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# INTERNATIONAL STANDARD

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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# Household and similar electrical appliances - Safety - Part 2-2: Particular requirements for vacuum cleaners and water-suction cleaning appliances

## FOREWORD

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IEC 60335-2-2 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances. It is an International Standard.

This eighth edition cancels and replaces the seventh edition published in 2019. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

– alignment with IEC 60335-1:2020;
– conversion of some notes to normative text (Clause 1);
– addition of multi-phase central vacuum cleaners to the scope (Clause 1);
– addition of appliances with a blowing or inflating function to the scope (Clause 1, 3.1.9.103, 3.8.102, 3.8.103, 7.12);

- clarification of uses similar to household use (Clause 1, 7.12);
- addition of test probes 18 and 19 for accessibility of live parts (8.1.1, 20.2, B.22.3, B.22.4);
- relocation of the replacement in 19.9 to 19.106;
- clarification that the stability test is not applicable to appliances held in the hand during normal use while also being supported by the floor unless they have a stand or rest (20.1);
- allowance for a detachable power supply part in a flexible cord (6.2, 21.107, 21.108, 24.2);
- clarification of remote operation requirements (22.40, 22.49, 22.51, Annex B 22.40);
- addition of requirements for the supply cord of automatic battery-operated cleaners (25.7);
- addition of a running overload test for brush and traction motors of automatic battery-operated cleaners (B.19.101);
- clarification of requirements for docking stations (30.2);
- addition of requirements for spray extraction appliances (Clause 1, 3.1.9.104, 3.5.105, 5.101, 7.12);
- clarification of requirements for appliances with appliance outlets or socket-outlets (6.1, 19.1, 19.107, 22.61, 25.8);
- addition of requirements for appliances with reservoirs that can be overfilled (15.2);
- clarification of air inlets (3.1.9.101, 11.3, 19.4, 19.10, 19.103, 22.32).

The text of this International Standard is based on the following documents:

| Draft | Report on voting |
|---|---|
| 61/7568/FDIS | 61/7597/RVD |

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments unless that edition precludes it; in that case, the latest edition that does not preclude it is used. It was established on the basis of the sixth edition (2020) 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 vacuum cleaners and water-suction cleaning appliances.

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: Irrespective of the rated voltage Class 0 appliances are not allowed (Australia, New Zealand).

NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations can need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

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 document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

– reconfirmed,

– withdrawn, or

– revised.

# 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.

Guidance documents concerning the application of the safety requirements for appliances can be accessed via TC 61 supporting documents on the IEC website

https://www.iec.ch/tc61/supportingdocuments

This information is given for the convenience of users of this International Standard and does not constitute a replacement for the normative text in this standard.

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 can 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 publications, basic safety publications and group safety publications 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.

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.

NOTE 3 Standards dealing with non-safety aspects of household appliances are:

– IEC standards published by TC 59 concerning methods of measuring performance;
– CISPR 11, CISPR 14-1 and relevant IEC 61000-3 series standards concerning electromagnetic emissions;
– CISPR 14-2 concerning electromagnetic immunity;
– IEC standards published by TC 111 concerning environmental matters.

## 1 Scope

This clause of Part 1 is replaced by the following.

This part of IEC 60335 deals with the safety of electric vacuum cleaners and **water-suction cleaning appliances** for household and similar purposes, their **rated voltage** being not more than 250 V for single phase (AC) supplied appliances, direct current (DC) supplied appliances and **battery-operated appliances** and 480 V for multi-phase **centrally-sited vacuum cleaners**.

This standard also applies to vacuum cleaners for animal grooming, **centrally-sited vacuum cleaners**, and **automatic battery-operated cleaners**.

This standard also applies to **spray extraction appliances** in which

– the pressure of the employed liquid solution does not exceed 2,5 MPa;
– the product of the pressure (in MPa) and the flow of liquid solution (in litres per minute) does not exceed 100; and
– the temperature of the liquid solution at the spray nozzle outlet does not exceed 60 °C.

This standard also applies to vacuum cleaners and **water-suction cleaning appliances** provided with a **blowing function** or **inflating function**.

This standard also applies to **motorized cleaning heads** and current-carrying hoses associated with a particular vacuum cleaner or **water-suction cleaning appliance**.

Appliances not intended for normal household use, but which nevertheless can be a source of danger to the public, such as appliances intended to be used by laypersons in shops and other premises for normal housekeeping purposes, are within the scope of this standard.

Examples of appliances for household use are appliances for typical housekeeping functions used in the household environment that can also be used by non-expert users for typical intermittent housekeeping functions:

– in shops, schools and other similar working environments;
– in farm houses;
– by clients in hotels, motels and other residential type environments;
– in bed and breakfast type environments.

NOTE 101 Household environments include the dwelling and its associated buildings, the garden, etc.

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

– persons (including children) whose
  - physical, sensory or mental capabilities; or
  - lack of experience and knowledge

  prevents them from using the appliance safely without supervision or instruction;
– children playing with the appliance.

Attention is drawn to the fact that

– for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements can be necessary;
– in many countries, additional requirements are 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

– appliances intended exclusively for industrial purposes;
– appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas);
– wet and dry vacuum cleaners, including power brush, for commercial use (IEC 60335-2-69);
– floor treatment and wet scrubbing machines, including rug shampooers, for household and similar use (IEC 60335-2-10);
– hand-held mains-operated garden blowers, vacuums and blower vacuums (IEC 60335-2-100, IEC 62841-4-6);
– spray extraction machines for commercial use (IEC 60335-2-68);
– high-pressure cleaners and steam cleaners (with a rated pressure not less than 2,5 MPa) (IEC 60335-2-79);
– appliances having vacuum-pressure functions for skin care (IEC 60335-2-115).

## 2 Normative references

This clause of Part 1 is applicable except as follows.

*Addition:*

IEC 60584-1, *Thermocouples - Part 1: EMF specifications and tolerances*

IEC TS 62885-1:2026, *Surface cleaning appliances - Part 1: General requirements on test material and test equipment*

ISO 216, *Writing paper and certain classes of printed matter - Trimmed sizes - A and B series, and indication of machine direction*

ISO 6344-2:2021, *Coated abrasives - Determination and designation of grain size distribution - Part 2: Macrogrit sizes P12 to P220*

ISO 7010, *Graphical symbols - Safety colours and safety signs - Registered safety signs*

ISO 14688-1, *Geotechnical investigation and testing - Identification and classification of soil - Part 1: Identification and description*

## 3 Terms and definitions

This clause of Part 1 is applicable except as follows.

### 3.1 Definitions relating to physical characteristics

**3.1.4** *Addition:*

Note 101 to entry: For appliances incorporating a **booster setting**, the **rated power input** corresponds to the operation of the appliance without the **booster setting** being used.

**3.1.9** *Modification:*

Replace the first paragraph with the following:

operation of the appliance under the conditions specified in 3.1.9.101 to 3.1.9.104

**3.1.9.101** The appliance is supplied at **rated voltage** and operated continuously with the main air inlet adjusted to give a power input $P_m$ after 20 s.

Three minutes later, a final adjustment of the main air inlet is made, if necessary.

$P_m$ is calculated from the formula:

$$P_m = 0{,}5\ (P_f + P_i)$$

where

$P_f$ is the power input in watts, after 3 min of operation with the main air inlet unobstructed. Any device that ensures a flow of air to cool the motor in the event of a blockage of the main air inlet is allowed to operate;

$P_i$ is the power input in watts, after a further 20 s of operation with the main air inlet blocked. Any device that is adjustable without the aid of a **tool**, and which ensures a flow of air to cool the motor in the event of a blockage of a main air inlet, is rendered inoperative. If $P_i$ has a rapid non-linear decrease or cannot be measured due to the appliance suction motor stopping before 20 s, the main air inlet is gradually blocked to the extent that the motor stops after $20\ ^{+5}_{-0}$ s. In this case, $P_i$ is the maximum value of power input in the last two seconds before the motor shuts off.

If the appliance is marked with a **rated voltage range**, it is supplied at the mean value of the range if the difference between the limits of the range does not exceed 10 % of the mean value. If the difference exceeds 10 %, the supply voltage is the upper value of the range.

The measurements are made with the appliance fitted with a clean dust bag and filter, any water collection container being empty. If the appliance is intended to be used only with a hose, **detachable nozzles** and **tubes** are removed and the hose is laid out straight. If the appliance is provided with a hose as an accessory, it is operated without the hose.

**3.1.9.102** Rotating brushes and similar devices are in operation but not in contact with any surface. **Motorized cleaning heads** are connected by means of the hose or tube and are in operation but not in contact with any surface.

**3.1.9.103** Appliances equipped with a **blowing function** or **inflating function** are also operated whilst equipped with the hose as described in the instructions for use. Power adjustment controls are set to the highest input power. The hose is not equipped with any attachments, e.g. nozzles.

**3.1.9.104** **Spray extraction appliances** are operated with the spray extraction pump with the nozzle giving the highest load, the vacuum motor and the device for agitating the carpet pile (if any) all in use. The liquid dispensing system is filled and is in operation. Any heating element is energized and, if user adjustable, is adjusted to the highest temperature setting. The wastewater tank is empty at the beginning of the test.

**Spray extraction appliances** intended for carpet are operated on a carpet meeting the construction specifications given in IEC TS 62885-1:2026, Table 5. The appliance is moved backwards and forwards at a rate of 10 cycles per minute over a distance of 1 m.

**Spray extraction appliances** intended for upholstery cleaning or hard surface cleaning are operated without their rotating brushes or similar devices being in contact with upholstery or any other surface. Suction hoses are laid out straight with the main air inlet unobstructed.