during the first 2 s after the force has exceeded 150 N, and shall not be greater than 150 N thereafter.

- p **19.13** Delete the addition.

- p Add:

19.Z101 ***Drives** marked with a **rated operating time** or a **rated number of operating cycles** are supplied **at rated voltage** and operated continuously under **normal operation**.*

During the test the winding temperatures shall not exceed the values specified in 19.9.

20 Stability and mechanical hazards

- p **20.101** Replace the first paragraph by:

Drives shall prevent doors from closing unexpectedly during normal use.

- p **20.102** Replace the text by "Void".

- p **20.103** Replace the text by "Void".

- p **20.104** Replace the text by "Void".

p **20.105** Replace the text by "Void".

p **20.106** Replace the text by "Void".

p **20.107** Replace the text by "Void".

p Add:

20.Z101 Drives controlled by a **biased-off switch** shall have limited operating speed and shall stop when the actuating member of the switch is released.

Compliance is checked by the following tests.

*The **drive** is installed with a door and supplied at the most unfavourable voltage between 0,94 and 1,06 times **rated voltage**. It is operated to close the door.*

The speed of the door, measured between the bottom edge of the door and the opposing edge (floor), shall not exceed 0,5 m/s.

When the actuating member of the switch is released, the bottom edge of the door shall stop before it has moved more than 50 mm.

The test is repeated during the opening movement of the door.

The requirement for the door to stop within a distance of 50 mm only applies if the closing force exerted by the door exceeds 150 N, as measured in 20.2103.1.

20.Z102 Drives incorporating an **entrapment protection system** with sensing devices which prevent the bottom edge of the door coming into contact with an obstacle shall not cause injury resulting from a moving door.

Compliance is checked by the following test.

*The **drive** is installed with a door, the force exerted by the **drive** being adjusted to the maximum indicated on the **drive**. The **drive** is supplied at the most unfavourable voltage between 0,94 and 1,06 times **rated voltage**.*

An obstacle having dimensions of approximately 200 mm x 300 mm, a height of 700 mm and a mass of 20 kg $\pm$ 0,5 kg is placed on the ground under the closing door in the most unfavourable orientation.

NOTE The obstacle is normally made of rough wood and painted white but other materials and colours may be used to simulate the most unfavourable conditions.

*The **drive** is operated to close the door. The door shall stop or reverse its movement without contacting the obstacle.*

The test is repeated with the obstacle being moved under the closing door at a speed of 3 m/s $\pm$ 0,6 m/s.

The tests are repeated with the obstacle placed on its side so that its height is 200 mm.

*The obstacle, in its vertical position, is then raised in increments up to the height of the door, but not higher than 2,5 m. At each increment, the **drive** is operated to close the door. The door shall stop or reverse its movement without contacting the obstacle.*

*The obstacle, in its vertical position, is placed at any location next to the closed door. The **drive** is operated to open the door. The door shall stop or reverse its movement without contacting the obstacle.*

20.Z103 Drives incorporating an **entrapment protection system** which reacts to the door contacting an obstacle shall not cause injury resulting from a moving door.

*Compliance is checked by the test of 20.Z103.1 for a closing movement and, if the **drive** is supplied with a door, by the test of 20.Z103.2 for an opening movement.*

20.Z103.1 The **drive** is installed with a door, the force exerted by the **drive** being adjusted to the maximum indicated on the **drive**. The **drive** is supplied at the most unfavourable voltage between 0,94 and 1,06 times **rated voltage**.

The **drive** is operated to close the door from the fully open position and the **entrapment protection system** shall limit the vertical component of the closing force to

- 150 N during the first 5 s after the force has exceeded 25 N,
 - 25 N thereafter;
- or
- 400 N during the first 0,75 s after the force has exceeded 150 N,
 - 150 N during a further period of 4,25 s,
 - 25 N thereafter;
- or
- 600 N during the first 2 s after the force has exceeded 150 N,
 - 150 N during a further period of 3 s,
 - 25 N thereafter.

The force is measured by means of an instrument which incorporates a rigid plate having a diameter of 80 mm and a spring having a ratio of 500 N/mm $\pm$ 50 N/mm. The spring acts on a sensing element which is connected to an amplifier having a rise and fall time not exceeding 5 ms. The measuring instrument shall be accurate within 5 %.

The force is measured on the bottom edge of the door at the following heights above the ground:

- 50 mm,
- 300 mm,
- 500 mm,
- 2 500 mm, or 300 mm below the maximum opening height of the door if this is less than 2 800 mm.

At each height, the force is measured at the following locations:

- in the centre of the bottom edge of the door,
- 200 mm from each end of the bottom edge of the door.

The test is carried out three times and the average closing force is calculated for each location.

If the measured force exceeds 400 N during 0,75 s or 150 N during a further period of 4,25 s, the following test is carried out to detect stationary and moving obstacles.

An obstacle having dimensions of approximately 80 mm x 300 mm and a height of 100 mm is placed on the ground and centrally across the door opening.

The **drive** is operated to close the door. The door shall not start moving or shall reverse its movement when detecting the obstacle.

The test is repeated with the obstacle positioned at 100 mm from each end of the door opening in turn.

A cylindrical obstacle, having a diameter of 50 mm and a length of 850 mm, is suspended by one end 900 mm above the ground and centrally in the door opening.

The **drive** is operated to close the door and the cylinder is swung across the door opening from an angle of 45°. The **entrapment protection system** shall detect the obstacle and cause the door to reverse its movement.

20.Z103.2 Drives intended to be used with a door having openings exceeding 10 mm in diameter or having edges or protruding parts a person could grip or stand on are subjected to an opening test, the door being provided with a load. The force exerted by the **drive** is adjusted to the maximum indicated on the **drive**. The load has dimensions of approximately 200 mm x 200 mm x 200 mm, a mass of 20 kg, and is fixed centrally to the outside of the door with one edge adjacent to the bottom edge of the door.

The **drive** is supplied at the most unfavourable voltage between 0,94 and 1,06 times **rated voltage** and operated to open the door. If the bottom edge of the door moves more than 500 mm, the load is replaced by a test piece having dimensions of approximately 200 mm x 300 mm, a height of 700 mm and a mass not exceeding 20 kg, with the 300 mm edge adjacent to the bottom edge of the door.

The **drive** is again operated to open the door. The movement of the door shall stop before the test piece comes into contact with the lintel.

20.Z104 Entrapment protection systems shall provide an adequate level of protection in the event of a failure within the system.

Compliance is checked by the following test unless the **entrapment protection system** is a **biased-off switch**.

The **drive** is installed with a door and supplied at **rated voltage**. The **drive** is operated to close the door. During the movement, a short circuit or open circuit is simulated in the system or in the installation wiring, with the exclusion of the mains supply wires.

Unless the **entrapment protection system** continues to operate normally, the door shall stop moving or the movement of the door shall only be controlled by a supplementary **biased-off switch** after the door has completed its movement.

The test is repeated during the opening movement of the door.

If the **entrapment protection system** continues to operate normally, the test is repeated with an additional fault simulated.

NOTE It may be necessary to simulate several faults before the test is completed.

20.Z105 A mechanical fault in the **drive** shall not result in a hazardous operation.

Compliance is checked by inspection and if necessary by test.

The inspection shall evaluate which parts can affect the safety of operation and whether they are likely to break or become loose. These parts may be within the **drive** or used for connecting the **drive** to the door.

NOTE Examples of parts which are evaluated are screws, pins, shafts, wheels, chains and supporting parts.

If the inspection cannot determine whether the **drive** will continue to operate normally or stop its movement when the part has failed, the following test is carried out.

The **drive** is installed with a door, the force exerted by the **drive** adjusted to the maximum indicated on the **drive**. The **drive** is supplied at the most unfavourable voltage between 0,94 and 1,06 times **rated voltage**.

The faults are introduced one at a time and the **drive** is operated as in normal use.

Unless the **drive** and the door continue to operate normally,

- the **drive** shall stop operating by the end of the cycle, and
- further operation shall not be possible, and
- the speed of the door shall not increase by more than 20 %.

p **20.108** Replace this subclause by:

During the movement of the **drive** in either direction, the actuation of a manual control shall stop the movement.

If the control has a single button, further actuation shall reverse the direction of movement.

If the control has two buttons, one button shall stop the movement. Actuation of the other button shall restart the movement in the opposite direction.

If the control has three buttons, one button shall stop the movement. Another button shall initiate the opening movement. If this button is actuated during the closing movement, the movement shall continue or reverse. The third button shall initiate the closing movement. If this button is actuated during the opening movement, the movement shall continue or reverse.

Compliance is checked by manual test.

NOTE The test may be carried out without a door.

p **20.109** Replace the first paragraph by:

The appliance shall incorporate a manual release so that the door can be operated manually. The manual and power operated systems shall be equipped with a disconnection or interlocking device when the power operated mechanism has a dangerous influence over the manually operated mechanism.

Operation of the manual release shall not give rise to a hazard, such as kickback or unexpected operation of the drive. Crank handles provided as devices for manual operation shall not be able to fly back. They shall be safeguarded against slipping off and unintentional removal.

22 Construction

p **22.101** Replace the text by:

It shall not be possible to manually adjust the **drive** without the use of a tool.

Compliance is checked by inspection.

NOTE This requirement only applies to adjustments affecting compliance with the standard.

p **22.102** Add to the first paragraph:

NOTE If a safety device cannot be supplied with the **drive**, because its selection depends on e.g. door type, this safety device must be specified in the instructions for installation.

p **22.103** Replace the text by "Void".

p **22.104** Replace the text by "Void".

p **22.105** Replace the text by "Void".

- p **22.106** Add to the requirement:

The marking of the buttons shall be the same.

- p Add:

22.2101 If the **entrapment protection system** is a **biased-off switch**, it shall only be possible to operate the switch within sight of the door. All other manual controls shall be of the same type.

Compliance is checked by inspection.

24 Components

Add:

24.1 Addition:

All safety devices used in **entrapment protection systems** shall comply with the requirements of EN 12978 as far as they reasonably apply.

29 Clearances, creepage distances and solid installations

- p Replace the text by:

This clause of Part 1 is applicable except as follows.

29.2 Addition:

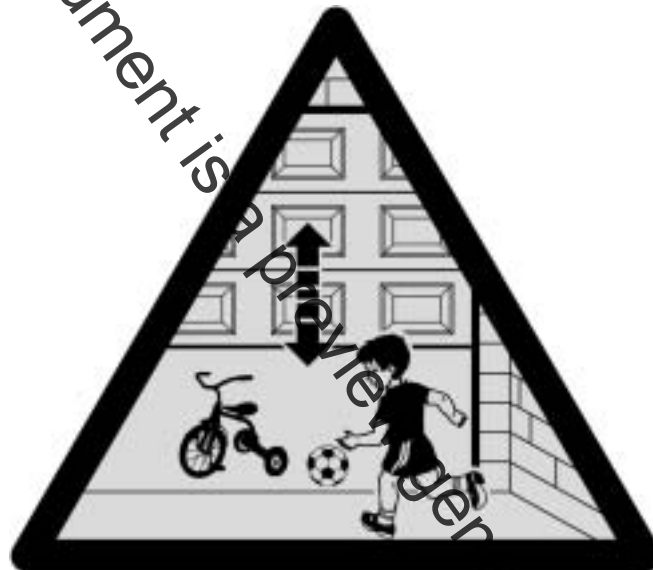
The microenvironment is pollution degree 3 unless the insulation is enclosed or located so that it is unlikely to be exposed to pollution during normal use of the appliance.

p **Figure 101** Replace the key by:

Types

- a One piece up-and-over fully retracting door
- b One piece up-and-over non protruding door
- c Sectional overhead door
- d Vertical folding door
- e One piece up-and-over canopy door
- f Rolling door

p **Figure 102** Replace by:



Minimum height: 60 mm

Form and colours to be in accordance with ISO 3864

Figure 102 - Sign warning against child entrapment

p Add:

Annex ZC (normative)

Normative references to international publications with their corresponding European publications

Addition:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-52	1996	Environmental testing – Part 2: Tests Test Kb: Salt mist, cyclic (sodium chloride solution)	EN 60068-2-52	1996
–	–	Industrial, commercial and garage doors – Safety devices for power operated doors and gates – Requirements and test methods	EN 12978	1999

Bibliography

p Add:

EN 12433-1, *Industrial, commercial and garage doors and gates – Terminology – Part 1: Types of doors*

EN 12604, *Industrial, commercial and garage doors and gates – Mechanical aspects – Requirements*

EN 12605, *Industrial, commercial and garage doors and gates – Mechanical aspects – Test methods*

EN 13241-1, *Industrial, commercial and garage doors and gates – Product standard – Part 1: Products without fire resistance or smoke control characteristics*

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Edition 2:2002 consolidated with amendment 1:2004

**Appareils électrodomestiques et analogues –
Sécurité –**

**Partie 2-95:
Règles particulières pour les motorisations
de portes de garage à ouverture verticale,
pour usage résidentiel**

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Safety –**

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**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC**

60335-2-95

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Edition 2:2002 consolidated with amendment 1:2004

**Appareils électrodomestiques et analogues –
Sécurité –**

**Partie 2-95:
Règles particulières pour les motorisations
de portes de garage à ouverture verticale,
pour usage résidentiel**

**Household and similar electrical appliances –
Safety –**

**Part 2-95:
Particular requirements for drives for vertically
moving garage doors for residential use**

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

APPAREILS ÉLECTRODOMESTIQUES ET ANALOGUES – SÉCURITÉ –

Partie 2-95: Règles particulières pour les motorisations de portes de garage à ouverture verticale, pour usage résidentiel

AVANT-PROPOS

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La présente partie de la Norme internationale CEI 60335 a été établie par le comité d'études 61 de la CEI: Sécurité des appareils électrodomestiques et analogues.

La présente version consolidée de la CEI 60335-2-95 comprend la deuxième édition (2002) [documents 61/2229/FDIS et 61/2304/RVD] et son amendement 1 (2004) [documents 61/2745/FDIS et 61/2790/RVD].

Le contenu technique de cette version consolidée est donc identique à celui de l'édition de base et à son amendement; cette version a été préparée par commodité pour l'utilisateur.

Elle porte le numéro d'édition 2.1.

Une ligne verticale dans la marge indique où la publication de base a été modifiée par l'amendement 1.

La version française de cette norme n'a pas été soumise au vote.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –****Part 2-95: Particular requirements for drives for vertically
moving garage doors for residential use**

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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This part of International Standard IEC 60335 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

This consolidated version of IEC 60335-2-95 consists of the second edition (2002) [documents 61/2229/FDIS and 61/2304/RVD] and its amendment 1 (2004) [documents 61/2745/FDIS and 61/2790/RVD].

The technical content is therefore identical to the base edition and its amendment and has been prepared for user convenience.

It bears the edition number 2.1.

A vertical line in the margin shows where the base publication has been modified by amendment 1.

The French version of this standard has not been voted upon.

Cette version bilingue (2005-07) remplace la version monolingue anglaise.

La présente partie 2 doit être utilisée conjointement avec la dernière édition de la CEI 60335-1 et ses amendements. Elle a été établie sur la base de la quatrième édition (2001) de cette norme.

NOTE 1 L'expression «Partie 1» utilisée dans la présente norme fait référence à la CEI 60335-1.

La présente partie 2 complète ou modifie les articles correspondants de la CEI 60335-1 de façon à transformer cette publication en norme CEI: Règles de sécurité pour les motorisations électriques de portes de garage à ouverture verticale, pour usage résidentiel.

Lorsqu'un paragraphe particulier de la Partie 1 n'est pas mentionné dans cette partie 2, ce paragraphe s'applique pour autant qu'il est raisonnable. Lorsque la présente norme spécifie «addition», «modification» ou «remplacement», le texte correspondant de la Partie 1 doit être adapté en conséquence.

NOTE 2 Le système de numérotation suivant est utilisé:

- paragraphes, tableaux et figures: ceux qui sont numérotés à partir de 101 sont complémentaires à ceux de la Partie 1;
- notes: à l'exception de celles qui sont dans un nouveau paragraphe ou de celles qui concernent des notes de la Partie 1, les notes sont numérotées à partir de 101, y compris celles des articles ou paragraphes qui sont modifiés ou remplacés;
- annexes: les annexes supplémentaires sont appelées AA, BB, etc.

NOTE 3 Les caractères d'imprimerie suivants sont utilisés:

- exigences: caractères romains;
- *modalités d'essais: caractères italiques*;
- notes: petits caractères romains.

Les mots en **gras** dans le texte sont définis à l'Article 3. Lorsqu'une définition concerne un adjectif, l'adjectif et le nom associé figurent également en gras.

Les différences suivantes existent dans les pays indiqués ci-après.

- 6.1: Les appareils de la classe 0I sont autorisés (Japon).
- 7.1: Des marquages complémentaires sont exigés (Canada et USA).
- 7.12.1: Des mises en garde et des instructions complémentaires sont exigées (Canada et USA).
- 11.7: Les conditions d'essai sont différentes (USA).
- 19.9: Un essai de fonctionnement en surcharge est effectué (USA).
- 20.101: L'essai n'est pas effectué (USA).

Le comité a décidé que le contenu de la publication de base et de ses amendements ne sera pas modifié avant la date de maintenance indiquée sur le site web de la CEI sous "<http://webstore.iec.ch>" dans les données relatives à la publication recherchée. A cette date, la publication sera

- reconduite,
- supprimée,
- remplacée par une édition révisée, ou
- amendée.

This bilingual version (2005-07) replaces the English version.

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 electric drives for vertically moving garage doors for residential use.

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 following differences exist in the countries indicated below.

- 6.1: Class 0I appliances are allowed (Japan).
- 7.1: Additional markings are required (Canada and USA).
- 7.12.1: Additional warnings and instructions are required (Canada and USA).
- 11.7: The test conditions are different (USA).
- 19.9: A running overload test is carried out (USA).
- 20.101: The test is not carried out (USA).

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the maintenance result 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.

INTRODUCTION

Il a été considéré en établissant la présente Norme internationale que l'exécution de ses dispositions était confiée à des personnes expérimentées et ayant une qualification appropriée.

Cette norme reconnaît le niveau de protection internationalement accepté contre les risques électriques, mécaniques, thermiques, liés au feu et au rayonnement des appareils, lorsqu'ils fonctionnent comme en usage normal en tenant compte des instructions du fabricant. Elle couvre également les situations anormales auxquelles on peut s'attendre dans la pratique et prend en considération les phénomènes électromagnétiques qui peuvent affecter le fonctionnement en toute sécurité des appareils.

Cette norme tient compte autant que possible des exigences de la CEI 60364, de façon à rester compatible avec les règles d'installation quand l'appareil est raccordé au réseau d'alimentation. Cependant, des règles nationales d'installation peuvent être différentes.

Si un appareil compris dans le domaine d'application de cette norme comporte également des fonctions qui sont couvertes par une autre partie 2 de la CEI 60335, la partie 2 correspondante est appliquée à chaque fonction séparément, dans la limite du raisonnable. Si cela est applicable, on tient compte de l'influence d'une fonction sur les autres fonctions.

Cette norme est une norme de famille de produits traitant de la sécurité d'appareils et a préséance sur les normes horizontales et génériques couvrant le même sujet.

Un appareil conforme au texte de la présente norme ne sera pas nécessairement jugé conforme aux principes de sécurité de la norme si, lorsqu'il est examiné et soumis aux essais, il apparaît qu'il présente d'autres caractéristiques qui compromettent le niveau de sécurité visé par ces exigences.

Un appareil utilisant des matériaux ou présentant des modes de construction différents de ceux décrits dans les exigences de cette norme peut être examiné et essayé en fonction de l'objectif poursuivi par ces exigences et, s'il est jugé pratiquement équivalent, il peut être estimé conforme aux principes de sécurité de la norme.

This document is a preliminary draft generated by EVS

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.

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.

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.

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APPAREILS ÉLECTRODOMESTIQUES ET ANALOGUES – SÉCURITÉ –

Partie 2-95: Règles particulières pour les motorisations de portes de garage à ouverture verticale, pour usage résidentiel

1 Domaine d'application

L'article de la Partie 1 est remplacé par l'article ci-après.

La présente Norme internationale traite de la sécurité des **motorisations** électriques des portes de garage pour usage résidentiel, qui ouvrent et ferment la porte verticalement et dont la **tension assignée** n'est pas supérieure à 250 V pour les appareils monophasés et à 480 V pour les autres appareils. Elle couvre également les risques liés au mouvement de ces portes de garage motorisées.

NOTE 101 Des exemples de portes de garage sont représentés à la Figure 101.

NOTE 102 La **motorisation** peut être livrée avec une porte de garage.

NOTE 103 La présente norme s'applique également aux **dispositifs de protection contre l'écrasement** à utiliser avec les **motorisations**. Elle ne couvre pas les risques liés au mécanisme de la porte elle-même.

Dans la mesure du possible, la présente norme traite des risques ordinaires présentés par les appareils, encourus par tous les individus à l'intérieur et autour de l'habitation. Cependant, cette norme ne tient pas compte en général de l'emploi de l'appareil comme jouet par des jeunes enfants mais reconnaît que des enfants peuvent être au voisinage de la porte de garage.

NOTE 104 L'attention est attirée sur le fait que, dans de nombreux pays, des exigences supplémentaires sont spécifiées par les organismes nationaux responsables de la protection des travailleurs et par des organismes similaires.

NOTE 105 La présente norme ne s'applique pas aux **motorisations**

- de volets, stores, rideaux et équipements enroulables analogues (CEI 60335-2-97);
- de portes de garages utilisées par plusieurs foyers (CEI 60335-2-103);
- pour usages commerciaux et industriels;
- destinées à être utilisées dans des locaux présentant des conditions particulières, telles que la présence d'une atmosphère corrosive ou explosive (poussière, vapeur ou gaz).

NOTE 106 La présente norme couvre également les **motorisations automatiques**.

2 Références normatives

L'article de la Partie 1 est applicable avec l'exception suivante.

Addition:

CEI 60068-2-52:1996, *Essais d'environnement – Partie 2: Essais – Essai Kb: Brouillard salin, essai cyclique (solution de chlorure de sodium)*

3 Définitions

L'article de la Partie 1 est applicable avec les exceptions suivantes.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-95: Particular requirements for drives for vertically moving garage doors for residential use

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric **drives** for garage doors for residential use that open and close in a vertical direction, the **rated voltage** of the **drives** being not more than 250 V for single-phase appliances and 480 V for other appliances. It also covers the hazards associated with the movement of these electrically driven garage doors.

NOTE 101 Examples of garage doors are shown in Figure 101.

NOTE 102 The **drive** may be supplied with a garage door.

NOTE 103 This standard also applies to **entrapment protection devices** for use with **drives**. It does not cover hazards related to the mechanisms of the door itself.

As far as is practicable, this standard deals with the common hazards presented by appliances that are encountered by all persons in and around the home. However, in general, it does not take into account playing with the appliance by young children, but recognizes that children may be in the vicinity of the garage door.

NOTE 104 Attention is drawn to the fact that in many countries additional requirements are specified by the national authorities responsible for the protection of labour and similar authorities.

NOTE 105 This standard does not apply to **drives**

- for rolling shutters, awnings, blinds and similar equipment (IEC 60335-2-97);
- for garage doors for use by more than one household (IEC 60335-2-103);
- for commercial and industrial purposes;
- 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 106 This standard also covers **automatic drives**.

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

60068-2-52:1996, *Environmental testing – Part 2: Tests – Test Kb: Salt mist, cyclic (sodium chloride solution)*

3 Definitions

This clause of Part 1 is applicable except as follows.