



SLOVENSKI STANDARD SIST EN 60335-2-67:2009

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Household and similar electrical appliances - Safety -- Part 2-67: Particular requirements for floor treatment and floor cleaning machines, for industrial and commercial use

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke -- Teil 2-67: Besondere Anforderungen für Bodenbehandlungs- und Bodenreinigungsmaschinen für industrielle und gewerbliche Zwecke

Appareils électrodomestiques et analogues - Sécurité -- Partie 2-67: Règles particulières pour les machines de traitement et de nettoyage des sols à usage industriel et commercial

Ta slovenski standard je istoveten z: EN 60335-2-67:2009

ICS:

97.080 Aparati za nego tal Floor treatment appliances

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EUROPEAN STANDARD
NORME EUROPÉENNE
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EN 60335-2-67

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ICS 23.080; 91.140.65

Supersedes EN 60335-2-67:2003 + A1:2006 + corr. Dec.2006

English version

**Household and similar electrical appliances -
Safety -
Part 2-67: Particular requirements for floor treatment
and floor cleaning machines for commercial use
(IEC 60335-2-67:2002 + A1:2005, modified)**

Appareils électrodomestiques
et analogues -
Sécurité -
Partie 2-67: Règles particulières
pour les machines de traitement
et de nettoyage des sols
à usage commercial
(CEI 60335-2-67:2002
+ A1:2005, modifiés)

Sicherheit elektrischer Geräte
für den Hausgebrauch
und ähnliche Zwecke -
Teil 2-67: Besondere Anforderungen
für Bodenbehandlungs- und
Bodenreinigungsmaschinen
für den gewerblichen Gebrauch
(IEC 60335-2-67:2002
+ A1:2005, modifiziert)

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This European Standard was approved by CENELEC on 2009-09-01. 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, Bulgaria, 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.

CENELEC

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

Foreword

In the light of the necessity to adapt EN 60335-2-67 with regard to the requirements of the Machinery Directive 2006/42/EC, a draft was prepared by CENELEC TC61/WG6/J in co-operation with the MD Consultant, taking also into account the results of CENELEC TC61/WG6 work on EN 60335-1.

The approach to amend EN 60335-2-67:2003 aiming toward listing the standard under the MD was discussed and approved during the Kista meeting of CENELEC TC 61 in June 2008 (see CLC/TC 61/SEC/1649), when it was decided to submit a draft for an amendment to the Unique Acceptance Procedure.

The draft was circulated as FprAB in December 2008 and was approved by CENELEC as a new edition of EN 60335-2-67 on 2009-09-01.

This European Standard supersedes EN 60335-2-67:2003 + A1:2006 + corrigendum December 2006.

In this European Standard the common modifications to the International Standard IEC 60335-2-67:2002 + A1:2005 are indicated by a vertical line in the left margin of the text.

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) 2009-12-29
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2009-12-29

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 floor treatment and floor cleaning machines for commercial use.

When a particular subclause of Part 1 is not mentioned in this Part 2, that subclause applies. When this standard states "addition", "modification" or "replacement", the relevant text of Part 1 is to be adapted accordingly.

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directive 2006/42/EC. See Annex ZZ.

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.

Special national conditions causing a deviation from this European Standard are listed in Annex ZA and are in addition to those in EN 60335-1.

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

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Introduction

It has been assumed in the drafting of this European 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 machines 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 machines.

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 machine is connected to the supply mains. However, national wiring rules may differ.

If a machine within the scope of this standard also incorporates functions that are covered by another Part 2 of EN 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 machines and takes precedence over horizontal and generic standards covering the same subject.

A machine 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.

A machine 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 2-67: Particular requirements for floor treatment and floor cleaning machines for commercial use

1 Scope

This clause of Part 1 is replaced by the following.

This European Standard deals with the safety of powered floor treatment and floor cleaning machines intended for commercial indoor or outdoor use for the following applications:

- scrubbing,
- wet or dry pick-up,
- polishing and dry buffing,
- application of wax, sealing products and powder based detergents,
- shampooing,
- stripping, grinding and scarifying

of floors with an artificial surface.

Their cleaning motion is more lateral or periodic than linear.

NOTE Z101 By contrast, the cleaning motion of machines covered by IEC 60335-2-72 is more linear than lateral or periodic.

NOTE Z102 **Commercial use** of these floor treatment machines is for example their use in hotels, schools, hospitals, factories, shops and offices for other than normal housekeeping purposes.

The following power systems are covered:

- internal combustion engines,
- mains powered motors up to a **rated voltage** of 250 V for single-phase appliances and 480 V for other appliances,
- battery-powered motors.

Battery powered machines may be equipped with a built-in battery charger.

This Part 2 applies in conjunction with EN 60335-1:2002 and its amendments, which is referred to in this text as "Part 1". This Part 2 supplements or modifies the corresponding clauses of Part 1 as indicated in the text.

This standard does not apply to

- machines designed to be part of a production process;
- machines designed for use in corrosive or explosive environments (dust, vapour or gas);
- machines designed for picking up hazardous dusts as defined in IEC 60335-2-69, inflammable substances, or aflame particles;
- ride-on and walk-behind floor treatment machines as covered by IEC 60335-2-72;
- spray extraction machines;

NOTE Z103 IEC 60335-2-68 gives requirements for spray extraction machines for commercial use.

- wet and dry vacuum cleaners;

NOTE Z104 IEC 60335-2-69 gives requirements for wet and dry vacuum cleaners.

- floor treatment appliances for household use as covered by IEC 60335-2-10;
- hand-held and transportable motor-operated electric tools;
NOTE Z105 The IEC 60745 series covers hand-held motor-operated electric tools; the IEC 61029 series covers transportable motor-operated electric tools.
- machines designed for use in vehicles or on board of ships or aircraft.

NOTE Z106 Attention is drawn to the fact that 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.

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60312, *Vacuum cleaners for household use – Methods of measuring the performance*

IEC 60335-2-10, *Household and similar electrical appliances – Safety – Part 2-10: Particular requirements for floor treatment machines and wet scrubbing machines*

IEC 60335-2-69, *Household and similar electrical appliances – Safety – Part 2-69: Particular requirements for wet and dry vacuum cleaners, including power brush, for industrial and commercial use*

IEC 60335-2-72, *Household and similar electrical appliances – Safety – Part 2-72: Particular requirements for automatic machines for floor treatment for commercial and industrial use*

ISO 3743-1, *Acoustics – Determination of sound power levels of noise sources – Engineering methods for small, movable sources in reverberant fields – Part 1: Comparison method for hardwalled test rooms*

<https://standards.iteh.ai/catalog/standards/sist/3f5c2f08-4ee5-4674-b7aa-11e6b59c31e7/iso-3744>

ISO 3744, *Acoustics – Determination of sound power levels of noise sources using sound pressure – Engineering method in an essentially free field over a reflecting plane*

ISO 4871, *Acoustics – Declaration and verification of noise emission values of machinery and equipment*

ISO 5349-1, *Mechanical vibration – Measurement and evaluation of human exposure to handtransmitted vibration – Part 1: General requirements*

ISO 6344-2, *Coated abrasives – Grain size analysis – Part 2: Determination of grain size distribution of macrogrits P12 to P220*

ISO 7574-1, *Acoustics – Statistical methods for determining and verifying stated noise emission values of machinery and equipment – Part 1: General considerations and definitions*

ISO 7574-4, *Acoustics – statistical methods for determining and verifying stated noise emission values of machinery and equipment – Part 4: methods for stated values for batches of machines*

ISO 11201, *Acoustics – Noise emitted by machinery and equipment – Measurement of emission sound pressure levels at a work station and at other specified positions – Engineering method in an essentially free field over a reflecting plane*

ISO 11688-1, *Acoustics – Recommended practice for the design of low-noise machinery and equipment – Part 1: Planning*

3 Definitions

This clause of Part 1 is applicable except as follows.

3.1.9 Replacement:

normal operation

conditions under which the machine is operated in normal use, as intended by the manufacturer. It denotes the load corresponding to the **rated power input** or the highest obtainable load of all particular loads of the various functions that can be operated at the same time according to the manufacturer's instructions.

Tanks of machines, if applicable, are filled before starting the operation to the highest level as indicated on the tank, or completely if no marking is provided.

Power outlets for accessories are loaded with a resistive load in accordance with the marking. Suction functions, if applicable, are switched on during operation.

The **normal operation** related to the operational functions is specified in 3.1.9.101 to 3.1.9.104.

3.1.9.101 Scrubbing, stripping, grinding and scarifying machines are operated with the appropriate brushes or pads on a surface of hydraulically pressed concrete paving slabs (see Annex AA).

An alternative is a smooth concrete area of a surface consistency comparable with hydraulically pressed concrete paving slabs.

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3.1.9.102 Void

3.1.9.103 Polishing and dry buffing machines are operated as follows.

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PVC-surfaces are considered to be suitable for establishing **normal operation**. The peak of input occurring during the drying process of the chemical applied to treat the surface shall not be taken as **normal operation** but shall be averaged by extending measurements over a period of at least 10 min.

3.1.9.104 Carpet shampooers are operated on a test surface consisting of a carpet, in accordance with IEC 60312, the carpet being fastened to the floor.

Prior to testing, the brush of the shampooing machine is conditioned by operating it for 15 min on a clean, dry concrete surface. After running on the concrete surface the brush is immersed in a shampoo solution for at least 30 min.

3.Z101

water-suction cleaning machine

machine for applying and sucking up a water-based cleaning solution

3.Z102

motorized cleaning head

hand-held or hand-guided cleaning device connected to the machine, with an integrated electrical motor

NOTE The permanently attached main cleaning head is not regarded as a motorized cleaning head.

3.Z103

operator presence control (OPC)

control device that automatically interrupts the power, e.g. to a drive or an engine, when the **operator's** actuating force is removed

NOTE Such devices may be, for example, continuous action controls ("hold-to-run" controls).

3.Z104**guard**

part of the machine specifically designed to provide protection by means of a physical barrier

3.Z105**operator**

person installing, operating, adjusting, maintaining, cleaning or moving the machine

3.Z106**test solution**

solution which consists of 20 g of NaCl and 1 ml of a solution of 28 % by mass of dodecyl sodium sulphate in each 8 l of water

NOTE The chemical designation of dodecyl sodium sulphate is $C_{12}H_{25}NaSO_4$.

3.Z107**risk**

probability of being exposed to an injury or damage to health

3.Z108**commercial use**

intended use of machines covered by this standard in a professional way.

For the purpose of this standard **commercial use** may be read as not intended for domestic use

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4 General requirement

This clause of Part 1 is applicable except as follows.

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Replace the first paragraph by the following:
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Machines shall be constructed so that they function safely so as to cause no danger to persons or surroundings during normal use, even in the event of carelessness, and during installation, adjusting, maintenance, cleaning, repairing or transportation.

Addition:

For the purpose of this standard, the term 'appliance' as used in Part 1 is to be read as 'machine'.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

Addition:

5.Z101 The **test solution** is to be stored in a cool atmosphere and used within seven days after its preparation.

6 Classification

This clause of Part 1 is applicable except as follows.

6.1 Replacement:

Machines shall be one of the following classes with respect to the protection against contact with **live parts**:

- class I,
- class II or
- class III.

Compliance is checked by inspection and by the relevant tests.

6.2 Addition:

Mains supplied machines for indoor use and intended for dry cleaning only, shall be at least IPX0. Other machines shall be at least IPX4.

7 Marking and instructions

This clause of Part 1 is applicable except as follows.

7.1 Replace the 4th dashed item as follows:

- the business name and address of the manufacturer and, if applicable, his authorized representative; any address shall be sufficient to ensure postal contact;

Addition:

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Machines shall be marked in addition with the following:

- serial number, if any;
- designation of the machine, may be achieved by a combination of letters and/or numbers;
- designation of series or type, allowing the technical identification of the product. This may be achieved by a combination of letters and/or numbers and may be combined with the designation of machine;
- year of construction, i.e. the year in which the manufacturing process is completed.

Machines equipped with wheels shall be marked with the mass of the most usual configuration in kg.

Compliance is checked by inspection.

7.1.Z101 Motorized cleaning heads shall be marked with their model or type reference.

Compliance is checked by inspection.

7.1.Z102 Power outlets for accessories shall be marked with the maximum load in watts on the power outlet or close to it.

Compliance is checked by inspection.

[additions to 7.6 and 7.9 deleted]