

INTERNATIONAL STANDARD

IEC
60335-2-10

Fifth edition
2002-10

Household and similar electrical appliances – Safety –

Part 2-10: Particular requirements for floor treatment machines and wet scrubbing machines

*Appareils électrodomestiques et analogues –
Sécurité –*

*Partie 2-10:
Règles particulières pour les appareils de traitement
des sols et des machines à broser les sols mouillés*



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –**
**Part 2-10: Particular requirements for floor treatment machines
and wet scrubbing machines**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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This part of International Standard IEC 60335 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

This fifth edition cancels and replaces the fourth edition published in 1992. It constitutes a technical revision.

The text of this part of IEC 60335 is based on the following documents:

FDIS	Report on voting
61/2201/FDIS	61/2282/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 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 floor treatment machines and wet scrubbing machines.

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 committee has decided that the contents of this publication will remain unchanged until 2004. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

The following differences exist in the countries indicated below.

- 3.1.9: Floor treatment machines are operated on a polished composition tile surface. Upholstery shampoos are operated under load (USA).
- 6.1: Appliances for household use shall be class II or class III (Sweden).

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

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.

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.

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.

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 2-10: Particular requirements for floor treatment machines and wet scrubbing machines

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric floor treatment and wet scrubbing machines intended for household and similar purposes, their **rated voltage** being not more than 250 V.

NOTE 101 Examples of floor treatment machines are

- floor buffers;
- floor polishers;
- floor waxers.

NOTE 102 Examples of wet scrubbing machines are

- floor scrubbers;
- rug shampooers;
- upholstery shampooers.

Appliances not intended for normal household use but that nevertheless may be a source of danger to the public, such as appliances intended to be used by laymen in shops, in light industry and on farms, are within the scope of this standard.

NOTE 103 Examples of such appliances are appliances intended to be used in hotels, offices, schools, hospitals and similar premises.

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

- the use of appliances by young children or infirm persons without supervision;
- playing with the appliance by young children.

NOTE 104 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 105 This standard does not apply to

- vacuum cleaners and water suction cleaning appliances (IEC 60335-2-2);
- appliances intended 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);
- floor sanding machines.

2 Normative references

This clause of Part 1 is applicable.

3 Definitions

This clause of Part 1 is applicable except as follows.

3.1.9 *Replacement:*

normal operation

operation of the appliance under the following conditions

Floor treatment machines are operated while being moved backwards and forwards at a rate of 15 cycles per minute on a polished steel plate over a distance of 1 m. The appliance is fitted with brushes for hard-surface floors in accordance with the instructions.

NOTE 101 Heating of the steel plate is to be prevented. Forced cooling may be used but care is to be taken to ensure that the air movement does not affect the temperature rises to be determined.

Floor scrubbers are operated on untreated smooth pine-wood boards, 25 mm thick and approximately 100 mm wide, fastened inside the bottom of a metal pan. The pan is filled with water to a level approximately 1 mm above the surface of the boards. The scrubber is moved backwards and forwards at a rate of 10 cycles per minute over a distance of 1 m.

Rug shampooers are operated on a carpet that is fastened inside the bottom of a metal pan that is filled with water to a level approximately 3 mm below the surface of the carpet. The carpet is made of nylon fibres having a pile height of approximately 6 mm. The shampooer is moved backwards and forwards at a rate of 10 cycles per minute over a distance of 1 m.

If the floor scrubber or rug shampooer has a liquid dispensing system, the pan is not filled with water but the liquid dispensing system is in operation.

Upholstery shampooers 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 inlet unobstructed. Liquid dispensing systems are operated with the liquid container empty.

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable.

6 Classification

This clause of Part 1 is applicable.

7 Marking and instructions

This clause of Part 1 is applicable except as follows.

7.12 *Addition:*

The instructions for appliances with rotating brushes shall state that a hazard may occur if the appliance runs over the supply cord.

The instructions for appliances with a liquid dispensing system shall specify the amount and type of the liquid to be used.

The instructions shall state that the plug must be removed from the socket-outlet before cleaning or maintaining the appliance.

8 Protection against access to live parts

This clause of Part 1 is applicable.

9 Starting of motor-operated appliances

This clause of Part 1 is not applicable.

10 Power input and current

This clause of Part 1 is applicable.

11 Heating

This clause of Part 1 is applicable except as follows.

11.7 Replacement:

Appliances are operated until steady conditions are established.

Appliances incorporating an automatic cord reel are operated with one-third of the total length of the cord unreeled for 30 min, after which the cord is completely unreeled.

12 Void

13 Leakage current and electric strength at operating temperature

This clause of Part 1 is applicable.

14 Transient overvoltages

This clause of Part 1 is applicable.

15 Moisture resistance

This clause of Part 1 is applicable except as follows.

15.2 Modification:

Wet scrubbing machines are filled with a detergent solution specified in the instructions instead of the saline solution.

Addition:

*Wet scrubbing machines are supplied at **rated voltage** and operated for 10 min under **normal operation** except that*

- *the rate of movement is 15 cycles per minute;*
- *the water level is*
 - *approximately 1 mm below the surface of the carpet for rug shampoos;*
 - *approximately 5 mm above the surface of the wooden boards for floor scrubbers.*

16 Leakage current and electric strength

This clause of Part 1 is applicable.

17 Overload protection of transformers and associated circuits

This clause of Part 1 is applicable.

18 Endurance

This clause of Part 1 is not applicable.

19 Abnormal operation

This clause of Part 1 is applicable except as follows.

19.7 Addition:

Appliances are operated for 30 s.

19.10 Addition:

NOTE 101 Appliances are operated without the brushes in contact with any surface.

20 Stability and mechanical hazards

This clause of Part 1 is applicable except as follows.

20.1 Addition:

NOTE 101 This requirement only applies to parts of appliances incorporating a liquid container.

20.2 Addition:

NOTE 101 The requirement regarding moving parts does not apply to brushes and similar devices. It does not apply to moving parts such as shafts that become accessible when changing accessories and that only move when the brush or similar device is moving.

21 Mechanical strength

This clause of Part 1 is applicable.

22 Construction

This clause of Part 1 is applicable except as follows.

22.101 Appliances with single-disc brushes and having a **rated power input** exceeding 300 W shall incorporate means to prevent starting in addition to the switch.

Other appliances shall be constructed so that inadvertent operation is unlikely.

Compliance is checked by inspection, by manual test and by the following test.

The means to prevent starting is operated 6 000 times. It shall then be fit for further use and shall not be damaged to such an extent that compliance with this standard is impaired.

NOTE 1 The means to prevent starting is considered to be met by incorporating a biased off-switch that

- incorporates a self-resetting interlock, or
- is used in combination with an additional device that prevents
 - the appliance from being operated, or
 - the brush from being engaged with the motor when the handle is in the storage position.

NOTE 2 Inadvertent operation is considered to be unlikely if the actuating member of the switch is appropriately located, for example in a recess.

23 Internal wiring

This clause of Part 1 is applicable.

24 Components

This clause of Part 1 is applicable.

25 Supply connection and external flexible cords

This clause of Part 1 is applicable.

26 Terminals for external conductors

This clause of Part 1 is applicable.

27 Provision for earthing

This clause of Part 1 is applicable.

28 Screws and connections

This clause of Part 1 is applicable.

29 Clearances, creepage distances and solid insulation

This clause of Part 1 is applicable except as follows.

29.2 Addition:

The microenvironment is pollution degree 3 unless the insulation is enclosed or located so that it is unlikely to be exposed to pollution during normal use of the appliance.

30 Resistance to heat and fire

This clause of Part 1 is applicable except as follows.

30.2.3 Not applicable.

31 Resistance to rusting

This clause of Part 1 is applicable.

32 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.

Annexes

The annexes of Part 1 are applicable except as follows.

Annex C (normative)

Aging test on motors

Modification:

The value of p in Table C.1 is 2 000.

Bibliography

The bibliography of Part 1 is applicable except as follows.

Addition:

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



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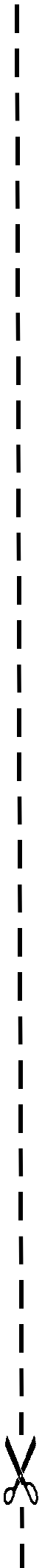
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