

# INTERNATIONAL STANDARD

# IEC 60335-2-79

2002

AMENDMENT 1  
2004-11

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Amendment 1

**Household and similar electrical appliances –  
Safety –**

**Part 2-79:  
Particular requirements for high pressure  
cleaners and steam cleaners**

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PRICE CODE

**G**

*For price, see current catalogue*

## FOREWORD

This amendment has been prepared by subcommittee 61J: Electrical motor-operated cleaning appliances for industrial use, of IEC technical committee 61: Safety of household and similar electrical appliances.

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

FDIS	Report on voting
61J/165/FDIS	61J/171/RVD

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

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the maintenance result 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- withdrawn;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.

## FOREWORD

*Add to the list of differences existing in some countries the following new item:*

7.12: No requirements for sound and vibration markings exist (USA).

## 1 Scope

*Replace the existing second paragraph by the following:*

It also applies to industrial and commercial steam cleaners having a water container with a capacity not exceeding 1 000 l, a **rated pressure** not exceeding 3,2 MPa and a product of capacity and **rated pressure** not exceeding 300.

## 2 Normative references

*Add the following new references:*

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

ISO 5349 (all parts), *Mechanical vibration – Measurement and evaluation of human exposure to hand-transmitted vibration*

### 3 Definitions

**3.1.9** Add, after the second paragraph, the following new paragraph:

Power outlets for accessories are loaded with a resistive load in accordance with the marking.

Add the following new definitions:

**3.116**

**water-suction cleaning appliance**

appliance for aspirating an aqueous solution that may contain foaming detergent

**3.117**

**motorized cleaning head**

accessory containing a motor that is supplied from the appliance and which is attached to the end of a hand-held hose or tube

NOTE The main cleaning head permanently attached is not regarded as a motorized cleaning head

### 6 Classification

**6.2**

**Table 101 – Degree of protection against harmful ingress of water**

Replace the row marked “for indoor use only” by the following:

	Protection class (electric shock)	Protection degree (IEC 60529)
for indoor use only	I – II	IPX4
	III	IPX3

### 7 Marking and instructions

**7.1** Add to the existing text the following new paragraph:

Steam cleaners shall be marked with symbol IEC 60417-5597.

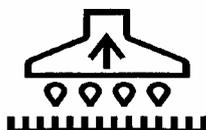
Add the following subclause:

**7.6** Addition:



[symbol IEC 60417-5597 (DB:2002-10)]

steam



[symbol IEC 60417-5935 (DB:2002-10)]

motorized cleaning head for  
water-suction cleaning

**7.12** Add the following dashed items and additional paragraphs:

- the A-weighted sound pressure level  $L_{pA}$  in dB(A), emitted by the appliance. If the A weighted sound pressure level exceeds 85 dB(A), it shall also state the sound power level  $L_{WA}$  in dB(A) and that appropriate ear protection has to be used. The sound level is measured in accordance with IEC 60704-1;
- the weighted r.m.s. acceleration value to which the operators' arms are subjected in  $m/s^2$ , separately for each arm (if applicable). The weighted r.m.s. acceleration value is measured in accordance with ISO 5349 for arm vibrations, the appliance being supplied at **rated voltage** or at the maximum **rated voltage** for machines with a range of voltages.

The instructions for appliances having a current-carrying hose operating at other than **safety extra-low voltage** shall include the substance of the following:

CAUTION: This hose contains electrical connections:

- do not use to collect water;
- do not immerse in water for cleaning;
- the hose should be checked regularly and must not be used if damaged.

If the symbol IEC 60417-5935 is used, its meaning shall be explained.

**7.14** Addition:

The height of symbol IEC 60417-5935 shall be at least 15 mm.

*Compliance is checked by measurement.*

**7.101** Motorized cleaning heads shall be marked with

- **rated voltage** or **rated voltage range** in volts;
- **rated power input** in watts;
- name, trade mark or identification mark of the manufacturer or responsible vendor;
- model or type reference.

**Motorized cleaning heads for water-suction cleaning appliances**, except those of **class III construction** having a **working voltage** up to 24 V shall be marked with symbol IEC 60417-5935.

NOTE This symbol is an information sign and, except for the colours, the rules of ISO 3864-1 apply.

*Compliance is checked by inspection.*

**7.102** Power outlets for accessories shall be marked with the maximum load in watts.

NOTE This marking may be on the appliance close to the appliance outlet.

*Compliance is checked by inspection.*

**10 Power input and current**

*Add the following subclause:*

**10.1** Addition:

The power input of **motorized cleaning heads** is measured separately.

**10.101** Add the following new paragraph:

The permissible pressure shall not exceed 1,5 times the rated pressure.

## 15 Moisture resistance

**15.2** Replace the text of the last two paragraphs by the following text:

**Motorized cleaning heads of water-suction cleaning appliances** are placed in a container, the base of which is level with the surface supporting the appliance. The container is filled with a detergent solution to a level of 5 mm above its base, this level being maintained throughout the test. The solution consists of 20 g of NaCl and 1 ml of a solution of 28 % by mass of dodecyl sodium sulphate in each 8 l of water.

The appliance is operated until its liquid container is completely full and for a further 5 min.

NOTE 102 The solution is to be stored in a cool atmosphere and used within seven days of its preparation.

NOTE 103 The chemical designation of dodecyl sodium sulphate is  $C_{12}H_{25}NaSO_4$ .

After each of these tests, the appliance shall withstand the electric strength test of 16.3.

Inspection shall show that there is no trace of liquid on insulation that could result in a reduction of **clearances** or **creepage distances** below the values specified in Clause 29.

Add the following new subclause:

**15.101 Motorized cleaning heads of water suction cleaning appliances** shall be resistant to liquids that may come into contact with them.

Compliance is checked by the following tests.

The **motorized cleaning head** is subjected to an impact test as described in IEC 60068-2-75, the value of the impact being 2 J. The **motorized cleaning head** is rigidly supported and three blows are applied to every point of the enclosure that is likely to be weak.

It is then subjected to the free fall test procedure 1 of IEC 60068-2-32. It is dropped 4 000 times from a height of 100 mm onto a steel plate having a thickness of not less than 15 mm. It is dropped

- 1000 times on its right side;
- 1000 times on its left side;
- 1000 times on its front face;
- 1000 times on its cleaning surface.

The **motorized cleaning head** is then subjected to the test described in 14.2.7 of IEC 60529, the water containing approximately 1% NaCl.

The **motorized cleaning head** shall then withstand the electric strength test of 16.3 the voltage being applied between the **live parts** and the solution and inspection shall show that there is no trace of saline solution on insulation which could result in a reduction of **clearances** and **creepage distances** below the values specified in Clause 29.

NOTE The test is not carried out on **motorized cleaning heads** of class III construction having a **working voltage** up to 24V.

## 16 Leakage current and electric strength

Replace the existing text by the following:

This clause of Part 1 is applicable except as follows.

### 16.3 Addition:

*Current-carrying hoses, except for their electrical connections, are immersed for 1 h in water containing approximately 1 % NaCl, at a temperature of 20 °C ± 5 °C. While the hose is still immersed, a voltage of 2 000 V is applied for 5 min between each conductor and all the other conductors connected together. A voltage of 3 000 V is then applied for 1 min between all the conductors and the saline solution.*

## 19 Abnormal operation

Add the following subclauses:

### 19.1 Addition:

*The test of 19.7 is not carried out on the pump motor of three-phase appliances.*

### 19.7 Addition:

*Motorized cleaning heads are tested with the rotating brush or similar device locked for 30 s.*

## 20 Stability and mechanical hazards

Add the following new subclause:

**20.104** Injury due to unintentional closing or slamming of parts, such as movable side walls and covers, shall be prevented.

Wheels or rollers for the transport of appliances heavier than 20 kg shall be located or protected so that injury to the feet of the operator is prevented.

*Compliance is checked by inspection, by measurement and by manual test.*

## 22 Construction

**22.2** Delete this subclause.

Add the following new subclause:

**22.109** High pressure cleaners shall be fitted with a switch or contactor in their supply circuit that ensures **all-pole disconnection**.

## 24 Components

Add the following subclause:

**24.7** Not applicable.