

# CONSOLIDATED VERSION



**Household and similar electrical appliances – Safety –  
Part 2-54: Particular requirements for surface-cleaning appliances for household  
use employing liquids or steam**



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# REDLINE VERSION



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

### HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

#### Part 2-54: Particular requirements for surface-cleaning appliances for household use employing liquids or steam

#### FOREWORD

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**This Consolidated version is not an official IEC Standard and has been prepared for user convenience. Only the current versions of the standard and its amendment(s) are to be considered the official documents.**

**This Consolidated version of IEC 60335-2-54 bears the edition number 4.1. It consists of the fourth edition (2008-09) [documents 61/3676/FDIS and 61/3699/RVD] and its amendment 1 (2015-08) [documents 61/4867/CDV and 61/4944/RVC]. The technical content is identical to the base edition and its amendment.**

**In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions and deletions are displayed in red, with deletions being struck through. A separate Final version with all changes accepted is available in this publication.**

International Standard IEC 60335-2-54 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

The principal change in this edition as compared with the third edition of IEC 60335-2-54 is as follows (minor changes are not listed):

The scope has been further restricted to cover appliances where the product of pressure (in MPa) and container volume (in l) does not exceed 5.

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 surface-cleaning appliances employing liquids or steam.

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 the base publication and its amendment 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.



NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may 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.

The following differences exist in the countries indicated below.

- 6.1: Hand-held cleaning appliances and parts held in the hand in normal use shall be class II or class III (Netherlands).
- 22.103: The dimensions of the inlet aperture are different (USA).

**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 2-54: Particular requirements for surface-cleaning appliances for household use employing liquids or steam

#### 1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric cleaning appliances for household use that are intended for cleaning surfaces ~~such as windows, walls and empty swimming pools~~ by using liquid cleansing agents or steam, their **rated voltage** being not more than 250 V. It also covers wallpaper strippers.

NOTE 101 Appliances may incorporate heating elements or means for pressurising the liquid container.

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 knowledgeprevents them from using the appliance safely without supervision or instruction;
- children playing with the appliance.

NOTE 102 Attention is drawn to the fact that

- for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements may be necessary;
- in many countries additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour, and similar authorities.

NOTE 103 This standard does not apply to

- floor treatment and wet scrubbing machines (IEC 60335-2-10);
- cleaning appliances that are permanently fixed to a building;
- cleaning appliances covered by IEC 60335-2-79, namely those having a
  - pressure exceeding 2,5 MPa;
  - pressurised volume over 5 l;
  - product of pressure (in MPa) and container volume (in l) exceeding 5;
  - liquid temperature exceeding 160 °C;
  - **rated power input** exceeding 3 500 W;
- cleaning appliances intended for commercial or industrial use;
- 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);
- fabric steamers (IEC 60335-2-85).

## 2 Normative references

This clause of Part 1 is applicable except as follows.

*Addition:*

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

## 3 Terms and definitions

This clause of Part 1 is applicable except as follows.

### 3.1.9 Replacement:

#### normal operation

operation of the appliance under the most unfavourable conditions specified in the instructions

The cleaning head is pressed with a force of 30 N against a vertical pane of plain glass and moved up and down over a length of 1 m at a rate of 15 cycles per minute. A film of water is maintained on the pane of glass by continuously applying water having a temperature of  $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ .

For steam cleaners and wallpaper strippers, a sheet of stainless steel is used instead of glass, without additional wetting. However, if the steam outlet is not intended to be pressed against the surface, the appliance is operated with the outlet in free air directed downwards at an angle of approximately  $45^{\circ}$ .

For steam cleaners intended to clean horizontal surfaces, the sheet of stainless steel is horizontal and the appliance is moved forward and backward over a length of 1 m at a rate of 15 cycles per minute instead of up and down. No additional force other than the weight of the appliance is applied.

### 3.101

#### pressurised appliance

appliance in which steam is produced in a boiler at a pressure exceeding 50 kPa and in which the pressure does not drop to atmospheric pressure when the steam is not supplied

NOTE The boiler may be incorporated in the appliance or connected to the appliance by a hose.

## 4 General requirement

This clause of Part 1 is applicable.

## 5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

### 5.2 Addition:

A new hose is used for each of the tests of 21.101 to 21.105.

**5.101** Appliances incorporating heating elements are tested as **heating appliances** even if they incorporate motors.