



NSAI
Standards

Irish Standard
I.S. EN 60335-2-69:2012

Household and similar electrical appliances - Safety -- Part 2-69: Particular requirements for wet and dry vacuum cleaners, including power brush for commercial use (IEC 60335-2-69:2012 (MOD))

© CENELEC 2012 No copying without NSAI permission except as permitted by copyright law.

I.S. EN 60335-2-69:2012

Incorporating amendments/corrigenda issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

<i>This document replaces:</i> EN 60335-2-69:2009	<i>This document is based on:</i> EN 60335-2-69:2012 EN 60335-2-69:2009	<i>Published:</i> 24 August, 2012 22 September, 2009
This document was published under the authority of the NSAI and comes into effect on: 11 September, 2012		ICS number: 97.080
NSAI 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie W NSAI.ie	Sales: T +353 1 857 6730 F +353 1 857 6729 W standards.ie
Údarás um Chaighdeáin Náisiúnta na hÉireann		

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 60335-2-69:2012, modified)**

Appareils électrodomestiques et
analogues -
Sécurité -
Partie 2-69: Règles particulières pour les
aspirateurs fonctionnant en présence
d'eau ou à sec à usage commercial
(CEI 60335-2-69:2012, modifiée)

Sicherheit elektrischer Geräte für den
Hausgebrauch und ähnliche Zwecke -
Teil 2-69: Besondere Anforderungen für
Staub- und Wasserauger für den
gewerblichen Gebrauch
(IEC 60335-2-69:2012, modifiziert)

This European Standard was approved by CENELEC on 2012-03-28. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 61J/481/FDIS, future edition 4 of IEC 60335-2-69, prepared by IEC/SC 61J "Electrical motor-operated cleaning appliances for 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 60335-2-69:2012.

A draft amendment, which covers common modifications to IEC 60335-2-69, was prepared by CLC/TC 61, "Safety of household and similar electrical appliances" and approved by CENELEC.

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2013-03-28
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2015-03-28

This document supersedes EN 60335-2-69:2009.

EN 60335-2-69:2012 includes the following significant technical changes with respect to EN 60335-2-69:2009:

- the scope has been revised editorially to avoid misunderstandings;
- terms and definitions has been revised with regard to the requirements revised;
- the standard has been revised in general and updated regarding state-of-the-art, as far as necessary, in particular some changes have been made to Clauses 15, 22 and 25;
- Annex AA was revised and restructured;
- Annex CC was made informative;
- a new Annex EE 'Emission of acoustical noise' was added; and
- a new Annex FF 'Emission of vibration' was added.

This part 2 is to be used in conjunction with EN 60335-1:2012.

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 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 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.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 60335-2-69:2012 are prefixed "Z".

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 document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

Endorsement notice

The text of the International Standard IEC 60335-2-69:2012 was approved by CENELEC as a European Standard with agreed common modifications.

COMMON MODIFICATIONS

1 Scope

Add the following paragraph before the last paragraph:

"This European Standard deals with the reasonably foreseeable hazards presented by machines that are encountered by all persons.

However, in general, it does not take into account:

- **children** playing with the machine;
- the use of the machine by **children**;
- the use of the machine by **vulnerable people** or **very vulnerable people**."

3 Terms and definitions

3.6.3

accessible part

Modification:

Delete "and probe 18".

7 Marking and instructions

7.10 Delete the following paragraphs:

"Devices used to start/stop operational functions of the appliance, if any, shall be distinguished from other manual devices by means of shape, or size, or surface texture, or position, etc.

An indication that the device has been operated shall be given by:

- A tactile feedback or
- An audible and visual feedback.

NOTE Z1 The sound of the motor or sound of an actuator switching ON/OFF is regarded as audible feedback. The stopping of the typical function (e.g. stopping of the vibration on the body of the appliance or of a part of it) is regarded as tactile means.

NOTE Z2 Devices used to start/stop operational functions mean devices that are operated by the user to start/stop the intended function of the appliance.

A selector switch with an off-position clearly identifiable is allowed.

An ON/OFF switch, if any, is considered a suitable device to stop operational functions. A plug is not considered a suitable device to stop operational functions, as it can be difficult to be reached by vulnerable persons."

7.12 Add the following after the 4th paragraph:

"Children should be supervised to ensure that they do not play with the appliance."

Delete the paragraph beginning with "This appliance can be used...".

7.12.Z1 Delete this paragraph.

7.12.102 Information on noise

Replace the Note by the following requirement:

"The instructions shall provide information on airborne noise emission as indicated in EE.2.7."

7.12.103 Information on vibration

Replace the Note by the following requirement:

"The instructions shall provide information on vibration emission as indicated in FF.2."

8 Protection against access to live parts

8.1.1 Replace the 3rd paragraph by the following:

"Test probe B of EN 61032 is applied with a force not exceeding 1 N, the appliance being in every possible position except that appliances normally used on the floor and having a mass exceeding 40 kg are not tilted. Through openings, the test probe is applied to any depth that the probe will permit and is rotated or angled before, during and after insertion to any position. If the opening does not allow the entry of the probe, the force on the probe in the straight position is increased to 20 N. If the probe then enters the opening, the test is repeated with the probe in the angled position."

8.2 Modification

In the third sentence, replace "test probes of EN 61032" by "test probe B of EN 61032".

In the fourth sentence, replace "test probe B and probe 18 of EN 61032 are" by "test probe B of EN 61032 is".

20 Stability and mechanical hazards

20.2 Replace the 1st paragraph of compliance by:

"Compliance is checked by inspection, by the test of 21.1 and by applying a force not exceeding 5 N by means of a test probe that is similar to test probe B of EN 61032 but having a circular stop face with a diameter of 50 mm, instead of the non-circular face."

25 Supply connection and external flexible cords

25.7 Addition:

Add the following text before the last paragraph:

"

- Halogen-free thermoplastic compound sheathed.

Their properties shall be at least those of halogen-free thermoplastic compound sheathed cords (code designation H05Z1Z1H2-F or H05Z1Z1-F);

- Cross-linked halogen-free compound sheathed.

Their properties shall be at least those of cross-linked halogen-free thermoplastic compound sheathed cords (code designation H07ZZ-F).

NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD."

Modifications to Annexes EE and FF

In the titles of Annex EE and Annex FF, replace "(informative)" with "(normative)" so as to make these two annexes normative.

Modifications to Annexes Z

The annexes of Part 1 are applicable except as follows:

Add the following special national condition to Annex ZA of EN 60335-1:2012:

Annex ZA
(normative)

Special national conditions

Special national condition: National characteristic or practice that cannot be changed even over a long period, e.g. climatic conditions, electrical earthing conditions.

NOTE If it affects harmonization, it forms part of the European Standard / Harmonization Document.

For the countries in which the relevant special national conditions apply these provisions are normative, for other countries they are informative.

<u>Clause</u>	<u>Special national condition</u>
---------------	-----------------------------------

7.12	Finland
-------------	----------------

If a polyvinyl chloride sheathed cord is fitted, the instructions shall state that the appliance is not to be used outdoors at low temperature.

Add the following references to Annex ZC of EN 60335-1:2012:

Annex ZC
(normative)

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

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60312-1	-	Vacuum cleaners for household use - Part 1: Dry vacuum cleaners - Methods for measuring the performance	FprEN 60312-1 ¹⁾	-
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	EN ISO 7731	-
ISO 11428	-	Ergonomics - Visual danger signals - General requirements, design and testing	-	-

¹⁾ At draft stage.

Annex ZE
(informative)

**Specific additional requirements for appliances and machines intended
for commercial use**

This annex is not applicable.

Replace Annex ZZ of EN 60335-1:2012 by

Annex ZZ
(informative)

Coverage of Essential Requirements of EU Directive 2006/42/EC

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers all relevant essential requirements as given in Annex I of the EU Directive 2006/42/EC.

This includes the risk of explosion in accordance with 1.5.7 of Annex I of this Directive. As far as the risk of explosion due to the use in a potentially explosive atmosphere is concerned, compliance with this standard will not in all cases be sufficient to fulfil all applicable Essential Requirements of the Equipment and Protective systems intended for use in Potentially Explosive Atmospheres Directive 94/9/EC.

Compliance with this standard provides one means of conformity with the specified essential requirements of the Directive concerned.

WARNING: Other requirements and other EU Directives may be applicable to the products falling within the scope of this standard.

Bibliography

Addition to EN 60335-1:2012:

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60335-2-2	NOTE	Harmonized as EN 60335-2-2.
IEC 60335-2-67	NOTE	Harmonized as EN 60335-2-67.
IEC 60335-2-68	NOTE	Harmonized as EN 60335-2-68.
IEC 60335-2-72	NOTE	Harmonized as EN 60335-2-72.
IEC 60601-1	NOTE	Harmonized as EN 60601-1.
ISO 3743-1	NOTE	Harmonized as EN ISO 3743-1.
ISO 3744	NOTE	Harmonized as EN ISO 3744.
ISO 4871	NOTE	Harmonized as EN ISO 4871.
ISO 5349-1	NOTE	Harmonized as EN ISO 5349-1.
ISO 9614-2	NOTE	Harmonized as EN ISO 9614-2.
ISO 11201	NOTE	Harmonized as EN ISO 11201.
ISO/TR 11688-1	NOTE	Harmonized as EN ISO 11688-1.

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references.....	9
3 Terms and definitions.....	9
4 General requirement.....	12
5 General conditions for the tests.....	12
6 Classification.....	12
7 Marking and instructions.....	13
8 Protection against access to live parts.....	16
9 Starting of motor-operated appliances.....	16
10 Power input and current.....	16
11 Heating.....	16
12 Void.....	17
13 Leakage current and electric strength at operating temperature.....	17
14 Transient overvoltages.....	17
15 Moisture resistance.....	17
16 Leakage current and electric strength.....	19
17 Overload protection of transformers and associated circuits.....	19
18 Endurance.....	19
19 Abnormal operation.....	19
20 Stability and mechanical hazards.....	21
21 Mechanical strength.....	21
22 Construction.....	23
23 Internal wiring.....	25
24 Components.....	25
25 Supply connection and external flexible cords.....	26
26 Terminals for external conductors.....	27
27 Provision for earthing.....	27
28 Screws and connections.....	27
29 Clearances, creepage distances and solid insulation.....	27
30 Resistance to heat and fire.....	28
31 Resistance to rusting.....	28
32 Radiation, toxicity and similar hazards.....	28
Annexes.....	32
Annex A (normative) Routine tests.....	33
Annex AA (normative) Particular requirements for vacuum cleaners and dust extractors for the collection of hazardous dusts.....	34
Annex BB (informative) List of dusts which present an explosion risk when subject to ignition conditions.....	46
Annex CC (informative) Particular requirements for vacuum cleaners and dust extractors for the collection of dusts which present an explosion risk.....	52

Annex DD (normative) Particular requirements for vacuum cleaners for use in ESD protected areas.....	59
Annex EE (informative) Emission of acoustical noise	62
Annex FF (informative) Emission of vibration	69
Bibliography.....	70
Figure 101 – Impact test apparatus.....	29
Figure 102 – Apparatus for testing the abrasion resistance of current-carrying hoses	30
Figure 103 – Apparatus for testing the resistance to flexing of current-carrying hoses	30
Figure 104 – Configuration of the hose for the freezing treatment	31
Figure 105 – Flexing positions for the hose after removal from the freezing cabinet.....	31
Figure AA.2 – Warning label for dust class L and dust M machines.....	43
Figure AA.3 – Test method for essential filter material	44
Figure AA.4 – In situ essential filter element test	44
Figure AA.5 – Assembled machine test.....	44
Figure AA.6 – Sequence and selection of tests according to Clause 22	45
Figure CC.1 – Marking – Type 22 vacuum cleaners	57
Figure CC.2 – Marking – Type 22 dust extractors	58
Figure EE.1 – Position of vacuum cleaners and its accessories	66
Figure EE.2 – Position of upright machines.....	67
Figure EE.3 – Position of back-pack vacuum cleaners	68
Table 12 – Pull force and torque	27
Table AA.1 – Penetration limits	37
Table BB.1 – Explosion parameters	46

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –**
**Part 2-69: Particular requirements for wet and dry vacuum cleaners,
including power brush, for commercial 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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60335-2-69 has been prepared by subcommittee 61J: Electrical motor-operated cleaning appliances for commercial use, of IEC technical committee 61: Safety of household and similar electrical appliances.

This fourth edition cancels and replaces the third edition published in 2002 and its Amendments 1 (2004) and 2 (2007). It constitutes a technical revision.

The principal changes in this edition as compared with the third edition of IEC 60335-2-69 are as follows (minor changes are not listed):

- the scope has been revised editorially to avoid misunderstandings;
- terms and definitions has been revised with regard to the requirements revised;
- the standard has been revised in general and updated regarding state-of-the-art, as far as necessary, in particular some changes have been made to Clauses 15, 22 and 25;

- Annex AA was revised and restructured;
- Annex CC was made informative;
- a new Annex EE 'Emission of acoustical noise' was added; and
- a new Annex FF 'Emission of vibration' was added.

The text of this standard is based on the following documents:

FDIS	Report on voting
61J/481/FDIS	61J/494/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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 fifth edition (2010) 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 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 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.

A list of all parts of the IEC 60335 series, under the general title: *Household and similar electrical appliances – Safety*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability 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.

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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.

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

It also deals with the safety of **centrally-sited vacuum cleaners**, excluding the installation of the system.

NOTE 101 Attention is drawn to the fact that additional requirements on the safe installation of **centrally-sited vacuum cleaners** are not addressed by this standard but need to be taken into account.

NOTE 102 This standard applies to machines for **commercial use**. The following list, although not comprehensive, gives an indication of locations that are included in the scope:

- public use areas such as hotels, schools, hospitals;
- industrial locations, for example factories and manufacturing shops;
- retail outlets, for example shops and supermarkets;
- business premises, for example offices and banks;
- all uses other than normal housekeeping purposes.

They are not equipped with a traction drive. 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 103 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 104 Radioactive substances are not covered by definition of **hazardous dust** for the purposes of this standard.

This standard does not apply to

- vacuum cleaners and water-suction cleaning appliances for household use (IEC 60335-2-2);
- floor treatment machines for **commercial use** (IEC 60335-2-67, IEC 60335-2-72);
- spray extraction machines for **commercial use** (IEC 60335-2-68);
- hand-held mains-operated electrical garden blowers, vacuums and blower vacuums (IEC 60335-2-100);
- hand-held and transportable motor-operated electric tools (IEC 60745 series, IEC 61029 series);
- appliances for medical purposes (IEC 60601-1);

- 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 104 Additional requirements for vacuum cleaners designed for collecting **combustible dust** in **zone 22** are given in Annex CC.

NOTE 105 Attention is drawn to the fact that in many countries additional requirements on the safe use of the equipment covered can 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 60312-1, *Vacuum cleaners for household use – Part 1: Dry vacuum – Methods for measuring the performance*

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*

3 Terms and 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, obtained at the following power input P_m of the vacuum motor:

$$P_m = 0,5 (P_f + P_i)$$

where

P_f is the input, in watts, when the machine has been operated for 3 min, fitted with the nozzle and hose giving the highest input;

P_i is the input, in watts, when the machine has been operated for 20 s with the nozzle sealed, immediately following the 3-minute-period with the nozzle open. Any valve or similar device used to ensure a flow of air to cool the motor in the event of a blockage of a main air inlet is rendered ineffective.

P_f and P_i are measured with the supply voltage adjusted to **rated voltage**, or to a voltage equal to the mean value of the **rated voltage range** if the difference between the limits of the **rated voltage range** does not exceed 10 % of the mean value of the range. If the difference between the limits of the **rated voltage range** exceeds 10 % of the mean value, the tests are carried out with the supply voltage set to the upper limit of the range.

This is a free preview. Purchase the entire publication at the link below:

I.S. EN 60335-2-69 : 2012 : EN : COMBINED PDF

-
- ⤵ Looking for additional Standards? Visit SAI Global Infostore
 - ⤵ Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-

Need to speak with a Customer Service Representative - Contact Us