

© Copyright SEK. Reproduction in any form without permission is prohibited.

Elektriska hushållsapparater och liknande bruksföremål – Säkerhet –

Del 2-69: Särskilda fordringar på damm- och vattensugare inklusive motordrivna borstar för kommersiellt bruk

Household and similar electrical appliances –

Safety –

*Part 2-69: Particular requirements for wet and dry vacuum cleaners,
including power brush, for commercial use*

Som svensk standard gäller europastandarden EN 60335-2-69:2009. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60335-2-69:2009.

Nationellt förord

Europastandarden EN 60335-2-69:2009

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60335-2-69, Third edition, 2002 - Household and similar electrical appliances - Safety - Part 2-69: Particular requirements for wet and dry vacuum cleaners, including power brush, for commercial use**

jämte

Amendment No. 1, 2004 och Amendment No. 2, 2007

utarbetad inom International Electrotechnical Commission, IEC.

Tilläggen A1 och A2 har inarbetats i texten. Där texten i europastandarden avviker från texten i motsvarande avsnitt i IEC 60335-2-69, har detta markerats med ett lodrätt streck i marginalen.

Standarden ska användas tillsammans med SS-EN 60335-1, utgåva 4, 2002.

Tidigare fastställd svensk standard SS-EN 60335-2-69, utgåva 3, 2003, SS-EN 60335-2-69/A1, utgåva 1, 2005 och SS-EN 60335-2-69/A2, utgåva 1, 2008, gäller ej fr o m 2009-12-29.

ICS 97.080

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
Postadress: SEK, Box 1284, 164 29 KISTA
Telefon: 08 - 444 14 00. Telefax: 08 - 444 14 30
E-post: sek@elstandard.se. Internet: www.elstandard.se

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK Svensk Elstandard

Box 1284
164 29 Kista
Tel 08-444 14 00
www.elstandard.se

English version

**Household and similar electrical appliances -
Safety -
Part 2-69: Particular requirements for wet and dry vacuum cleaners,
including power brush, for commercial use
(IEC 60335-2-69:2002 + A1:2004 + A2:2007, modified)**

Appareils électrodomestiques
et analogues -
Sécurité -
Partie 2-69: Règles particulières
pour les aspirateurs fonctionnant
en présence d'eau ou à sec,
y compris les brosses motorisées,
à usage commercial
(CEI 60335-2-69:2002 + A1:2004 +
A2:2007, modifiés)

Sicherheit elektrischer Geräte
für den Hausgebrauch
und ähnliche Zwecke -
Teil 2-69: Besondere Anforderungen
für Staub- und Wasserauger
einschließlich kraftbetriebener Bürsten
für den gewerblichen Gebrauch
(IEC 60335-2-69:2002 + A1:2004 +
A2:2007, modifiziert)

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 60335-2-69 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 60335-2-69:2003 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 FprAC in December 2008 and was approved by CENELEC as a new edition of EN 60335-2-69 on 2009-09-01.

This European Standard supersedes EN 60335-2-69:2003 + A1:2004 + A2:2008.

In this European Standard the common modifications to the International Standard IEC 60335-2-69:2002 + A1:2004 + A2:2007 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 wet and dry vacuum cleaners, including power brush, 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.

Contents

Introduction	6
1 Scope	7
2 Normative references	8
3 Definitions	8
4 General requirement	11
5 General conditions for the tests	11
6 Classification	11
7 Marking and instructions	12
8 Protection against access to live parts	14
9 Starting of motor-operated appliances	14
10 Power input and current	14
11 Heating	15
12 Void	15
13 Leakage current and electric strength at operating temperature	15
14 Transient overvoltages	15
15 Moisture resistance	15
16 Leakage current and electric strength	17
17 Overload protection of transformers and associated circuits	17
18 Endurance	17
19 Abnormal operation	17
20 Stability and mechanical hazards	18
21 Mechanical strength	19
22 Construction	21
23 Internal wiring	23
24 Components	23
25 Supply connection and external flexible cords	23
26 Terminals for external conductors	25
27 Provision for earthing	25
28 Screws and connections	25
29 Clearances, creepage distances and solid insulation	25
30 Resistance to heat and fire	25
31 Resistance to rusting	25
32 Radiation, toxicity and similar hazards	25
 Annex A (normative) Routine tests	 29
Annex AA (normative) Particular requirements for vacuum cleaners and dust extractors for the collection of hazardous dusts	29
Annex BB (informative) List of dusts which present an explosion risk when subject to ignition conditions	41
Annex CC (normative) Particular requirements for vacuum cleaners and dust extractors for the collection of dusts which present an explosion risk	47

Annex DD (normative) Particular requirements for vacuum cleaners for use in ESD protected areas	54
Annex ZA (normative) Special national conditions.....	57
Annex ZC (normative) Normative references to international publications with their corresponding European publications	57
Annex ZE (informative) Specific additional requirements for appliances and machines intended for commercial use.....	59
Annex ZZ (informative) Coverage of Essential Requirements of Directive 2006/42/EC.....	59
 Bibliography.....	 60
 Table 12 – Pull force and torque	 24
Table AA.1 – Penetration limits	33
Table BB.1 – Explosion parameters	41
 Figure 101 – Impact test apparatus.....	 26
Figure 102 – Apparatus for testing the abrasion resistance of current-carrying hoses	27
Figure 103 – Apparatus for testing the resistance to flexing of current-carrying hoses.....	27
Figure 104 – Configuration of the hose for the freezing treatment	28
Figure 105 – Flexing positions for the hose after removal from the freezing cabinet	28
Figure AA.1.1 – Warning label for dust class H machines	38
Figure AA.1.2 – Warning label for dust class L and dust M machines.....	38
Figure AA.2 – Test method for essential filter material	39
Figure AA.3 – In situ essential filter element test	39
Figure AA.4 – Assembled machine test	39
Figure AA.Z1 – Sequence and selection of tests according to Clauses AA.22.201, AA.22.203, and AA.22.207	40
Figure CC.1 – Marking – Type 22 vacuum cleaners.....	53
Figure CC.2 – Marking – Type 22 dust extractors	53

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.

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

1 Scope

This clause of Part 1 is replaced by the following.

This European Standard deals with the safety of electrical motor-operated vacuum cleaners, including **back-pack vacuum cleaners**, for wet suction, dry suction, or wet and dry suction, intended for commercial indoor or outdoor use with or without attachments.

NOTE Z101 **Commercial use** of these vacuum cleaners 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:

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

This standard also applies to machines handling **hazardous dust**, such as asbestos.

NOTE Z102 Additional requirements for machines handling **hazardous dust** are given in Annex AA. Attention is drawn to the fact that in many countries additional requirements on hazardous substances might apply.

NOTE Z103 Radioactive substances are not covered by definition of **hazardous dust** for the purpose of this standard.

NOTE Z104 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.

This standard does not apply to

- machines designed to be part of a production process;
- machines designed for use in corrosive environments;
- machines designed for picking up liquids with a flash point below 55 °C;
- machines designed for use in explosive environments (dust, vapour or gas), except those designed for use in **zone 22**;

NOTE Z105 Additional requirements for vacuum cleaners designed for collecting combustible dust in zone 22 are given in Annex CC.

- vacuum cleaners and water-suction cleaning appliances for household use as covered by IEC 60335-2-2;
- spray extraction machines as covered by IEC 60335-2-68;
- floor treatment machines for commercial use;

NOTE Z106 IEC 60335-2-67 covers floor cleaning and floor treatment machines for industrial and commercial use. IEC 60335-2-72 covers automatic floor treatment machines for industrial and commercial use.

- hand-held mains-operated electrical garden blowers, vacuums and blower vacuums as covered by IEC 60335-2-100;
- centrally sited stationary vacuum cleaning systems;
- **hand-held appliances**;

- hand-held and transportable motor-operated electric tools.

NOTE Z107 The IEC 60745 series covers hand-held motor-operated electric tools; the IEC 61029 series covers transportable motor-operated electric tools.

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 60335-2-2, *Household and similar electrical appliances – Safety – Part 2-2: Particular requirements for vacuum cleaners and water suction cleaning appliances*

IEC 60335-2-68, *Household and similar electrical appliances – Safety – Part 2-68: Particular requirements for spray extraction appliances, for industrial and commercial use*

IEC 60335-2-100, *Household and similar electrical appliances – Safety – Part 2-100: Particular requirements for hand-held mains-operated garden blowers, vacuums and blower vacuums*

IEC 60704-2-1, *Household and similar electrical appliances – Test code for the determination of airborne acoustical noise – Part 2-1: Particular requirements for vacuum cleaners*

IEC 61241-1-1, *Electrical apparatus for use in the presence of combustible dust – Part 1-1: Electrical apparatus protected by enclosures and surface temperature limitation – Specification for apparatus*

IEC 61241-10:2004, *Electrical apparatus for use in the presence of combustible dust – Part 10: Classification of areas where combustible dusts are or may be present*

ISO 2602, *Statistical interpretation of test results – Estimation of the mean – Confidence interval*

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

ISO 7731, *Ergonomics - Danger signals for public and work areas - Auditory danger signals*

ISO 11428, *Ergonomics – Visual danger signals – General requirements, design and testing*

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]