

# INTERNATIONAL STANDARD



**Household and similar electrical appliances – Safety –  
Part 2-23: Particular requirements for appliances for skin or hair care**

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IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
Fax: +41 22 919 03 00  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

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IEC 60335-2-23

Edition 6.0 2016-06  
REDLINE VERSION

# INTERNATIONAL STANDARD



**Household and similar electrical appliances – Safety –  
Part 2-23: Particular requirements for appliances for skin or hair care**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

ICS 13.120; 97.040.50

ISBN 978-2-8322-3472-3

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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### HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

#### Part 2-23: Particular requirements for appliances for skin or hair care

#### FOREWORD

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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 sixth edition cancels and replaces the fifth edition published in 2003 including its Amendment 1 (2008) and its Amendment 2 (2012). This edition constitutes a technical revision.

The principal changes in this edition as compared with the fourth edition of IEC 60335-2-23 are as follows (minor changes are not listed):

- added hair straighteners to the list of examples covered by the standard;
- modified 7.12 to apply to appliances, and not just to hairdryers.
- added new instructions in 7.12 for hair straighteners and curling irons
- exempted fixed hairdryers and fixed hand dryers from alternative format of instructions;
- excluded detachable curler surfaces from temperature rise requirement in Subclause 11.8;
- clarified in Subclause 19.7 that the appliance shall not emit flame after the test;
- clarified method of test and compliance criteria in Subclause 21.101;
- added requirement in 22.13 to delineate handles on curling irons and hair straighteners;
- in 22.103, added a requirement for protection against hair being pulled into hair dryer intake;
- revised Subclause 24.101 to indicate that protective devices shall not be self-resetting;
- reviewed and converted notes to normative text in Subclauses 19.7, 22.32, and 25.14.

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

FDIS	Report on voting
61/5135/FDIS	61/5171/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 appliances for skin or hair care.

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 the stability date indicated on the IEC website 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 the 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.

- 3.1.9: Normal operation is different (USA).
- 6.1: Appliances fitted with a supply cord may be of class 0 (USA).
- 6.2: The addition does not apply (USA).
- Clause 7: Additional markings and instructions are required (USA).
- 11.7: Rest periods are not allowed (USA).
- 11.8: Surface temperature requirement is different (USA).
- 11.101: The test is not carried out (USA).
- 19.2: Different methods are used to restrict heat dissipation (USA).
- 19.101: The test is different (USA).
- 19.102: The test is different (USA).
- 21.101: The test is different (USA).
- Clause 22: Hand-held hairdryers are required to incorporate a protective device to comply with an immersion test (USA).
- 22.36: The requirement does not apply (USA).
- 22.102: The requirement does not apply (USA).
- 24.1.3: The number of cycles of operation is different (USA).
- 24.101: The requirement does not apply (USA).
- 25.7: PVC sheathed cords are not allowed if they could contact surfaces over 121 °C (USA).
- 25.14: The test is different (USA).
- 25.101: The test is 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.

**NOTE 1** For example, if appliances within the scope of this Part 2 include an ion generator, then IEC 60335-2-65 is applicable as far as is reasonable.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

**NOTE 2** 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 3** 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 2-23: Particular requirements for appliances for skin or hair care

### 1 Scope

This clause of Part 1 is replaced by the following.

This part of IEC 60335 deals with the safety of electric appliances for the care of skin or hair of persons or animals and intended for household and similar purposes, their **rated voltage** being not more than 250 V.

NOTE 101 Examples of appliances that are within the scope of this standard are

- curling combs;
- curling irons;
- curling rollers with separate heaters;
- facial saunas;
- hairdryers;
- hair straighteners;
- hand dryers;
- heaters ~~with~~ for detachable curlers;
- permanent-wave appliances.

NOTE 102 Appliances covered by this standard may incorporate steam-producing or spray-producing devices.

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 are appliances for use in hairdressing salons.

~~As far as is practicable,~~ This standard deals with the ~~common~~ reasonably foreseeable 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 persons (including children) or infirm persons 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 ~~by young children~~.

NOTE 104 Attention is drawn to the fact that

- it is recognized that persons having very extensive and complex disabilities can have needs beyond the level addressed in this standard.
- 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

- 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);

- shavers, hair clippers and similar appliances (IEC 60335-2-8);
- ~~– UV and IR radiation appliances (IEC 60335-2-27);~~
- blankets, pads, clothing and similar flexible heating appliances (IEC 60335-2-17);
- appliances for skin exposure to optical radiation (IEC 60335-2-27);
- sauna heating appliances (IEC 60335-2-53);
- cosmetic and beauty care appliances incorporating lasers and intense light sources (IEC 60335-2-113)
- appliances intended for medical purposes (IEC 60601).

## 2 Normative references

This clause of Part 1 is applicable except as follows:

*Addition:*

~~ISO 3864, Safety colours and safety signs.~~

ISO 7010:2011, *Graphical symbols – Safety colours and safety signs – Registered safety signs*

## 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 following conditions:

**Helmet-type hairdryers** are operated with the axis of the hood inclined at an angle of 60° to the horizontal or the maximum angle allowed by the construction if this is less. A dull black-painted wooden sphere, 200 mm in diameter, is placed in the hood so that its centre coincides with the axis of the hood, the shortest distance between the sphere and the air-outlet grille being 50 mm.

Hairdryers having a flexible hood attachment are operated with the hood attachment placed over the wire frame of Figure 101, the frame being positioned over the wooden sphere.

~~NOTE 101~~ **Helmet-type hairdryers** that are supported by the head are operated as hairdryers having a flexible hood attachment.

**Hand-held hairdryers** are operated with unrestricted airflow directed downwards.

Permanent-wave appliances are operated in the normal position of use, the curling rollers hanging freely.

**Heaters for detachable curlers** are operated in the normal position of use together with the curlers.

Curling irons, curling combs and similar appliances are operated with their major axis horizontal.

Appliances having steam-producing or spray-producing devices are operated with the container empty or filled, whichever is more unfavourable. However, if the appliance is marked to indicate that it is to be used with the container filled, the container is filled. Water is added, when necessary, to compensate for evaporation.

Hand dryers are operated in the normal position of use with unrestricted airflow.

Facial saunas are operated in the normal position of use and filled with water. Water is added, when necessary, to maintain the steam output.

### 3.101

#### **helmet-type hairdryer**

hairdryer having a rigid hood that is placed over the head in normal use

Note 1 to entry: The hood may be supported by a stand or have means for attaching to a support.

### 3.102

#### **heater for detachable curlers**

appliance for heating curling irons or curling rollers that accumulate heat

### 3.103

#### **swivel connection**

means for connecting the **supply cord** so that the appliance can be rotated continuously without twisting the cord

## 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:

~~NOTE 104~~ The additional test of 25.14 for **hand-held appliances** is carried out on a separate appliance.

## 6 Classification

This clause of Part 1 is applicable except as follows.

### 6.1 Replacement:

Appliances shall be of one of the following classes with respect to protection against electric shock:

- hairdryers, curling irons, curling combs, facial saunas and other steam-producing or spray-producing appliances shall be **class II** or **class III**. However, **fixed hairdryers** intended to be permanently connected to fixed wiring, **helmet-type hairdryers** for hairdressers and steam-producing or spray-producing appliances for hairdressers may be **class I**;
- other appliances shall be **class I**, **class II** or **class III**.

*Compliance is checked by inspection and by the relevant tests.*

### 6.2 Addition:

Hand dryers shall be at least IPX1.

Curling rollers of permanent-wave appliances shall be at least IPX4.

## 7 Marking and instructions

This clause of Part 1 is applicable except as follows.

### 7.1 Addition:

**Portable hairdryers**, curling irons and similar appliances shall be marked with symbol ~~5582 of IEC 60417-1 combined with the prohibition sign of ISO 3864, except for the specified colours,~~ ISO 7010-P026 (2011-05) or with the substance of the following:

WARNING: Do not use this appliance near water.

~~NOTE 101 This marking may be on a label that is permanently attached to the appliance.~~

### 7.6 Addition:



~~[symbol 5582 of IEC 60417-1] Suitable for use in a bath or shower~~



[Symbol ISO 7010-P026 (2011-05)]

Do not use this device in a bathtub, shower, or water-filled reservoir

### 7.12 Addition:

The instructions for **portable hairdryer appliances** shall include the substance of the following:

- when the **hairdryer appliance** is used in a bathroom, unplug it after use since the proximity of water presents a hazard even when the **hairdryer appliance** is switched off;
- for additional protection, the installation of a residual current device (RCD) having a rated residual operating current not exceeding 30 mA is advisable in the electrical circuit supplying the bathroom. Ask your installer for advice.

If symbol ~~5582 of IEC 60417-1~~ ISO 7010-P026 (2011-05) is used, ~~together with the prohibition sign,~~ the meaning shall be explained. Instructions shall also state the substance of the following:

WARNING Do not use this appliance near bathtubs, showers, basins or other vessels containing water.

The instructions for facial saunas shall state that after use the appliance should be cleaned to avoid the accumulation of grease and other residues.

The instructions for hair straighteners and curling irons shall include the substance of the following:

- burn hazard. Keep appliance out of reach from young children, particularly during use and cool down;
- when the appliance is connected to the power supply, never leave it unattended;
- always place the appliance with the stand, if any, on a heat-resistant, stable flat surface.

#### 7.12.1 Addition:

The installation instructions for **fixed hairdryers** intended for use in bathrooms shall include the substance of the following:

This hairdryer must be fixed out of reach of a person taking a bath or shower.

If the hand-held part of the hairdryer incorporates electrical components, the instructions shall state that the appliance must be fixed so that the hand-held part, when fully extended, is out of reach of a person taking a bath or shower.

#### 7.12.9 Addition:

Supplying of instructions in an alternative format is not required for **fixed hand dryers** and **fixed hairdryers**.

#### 7.14 Addition:

The **outer** diameter of the circle ~~superimposed on~~ in symbol ~~5582 of IEC 60417-1~~ ISO 7010-P026 (2011-05) shall be at least 10 mm.

*Compliance is checked by measurement.*

#### 7.15 Addition:

The additional marking required for **portable hairdryers**, curling irons and similar appliances may alternatively be on a warning flag tag that is permanently attached to the **supply cord** close to the plug.

NOTE A flag tag is otherwise referred to as a swing tag or cord tag or other permanently affixed label on a cord.

## 8 Protection against access to live parts

This clause of Part 1 is applicable except as follows.

8.1.3 Not 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 **except as follows**:

#### 10.1 Addition:

*The representative period for appliances incorporating **PTC heating elements** is 30 min.*

#### 10.2 Addition:

*The representative period for appliances incorporating **PTC heating elements** is 30 min.*

## 11 Heating

This clause of Part 1 is applicable except as follows.

#### 11.1 Addition:

For appliances incorporating a **swivel connection**, compliance is also checked by the test of 11.101.

**11.2 Addition:**

Appliances intended to be used on a stand or attached to a support are placed to give the most unfavourable results.

**Hand-held appliances with an integral rest are also tested when placed on their rest away from the walls of the test corner.**

**11.4 Addition:**

If the temperature rise limits are exceeded in appliances incorporating motors, transformers or **electronic circuits**, and the power input is lower than the **rated power input**, the test is repeated with the appliance supplied at 1,06 times **rated voltage**.

**11.6 Replacement:**

**Combined appliances are operated as heating appliances.**

**11.7 Replacement:**

Appliances without a timer are operated

- for 30 min, for **hand-held appliances**;
- in cycles of 30 s on and 5 s off until steady conditions are established, for hand dryers that are automatically controlled by the presence of the hands;
- until steady conditions are established, for other appliances.

Appliances incorporating a timer are operated in cycles until steady conditions are established. Each cycle consists of the maximum operating time of the timer followed by a rest period of 5 s.

**11.8 Addition:**

The temperature rise limits of motors, transformers and components of **electronic circuits**, including parts directly influenced by them, may be exceeded when the appliance is operated at 1,15 times **rated power input**.

The temperature rise of the handles of curling irons heated by a **heater for detachable curlers** incorporating a timer is determined at the end of the first cycle.

**The temperature rise of detachable curlers is not measured.**

**11.101** Appliances incorporating a **swivel connection** are positioned with their major axis horizontal, the **supply cord** hanging vertically. A pull force of 1 N is applied to the **supply cord**.

The appliance is supplied at **rated voltage**, the current being 1,25 times the **rated current**.

NOTE 1 This condition can be obtained by means of a resistor connected in place of the heating element.

The appliance is rotated about its major axis at a rate of approximately 50 r/min, the direction of rotation being reversed every 20 revolutions. The test is carried out for 1 500 revolutions.

The temperature rise of the sliding contacts shall not exceed 65 K.

NOTE 2 The temperature rise ~~may~~ can be determined by melting particles or colour changing indicators.

## 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.

## 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.

### 19.1 Addition:

Hairdryers are also subjected to the tests of 19.101 and 19.102.

### 19.2 Addition:

*Restricted heat dissipation is obtained as follows:*

- *motors are disconnected;*
- ***hand-held hairdryers** are placed on the floor of the test corner in any stable position likely to occur;*
- *appliances intended to be filled with water are operated empty;*
- ***hand-held appliances** without an integral rest are placed on the floor of the test corner in any stable position likely to occur.*

Hairdryers having a flexible hood attachment are also tested with the motor operating, the airflow through the hose being restricted to give the most unfavourable result.

**Heaters for detachable curlers** are placed on a piece of low-density glass-fibre insulation having a coefficient of thermal insulation of approximately 2,5 m<sup>2</sup>K/W.

**19.7** *Addition Modification:*

The test is carried out for 5 min except for

- **hand-held appliances;**
- appliances that have to be kept switched on by hand;
- appliances incorporating a timer.

*During and after the test, the appliance shall not emit flames.*

~~NOTE 101~~ **Hand dryers** are subjected to the test only ~~when~~ *if* the locked rotor torque is less than the full load torque.

**19.9** Not applicable.

**19.10** *Addition:*

The test is carried out with the heating elements disconnected or switched off.

**19.101** Hairdryers are operated as specified in Clause 11 ~~except that the motor is supplied separately at its working voltage~~ until steady conditions are established. The voltage at the terminals of the motor is then reduced until the running speed of the motor is just sufficient to prevent the thermal cut-out from operating, the power input to the heating element being maintained at 1,15 times rated power input.

~~NOTE~~ It may be necessary to compensate for the effect on the heating element of supplying the motor separately.

~~When steady conditions are established, the voltage applied to the motor is reduced until the running speed of the motor is just sufficient to prevent a thermal cut-out from operating, the voltage applied to the heating elements being maintained at the value used for 11.4.~~

~~The reduced voltage applied to the motor is determined as follows. The voltage is reduced by 5 % and the motor is operated under this condition for 5 min. This procedure is repeated until a thermal cut-out operates. The voltage is then increased by 5 %, this being the reduced voltage to be used for the test.~~

~~Under these conditions, the hairdryer is again operated until steady conditions are established.~~

~~The hairdryer shall not emit flames or molten metal, temperature rises shall not exceed the values specified in Table 9 and the other criteria of 19.13 do not apply.~~

*The voltage is decreased at*

- 1 V per minute, for motors having a **working voltage** not exceeding 30 V;
- 5 V per minute, for motors having a **working voltage** exceeding 30 V.

*The appliance is then operated until steady conditions are established.*

**19.102** **Portable hair dryers** are operated under normal operation at 1,15 times rated power input.

*The test is carried out for 30 min.*

*The test is repeated with the airflow directed horizontally.*

NOTE The most unfavourable conditions are usually obtained by positioning the polyethylene sheet so that the **thermal cut-out** is prevented from operating.

## 20 Stability and mechanical hazards

This clause of Part 1 is applicable.

## 21 Mechanical strength

This clause of Part 1 is applicable except as follows.

### 21.1 Addition:

**Hand-held appliances** are also subjected to the test of 21.101.

**21.101** The appliance is **operated under the conditions of Clause 11. It is then placed on a horizontal surface positioned 700 mm above a rigidly supported hardwood board** ~~and operated while supplied at rated voltage.~~

It is pulled from the surface by its **supply cord** and allowed to drop freely. The test is carried out five times, the appliance being placed on the horizontal surface in different positions likely to occur.

The appliance shall not be damaged to such an extent that compliance with this standard is impaired. In particular, **the appliance shall not emit flames or molten material and the requirements of Clauses 8 and 29 shall be fulfilled.**

## 22 Construction

This clause of Part 1 is applicable except as follows.

### 22.13 Addition:

To avoid accidental contact with hot surfaces, the handle of curling irons and hair straighteners shall be clearly identified by tactile means, or colour or other visual means.

### 22.24 Addition:

The heating element shall also be unlikely to come into contact with the skin or hair if it ruptures.

### 22.32 Addition:

**Supplementary insulation and reinforced insulation in class II curling irons and hair straighteners** shall be resistant to aging.

Insulation mentioned in Table 3 is considered to be resistant to aging.

*For insulation not mentioned in Table 3, compliance is checked by the following test.*

Samples of insulation not mentioned in Table 3 are suspended in a heating cabinet so that there is at least 10 mm between the samples, and between the samples and the top and bottom of the cabinet. The samples shall be at least 50 mm from the walls of the cabinet. The volume of the samples is not to exceed one-tenth of the capacity of the cabinet.

The cabinet is ventilated by natural convection, with at least three air changes per hour. The temperature of the cabinet is maintained at  $30\text{ K} \pm 1\text{ K}$  in excess of the temperature rise of the part determined during the tests of Clause 19 or at  $70\text{ °C} \pm 2\text{ °C}$ , whichever is higher.

The samples are kept in the cabinet for 240 h and then at ambient temperature for at least 16 h.

The samples shall show no cracks and shall withstand the electric strength test of 16.3 for **supplementary insulation**.

~~NOTE 101 Insulation mentioned in Table 3 is considered to be resistant to aging.~~

#### 22.36 Addition:

For **class I appliances**, other than hand dryers and face dryers, metal parts that could be in contact with skin or hair in normal use shall be separated from **live parts** by **double insulation** or **reinforced insulation** and shall not be earthed.

#### 22.40 Addition:

The switch in the **off-position** shall disconnect **electronic circuits**, unless compliance with Clause 19 does not depend on the operation of a **self-resetting thermal cut-out**.

**22.101** Appliances having steam-producing or spray-producing devices shall be constructed so that there is no spillage or unintentional burst of steam or water that is likely to cause a hazard.

*Compliance is checked during the test of Clause 11.*

**22.102** Curling rollers of permanent-wave appliances having integral heating elements shall be supplied with **safety extra-low voltage** not exceeding 24 V.

*Compliance is checked by inspection and by the relevant tests.*

**22.103** Hairdryers shall be fitted with a grid or similar protection means to limit the risk of hair being sucked into the air intake.

*Compliance is checked by inspection.*

## 23 Internal wiring

This clause of Part 1 is applicable except as follows.

#### 23.3 Addition:

The number of flexings for conductors that are only flexed when the appliance is stored is 5 000.

## 24 Components

This clause of Part 1 is applicable except as follows.

### 24.1.3 Addition:

*Switches incorporated in hand dryers are subjected to 50 000 cycles of operation.*

### 24.2 Modification:

**Helmet-type hairdryers** and permanent-wave appliances may incorporate a switch in a flexible cord.

**24.101 Protective devices** incorporated in **fixed hand dryers** in order to comply with 19.2 and 19.3 shall not be self-resetting.

*Compliance is checked by inspection during the tests of 19.2 and 19.3.*

## 25 Supply connection and external flexible cords

This clause of Part 1 is applicable except as follows.

### 25.5 Addition:

**Type X attachment** is not allowed if the **supply cord** is fitted with a warning flag tag.

**Type Z attachment** is allowed for

- **hand-held appliances**;
- hairdryers with a flexible hood attachment;
- **heaters for detachable curlers** having not more than 10 curlers.

### 25.7 Modification:

Light polyvinyl chloride sheathed cords (code designation 60227 IEC 52) are allowed regardless of the mass of the appliance.

The temperature rise limit of 75 K is increased to 130 K ~~as long as~~ provided that the temperature rise decreases to 75 K within 5 min ~~after~~ of the appliance ~~has been being~~ switched off.

### 25.14 Addition:

The force applied to the **supply cord** of appliances provided with a **swivel connection** is

- 20 N, for cords having a nominal cross-sectional area exceeding 0,75 mm<sup>2</sup>;
- 10 N, for other cords.

*The appliance is mounted so that the direction of flexing corresponds to that most likely to occur when the **supply cord** is wound around the appliance for storage.*

*Unless incorporating a **swivel connection**, **hand-held appliances** are additionally tested while mounted on an apparatus similar to that of Figure 8 with the **supply cord** hanging vertically and loaded with a force of 10 N. The oscillating part of the apparatus is moved*

through an angle of 180° and back to the original position. The number of flexings is ~~4 000~~ 10 000, the rate of flexing being 6 per min.

~~NOTE 101 The appliance is mounted so that the direction of flexing corresponds to that most likely to occur when the supply cord is wound around the appliance for storage.~~

~~NOTE 102 This test is not carried out on appliances incorporating a swivel connection.~~

#### 25.15 Addition:

The **swivel connection** is not locked during the tests.

#### Modification:

For appliances with a **swivel connection**, the value of 30 N in Table 12 is increased to 60 N.

**25.101 Swivel connections** shall be adequate for normal use of the appliance.

*Compliance is checked by the following test.*

*The appliance is operated under the conditions specified in 11.101, the number of revolutions being increased to 20 000.*

*After this test, the **swivel connection** and the **supply cord** shall be fit for further use. **Live parts** shall not have become accessible and the appliance shall withstand the electric strength test of 16.3.*

## 26 Terminals for external conductors

This clause of Part 1 is applicable except as follows.

#### 26.10 Addition:

Terminals with screw clamping and screwless terminals shall not be used for **type X attachments** in appliances incorporating a **swivel connection**.

## 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.

#### 29.3 Addition:

For curling irons and hair straighteners, the distance through insulation between metal parts separated by **supplementary insulation** may be reduced to 0,6 mm, provided that the distance through **basic insulation** is at least 1 mm.

### **30 Resistance to heat and fire**

This clause of Part 1 is applicable except as follows.

#### **30.1 Addition:**

*For hand dryers and hairdryers, the temperature rises occurring during the tests of Clause 19 are not taken into account.*

#### **30.2 Addition:**

For **heaters for detachable curlers**, 30.2.3 is applicable. For other appliances, 30.2.2 is applicable.

#### **30.101 Helmet-type hairdryers** shall be resistant to fire.

*Compliance is checked by inspection and by applying the needle-flame test of Annex E to*

- parts of non-metallic material enclosing the heating element and other electrical components;*
- non-metallic parts within the enclosure.*

*The needle-flame test is not carried out on material classified as V-0 or V-1 according to IEC 60695-11-10, provided that the test sample was no thicker than the relevant part.*

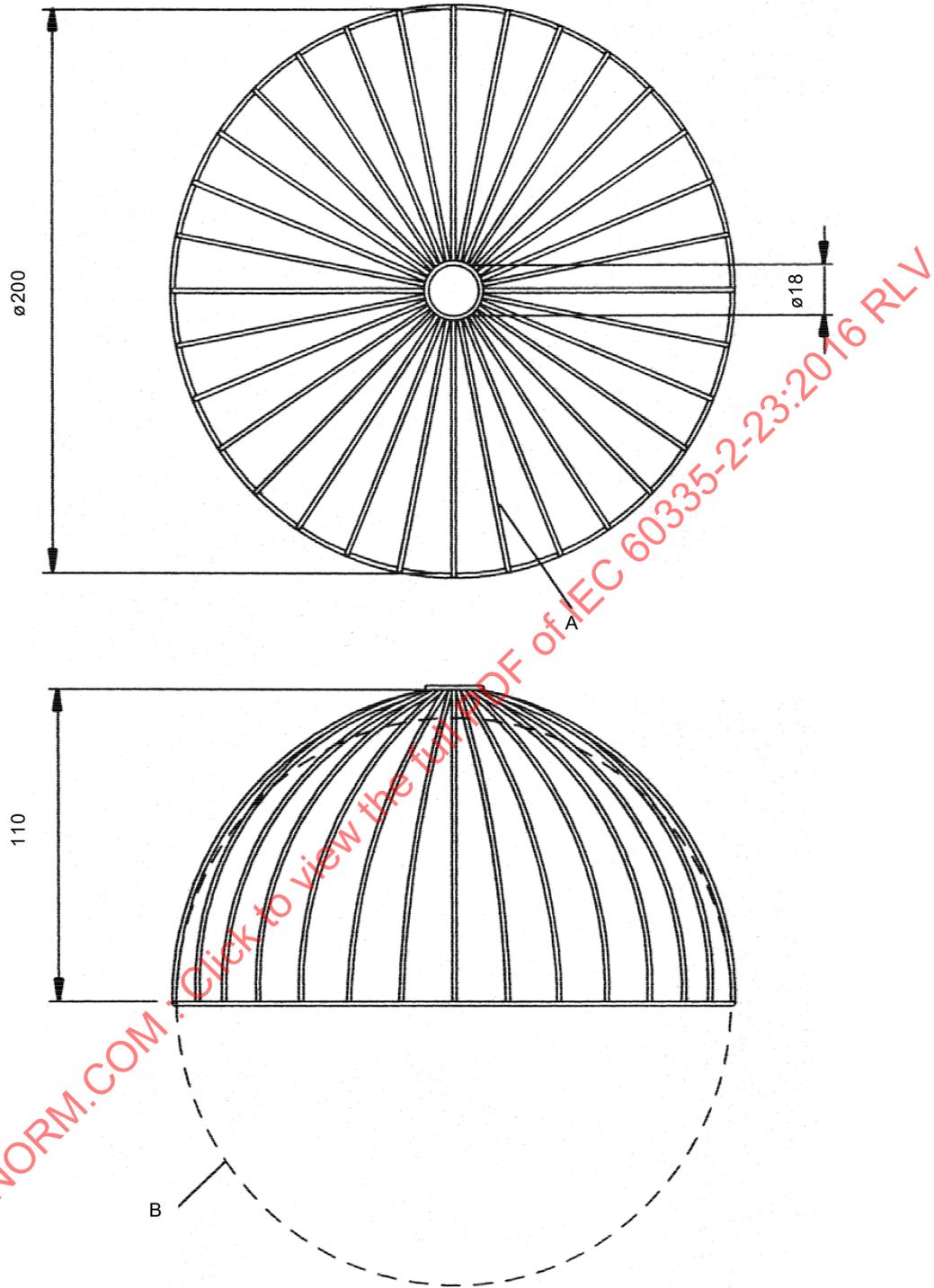
### **31 Resistance to rusting**

This clause of Part 1 is applicable.

### **32 Radiation, toxicity and similar hazards**

This clause of Part 1 is applicable.

Dimensions in millimetres



IEC

**Key**

- A frame consisting of 32 equally spaced wires  $\varnothing 1,5 \text{ mm} \pm 0,5 \text{ mm}$
- B location of the wooden sphere

**Figure 101 – Wire frame**

## Annexes

The annexes of Part 1 are applicable.

## Bibliography

The bibliography of Part 1 is applicable except as follows.

*Addition:*

IEC 60335-2-8, *Household and similar electrical appliances – Safety – Part 2-8: Particular requirements for shavers, hair-clippers and similar appliances*

IEC 60335-2-17, *Household and similar electrical appliances – Safety – Part 2-17: Particular requirements for blankets, pads, clothing and similar flexible heating appliances*

IEC 60335-2-27, *Household and similar electrical appliances – Safety – Part 2-27: Particular requirements for appliances for skin exposure to ultraviolet and infrared radiation*

IEC 60335-2-53, *Household and similar electrical appliances – Safety – Part 2-53: Particular requirements for sauna heating appliances and infrared cabins*

IEC 60335-2-65, *Household and similar electrical appliances – Safety – Part 2-65: Particular requirements for air-cleaning appliances*

IEC 60335-2-113, *Household and similar electrical appliances – Safety – Part 2-113: Particular requirements for cosmetic and beauty care appliances incorporating lasers and intense light sources*

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# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



**Household and similar electrical appliances – Safety –  
Part 2-23: Particular requirements for appliances for skin or hair care**

**Appareils électrodomestiques et analogues – Sécurité –  
Partie 2-23: Exigences particulières pour les appareils destinés aux soins de la  
peau ou des cheveux**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –****Part 2-23: Particular requirements for appliances for skin or hair care**

## 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.
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- 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.

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

This sixth edition cancels and replaces the fifth edition published in 2003 including its Amendment 1 (2008) and its Amendment 2 (2012). This edition constitutes a technical revision.

The principal changes in this edition as compared with the fourth edition of IEC 60335-2-23 are as follows (minor changes are not listed):

- added hair straighteners to the list of examples covered by the standard;
- modified 7.12 to apply to appliances, and not just to hairdryers.
- added new instructions in 7.12 for hair straighteners and curling irons
- exempted fixed hairdryers and fixed hand dryers from alternative format of instructions;
- excluded detachable curler surfaces from temperature rise requirement in Subclause 11.8;

- clarified in Subclause 19.7 that the appliance shall not emit flame after the test;
- clarified method of test and compliance criteria in Subclause 21.101;
- added requirement in 22.13 to delineate handles on curling irons and hair straighteners;
- in 22.103, added a requirement for protection against hair being pulled into hair dryer intake;
- revised Subclause 24.101 to indicate that protective devices shall not be self-resetting;
- reviewed and converted notes to normative text in Subclauses 19.7, 22.32, and 25.14.

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

FDIS	Report on voting
61/5135/FDIS	61/5171/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 appliances for skin or hair care.

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 the stability date indicated on the IEC website 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 the 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.

- 3.1.9: Normal operation is different (USA).
- 6.1: Appliances fitted with a supply cord may be of class 0 (USA).
- 6.2: The addition does not apply (USA).
- Clause 7: Additional markings and instructions are required (USA).
- 11.7: Rest periods are not allowed (USA).
- 11.8: Surface temperature requirement is different (USA).
- 11.101: The test is not carried out (USA).
- 19.2: Different methods are used to restrict heat dissipation (USA).
- 19.101: The test is different (USA).
- 19.102: The test is different (USA).
- 21.101: The test is different (USA).
- Clause 22: Hand-held hairdryers are required to incorporate a protective device to comply with an immersion test (USA).
- 22.36: The requirement does not apply (USA).
- 22.102: The requirement does not apply (USA).
- 24.1.3: The number of cycles of operation is different (USA).
- 24.101: The requirement does not apply (USA).
- 25.7: PVC sheathed cords are not allowed if they could contact surfaces over 121 °C (USA).
- 25.14: The test is different (USA).
- 25.101: The test is 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.

NOTE 1 For example, if appliances within the scope of this Part 2 include an ion generator, then IEC 60335-2-65 is applicable as far as is reasonable.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 2 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 3 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 2-23: Particular requirements for appliances for skin or hair care

### 1 Scope

This clause of Part 1 is replaced by the following.

This part of IEC 60335 deals with the safety of electric appliances for the care of skin or hair of persons or animals and intended for household and similar purposes, their **rated voltage** being not more than 250 V.

NOTE 101 Examples of appliances that are within the scope of this standard are

- curling combs;
- curling irons;
- curling rollers with separate heaters;
- facial saunas;
- hairdryers;
- hair straighteners;
- hand dryers;
- **heaters for detachable curlers;**
- permanent-wave appliances.

NOTE 102 Appliances covered by this standard may incorporate steam-producing or spray-producing devices.

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 are appliances for use in hairdressing salons.

This standard deals with the reasonably foreseeable hazards presented by appliances that are encountered by all persons. 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 104 Attention is drawn to the fact that

- it is recognized that persons having very extensive and complex disabilities can have needs beyond the level addressed in this standard.
- 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

- 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);
- shavers, hair clippers and similar appliances (IEC 60335-2-8);

- blankets, pads, clothing and similar flexible heating appliances (IEC 60335-2-17);
- appliances for skin exposure to optical radiation (IEC 60335-2-27);
- sauna heating appliances (IEC 60335-2-53);
- cosmetic and beauty care appliances incorporating lasers and intense light sources (IEC 60335-2-113)
- appliances intended for medical purposes (IEC 60601).

## 2 Normative references

This clause of Part 1 is applicable except as follows:

*Addition:*

ISO 7010:2011, *Graphical symbols – Safety colours and safety signs – Registered safety signs*

## 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 following conditions.

**Helmet-type hairdryers** are operated with the axis of the hood inclined at an angle of 60° to the horizontal or the maximum angle allowed by the construction if this is less. A dull black-painted wooden sphere, 200 mm in diameter, is placed in the hood so that its centre coincides with the axis of the hood, the shortest distance between the sphere and the air-outlet grille being 50 mm.

Hairdryers having a flexible hood attachment are operated with the hood attachment placed over the wire frame of Figure 101, the frame being positioned over the wooden sphere.

**Helmet-type hairdryers** that are supported by the head are operated as hairdryers having a flexible hood attachment.

**Hand-held hairdryers** are operated with unrestricted airflow directed downwards.

Permanent-wave appliances are operated in the normal position of use, the curling rollers hanging freely.

**Heaters for detachable curlers** are operated in the normal position of use together with the curlers.

Curling irons, curling combs and similar appliances are operated with their major axis horizontal.

Appliances having steam-producing or spray-producing devices are operated with the container empty or filled, whichever is more unfavourable. However, if the appliance is marked to indicate that it is to be used with the container filled, the container is filled. Water is added, when necessary, to compensate for evaporation.

Hand dryers are operated in the normal position of use with unrestricted airflow.

Facial saunas are operated in the normal position of use and filled with water. Water is added, when necessary, to maintain the steam output.

**3.101****helmet-type hairdryer**

hairdryer having a rigid hood that is placed over the head in normal use

Note 1 to entry: The hood may be supported by a stand or have means for attaching to a support.

**3.102****heater for detachable curlers**

appliance for heating curling irons or curling rollers that accumulate heat

**3.103****swivel connection**

means for connecting the **supply cord** so that the appliance can be rotated continuously without twisting the cord

**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:**

*The additional test of 25.14 for **hand-held appliances** is carried out on a separate appliance.*

**6 Classification**

This clause of Part 1 is applicable except as follows.

**6.1 Replacement:**

Appliances shall be of one of the following classes with respect to protection against electric shock:

- hairdryers, curling irons, curling combs, facial saunas and other steam-producing or spray-producing appliances shall be **class II** or **class III**. However, **fixed hairdryers** intended to be permanently connected to fixed wiring, **helmet-type hairdryers** for hairdressers and steam-producing or spray-producing appliances for hairdressers may be **class I**;
- other appliances shall be **class I**, **class II** or **class III**.

*Compliance is checked by inspection and by the relevant tests.*

**6.2 Addition:**

Hand dryers shall be at least IPX1.

Curling rollers of permanent-wave appliances shall be at least IPX4.

**7 Marking and instructions**

This clause of Part 1 is applicable except as follows.

**7.1 Addition:**

**Portable hairdryers**, curling irons and similar appliances shall be marked with symbol ISO 7010-P026 (2011-05) or with the substance of the following:

WARNING: Do not use this appliance near water.

**7.6 Addition:**

[Symbol ISO 7010-P026 (2011-05)]

Do not use this device in a bathtub, shower, or water-filled reservoir

**7.12 Addition:**

The instructions for **portable appliances** shall include the substance of the following:

- when the appliance is used in a bathroom, unplug it after use since the proximity of water presents a hazard even when the appliance is switched off;
- for additional protection, the installation of a residual current device (RCD) having a rated residual operating current not exceeding 30 mA is advisable in the electrical circuit supplying the bathroom. Ask your installer for advice

If symbol ISO 7010-P026 (2011-05) is used the meaning shall be explained. Instructions shall also state the substance of the following:

WARNING Do not use this appliance near bathtubs, showers, basins or other vessels containing water.

The instructions for facial saunas shall state that after use the appliance should be cleaned to avoid the accumulation of grease and other residues.

The instructions for hair straighteners and curling irons shall include the substance of the following:

- burn hazard. Keep appliance out of reach from young children, particularly during use and cool down;
- when the appliance is connected to the power supply, never leave it unattended;
- always place the appliance with the stand, if any, on a heat-resistant, stable flat surface.

**7.12.1 Addition:**

The installation instructions for **fixed hairdryers** intended for use in bathrooms shall include the substance of the following:

This hairdryer must be fixed out of reach of a person taking a bath or shower.

If the hand-held part of the hairdryer incorporates electrical components, the instructions shall state that the appliance must be fixed so that the hand-held part, when fully extended, is out of reach of a person taking a bath or shower.

**7.12.9 Addition:**

Supplying of instructions in an alternative format is not required for **fixed hand dryers** and **fixed hairdryers**.

#### 7.14 Addition:

The outer diameter of the circle in symbol ISO 7010-P026 (2011-05) shall be at least 10 mm.

*Compliance is checked by measurement.*

#### 7.15 Addition:

The additional marking required for **portable hairdryers**, curling irons and similar appliances may alternatively be on a warning flag tag that is permanently attached to the **supply cord** close to the plug.

NOTE A flag tag is otherwise referred to as a swing tag or cord tag or other permanently affixed label on a cord.

### 8 Protection against access to live parts

This clause of Part 1 is applicable except as follows.

8.1.3 Not 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 except as follows:

#### 10.1 Addition:

*The representative period for appliances incorporating **PTC heating elements** is 30 min.*

#### 10.2 Addition:

*The representative period for appliances incorporating **PTC heating elements** is 30 min.*

### 11 Heating

This clause of Part 1 is applicable except as follows.

#### 11.1 Addition:

*For appliances incorporating a **swivel connection**, compliance is also checked by the test of 11.101.*

#### 11.2 Addition:

*Appliances intended to be used on a stand or attached to a support are placed to give the most unfavourable results.*

***Hand-held appliances** with an integral rest are also tested when placed on their rest away from the walls of the test corner.*

**11.4 Addition:**

If the temperature rise limits are exceeded in appliances incorporating motors, transformers or **electronic circuits**, and the power input is lower than the **rated power input**, the test is repeated with the appliance supplied at 1,06 times **rated voltage**.

**11.6 Replacement:**

**Combined appliances** are operated as **heating appliances**.

**11.7 Replacement:**

Appliances without a timer are operated

- for 30 min, for **hand-held appliances**;
- in cycles of 30 s on and 5 s off until steady conditions are established, for hand dryers that are automatically controlled by the presence of the hands;
- until steady conditions are established, for other appliances.

Appliances incorporating a timer are operated in cycles until steady conditions are established. Each cycle consists of the maximum operating time of the timer followed by a rest period of 5 s.

**11.8 Addition:**

The temperature rise limits of motors, transformers and components of **electronic circuits**, including parts directly influenced by them, may be exceeded when the appliance is operated at 1,15 times **rated power input**.

The temperature rise of the handles of curling irons heated by a **heater for detachable curlers** incorporating a timer is determined at the end of the first cycle.

The temperature rise of **detachable curlers** is not measured.

**11.101** Appliances incorporating a **swivel connection** are positioned with their major axis horizontal, the **supply cord** hanging vertically. A pull force of 1 N is applied to the **supply cord**.

The appliance is supplied at **rated voltage**, the current being 1,25 times the **rated current**.

NOTE 1 This condition can be obtained by means of a resistor connected in place of the heating element.

The appliance is rotated about its major axis at a rate of approximately 50 r/min, the direction of rotation being reversed every 20 revolutions. The test is carried out for 1 500 revolutions.

The temperature rise of the sliding contacts shall not exceed 65 K.

NOTE 2 The temperature rise can be determined by melting particles or colour changing indicators.

**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.

## 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.

### 19.1 Addition:

Hairdryers are also subjected to the tests of 19.101 and 19.102.

### 19.2 Addition:

*Restricted heat dissipation is obtained as follows:*

- *motors are disconnected;*
- ***hand-held hairdryers** are placed on the floor of the test corner in any stable position likely to occur;*
- *appliances intended to be filled with water are operated empty;*
- ***hand-held appliances** without an integral rest are placed on the floor of the test corner in any stable position likely to occur.*

Hairdryers having a flexible hood attachment are also tested with the motor operating, the airflow through the hose being restricted to give the most unfavourable result.

**Heaters for detachable curlers** are placed on a piece of low-density glass-fibre insulation having a coefficient of thermal insulation of approximately 2,5 m<sup>2</sup>K/W.

### 19.7 Modification:

*The test is carried out for 5 min except for*

- ***hand-held appliances;***
- *appliances that have to be kept switched on by hand;*
- *appliances incorporating a timer.*

*During and after the test, the appliance shall not emit flames.*

**Hand dryers** are subjected to the test only if the locked rotor torque is less than the full load torque.

**19.9** Not applicable.

**19.10** *Addition:*

*The test is carried out with the heating elements disconnected or switched off.*

**19.101** *Hairdryers are operated as specified in Clause 11 until steady conditions are established. The voltage at the terminals of the motor is then reduced until the running speed of the motor is just sufficient to prevent the thermal cut-out from operating, the power input to the heating element being maintained at 1,15 times rated power input.*

*The voltage is decreased at*

- 1 V per minute, for motors having a **working voltage** not exceeding 30 V;
- 5 V per minute, for motors having a **working voltage** exceeding 30 V.

*The appliance is then operated until steady conditions are established.*

**19.102** *Portable hair dryers are operated under normal operation at 1,15 times rated power input.*

*A sheet of polyethylene approximately 200 mm × 200 mm and having a thickness of 50 μm is placed against the air-inlet and moved in any direction in order to reduce the airflow so that the most unfavourable conditions are established.*

*The test is carried out for 30 min.*

*The test is repeated with the airflow directed horizontally.*

NOTE The most unfavourable conditions are usually obtained by positioning the polyethylene sheet so that the **thermal cut-out** is prevented from operating.

## **20 Stability and mechanical hazards**

This clause of Part 1 is applicable.

## **21 Mechanical strength**

This clause of Part 1 is applicable except as follows.

**21.1** *Addition:*

**Hand-held appliances** are also subjected to the test of 21.101.

**21.101** *The appliance is operated under the conditions of Clause 11. It is then placed on a horizontal surface positioned 700 mm above a rigidly supported hardwood board.*

It is pulled from the surface by its **supply cord** and allowed to drop freely. The test is carried out five times, the appliance being placed on the horizontal surface in different positions likely to occur.

The appliance shall not be damaged to such an extent that compliance with this standard is impaired. In particular, the appliance shall not emit flames or molten material and the requirements of Clauses 8 and 29 shall be fulfilled.

## 22 Construction

This clause of Part 1 is applicable except as follows.

### 22.13 Addition:

To avoid accidental contact with hot surfaces, the handle of curling irons and hair straighteners shall be clearly identified by tactile means, or colour or other visual means.

### 22.24 Addition:

The heating element shall also be unlikely to come into contact with the skin or hair if it ruptures.

### 22.32 Addition:

**Supplementary insulation** and **reinforced insulation** in **class II curling irons** and hair straighteners shall be resistant to aging.

Insulation mentioned in Table 3 is considered to be resistant to aging.

*For insulation not mentioned in Table 3 compliance is checked by the following test.*

*Samples of insulation not mentioned in Table 3 are suspended in a heating cabinet so that there is at least 10 mm between the samples, and between the samples and the top and bottom of the cabinet. The samples shall be at least 50 mm from the walls of the cabinet. The volume of the samples is not to exceed one-tenth of the capacity of the cabinet.*

*The cabinet is ventilated by natural convection, with at least three air changes per hour. The temperature of the cabinet is maintained at  $30\text{ K} \pm 1\text{ K}$  in excess of the temperature rise of the part determined during the tests of Clause 19 or at  $70\text{ °C} \pm 2\text{ °C}$ , whichever is higher.*

*The samples are kept in the cabinet for 240 h and then at ambient temperature for at least 16 h.*

*The samples shall show no cracks and shall withstand the electric strength test of 16.3 for **supplementary insulation**.*

### 22.36 Addition:

For **class I appliances**, other than hand dryers and face dryers, metal parts that could be in contact with skin or hair in normal use shall be separated from **live parts** by **double insulation** or **reinforced insulation** and shall not be earthed.

### 22.40 Addition:

The switch in the **off-position** shall disconnect **electronic circuits**, unless compliance with Clause 19 does not depend on the operation of a **self-resetting thermal cut-out**.

**22.101** Appliances having steam-producing or spray-producing devices shall be constructed so that there is no spillage or unintentional burst of steam or water that is likely to cause a hazard.

*Compliance is checked during the test of Clause 11.*

**22.102** Curling rollers of permanent-wave appliances having integral heating elements shall be supplied with **safety extra-low voltage** not exceeding 24 V.

*Compliance is checked by inspection and by the relevant tests.*

**22.103** Hairdryers shall be fitted with a grid or similar protection means to limit the risk of hair being sucked into the air intake.

*Compliance is checked by inspection.*

## **23 Internal wiring**

This clause of Part 1 is applicable except as follows.

### **23.3 Addition:**

*The number of flexings for conductors that are only flexed when the appliance is stored is 5 000.*

## **24 Components**

This clause of Part 1 is applicable except as follows.

### **24.1.3 Addition:**

*Switches incorporated in hand dryers are subjected to 50 000 cycles of operation.*

### **24.2 Modification:**

**Helmet-type hairdryers** and permanent-wave appliances may incorporate a switch in a flexible cord.

**24.101 Protective devices** incorporated in **fixed hand dryers** in order to comply with 19.2 and 19.3 shall not be self-resetting.

*Compliance is checked by inspection during the tests of 19.2 and 19.3.*

## **25 Supply connection and external flexible cords**

This clause of Part 1 is applicable except as follows.

### **25.5 Addition:**

**Type X attachment** is not allowed if the **supply cord** is fitted with a warning flag tag.

**Type Z attachment** is allowed for

- **hand-held appliances;**
- hairdryers with a flexible hood attachment;
- **heaters for detachable curlers** having not more than 10 curlers.

### 25.7 Modification:

Light polyvinyl chloride sheathed cords (code designation 60227 IEC 52) are allowed regardless of the mass of the appliance.

The temperature rise limit of 75 K is increased to 130 K provided that the temperature rise decreases to 75 K within 5 min of the appliance being switched off.

### 25.14 Addition:

The force applied to the **supply cord** of appliances provided with a **swivel connection** is

- 20 N, for cords having a nominal cross-sectional area exceeding 0,75 mm<sup>2</sup>;
- 10 N, for other cords.

The appliance is mounted so that the direction of flexing corresponds to that most likely to occur when the **supply cord** is wound around the appliance for storage.

Unless incorporating a **swivel connection**, **hand-held appliances** are additionally tested while mounted on an apparatus similar to that of Figure 8 with the **supply cord** hanging vertically and loaded with a force of 10 N. The oscillating part of the apparatus is moved through an angle of 180° and back to the original position. The number of flexings is 10 000, the rate of flexing being 6 per min.

### 25.15 Addition:

The **swivel connection** is not locked during the tests.

#### Modification:

For appliances with a **swivel connection**, the value of 30 N in Table 12 is increased to 60 N.

**25.101 Swivel connections** shall be adequate for normal use of the appliance.

Compliance is checked by the following test.

The appliance is operated under the conditions specified in 11.101, the number of revolutions being increased to 20 000.

After this test, the **swivel connection** and the **supply cord** shall be fit for further use. **Live parts** shall not have become accessible and the appliance shall withstand the electric strength test of 16.3.

## 26 Terminals for external conductors

This clause of Part 1 is applicable except as follows.

### 26.10 Addition:

Terminals with screw clamping and screwless terminals shall not be used for **type X attachments** in appliances incorporating a **swivel connection**.

## 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.

### 29.3 Addition:

For curling irons and hair straighteners the distance through insulation between metal parts separated by **supplementary insulation** may be reduced to 0,6 mm, provided that the distance through **basic insulation** is at least 1 mm.

## 30 Resistance to heat and fire

This clause of Part 1 is applicable except as follows.

### 30.1 Addition:

*For hand dryers and hairdryers, the temperature rises occurring during the tests of Clause 19 are not taken into account.*

### 30.2 Addition:

For **heaters for detachable curlers**, 30.2.3 is applicable. For other appliances, 30.2.2 is applicable.

**30.101 Helmet-type hairdryers** shall be resistant to fire.

*Compliance is checked by inspection and by applying the needle-flame test of Annex E to*

- parts of non-metallic material enclosing the heating element and other electrical components;*
- non-metallic parts within the enclosure.*

*The needle-flame test is not carried out on material classified as V-0 or V-1 according to IEC 60695-11-10, provided that the test sample was no thicker than the relevant part.*

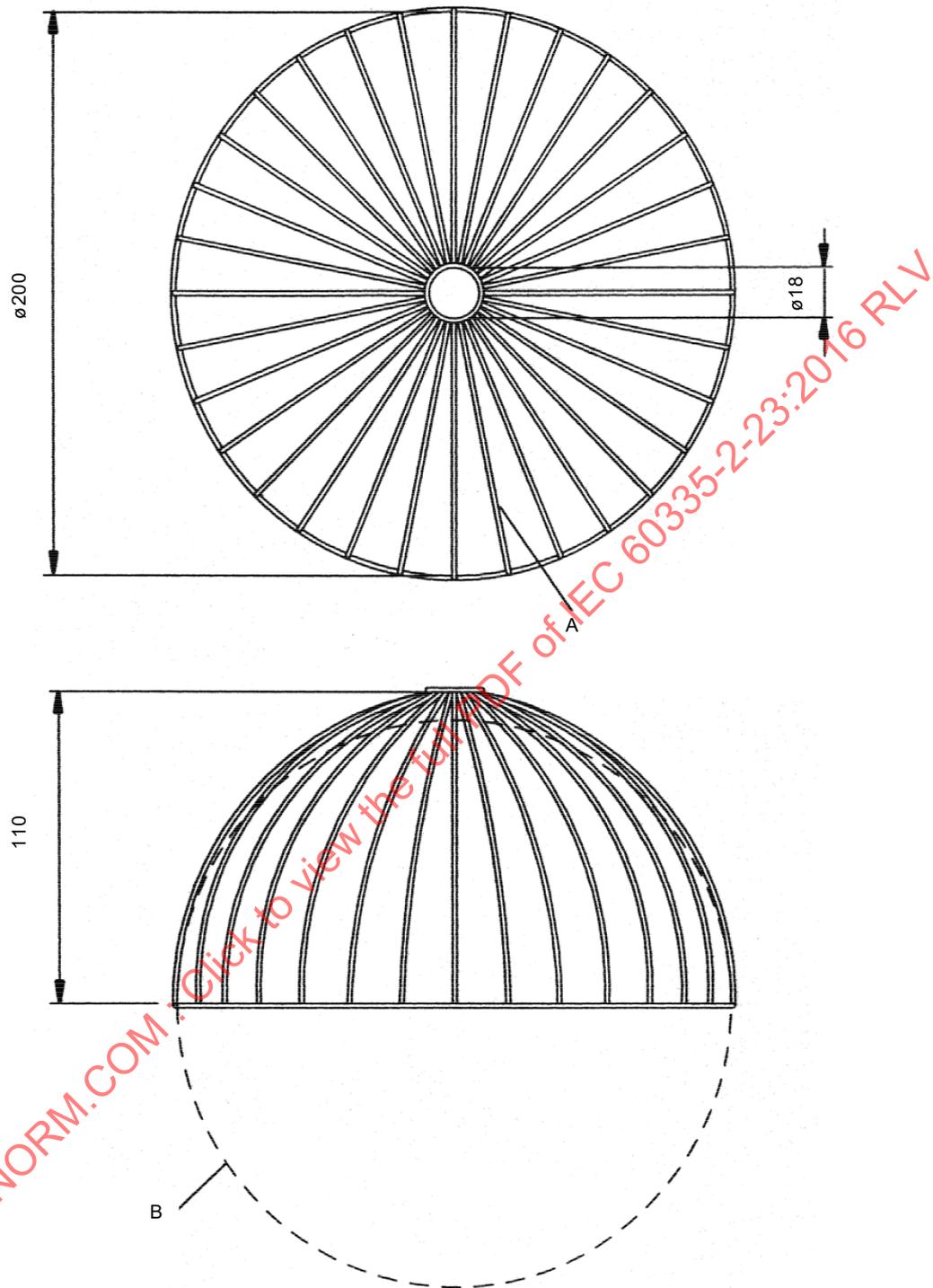
## 31 Resistance to rusting

This clause of Part 1 is applicable.

## 32 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.

Dimensions in millimetres



IEC

**Key**

- A frame consisting of 32 equally spaced wires  $\varnothing 1,5 \text{ mm} \pm 0,5 \text{ mm}$
- B location of the wooden sphere

**Figure 101 – Wire frame**

## Annexes

The annexes of Part 1 are applicable.

## Bibliography

The bibliography of Part 1 is applicable except as follows.

*Addition:*

IEC 60335-2-8, *Household and similar electrical appliances – Safety – Part 2-8: Particular requirements for shavers, hair-clippers and similar appliances*

IEC 60335-2-17, *Household and similar electrical appliances – Safety – Part 2-17: Particular requirements for blankets, pads, clothing and similar flexible heating appliances*

IEC 60335-2-27, *Household and similar electrical appliances – Safety – Part 2-27: Particular requirements for appliances for skin exposure to ultraviolet and infrared radiation*

IEC 60335-2-53, *Household and similar electrical appliances – Safety – Part 2-53: Particular requirements for sauna heating appliances and infrared cabins*

IEC 60335-2-65, *Household and similar electrical appliances – Safety – Part 2-65: Particular requirements for air-cleaning appliances*

IEC 60335-2-113, *Household and similar electrical appliances – Safety – Part 2-113: Particular requirements for cosmetic and beauty care appliances incorporating lasers and intense light sources*

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## COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

**APPAREILS ÉLECTRODOMESTIQUES ET ANALOGUES –  
SÉCURITÉ –****Partie 2-23: Exigences particulières pour les appareils  
destinés aux soins de la peau ou des cheveux**

## AVANT-PROPOS

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- 8) L'attention est attirée sur les références normatives citées dans cette publication. L'utilisation de publications référencées est obligatoire pour une application correcte de la présente publication.
- 9) L'attention est attirée sur le fait que certains des éléments de la présente Publication de l'IEC peuvent faire l'objet de droits de brevet. L'IEC ne saurait être tenue pour responsable de ne pas avoir identifié de tels droits de brevets et de ne pas avoir signalé leur existence.

La présente partie de la Norme internationale IEC 60335 a été établie par le comité d'études 61 de l'IEC: Sécurité des appareils électrodomestiques et analogues.

Cette sixième édition annule et remplace la cinquième édition parue en 2003, son Amendement 1 (2008) et son Amendement 2 (2012). Cette édition constitue une révision technique.

Cette édition inclut les modifications majeures suivantes par rapport à la quatrième édition de l'IEC 60335-2-23 (les modifications mineures ne sont pas répertoriées):

- ajout des lisseurs à la liste d'exemples couverts par la norme;
- modification de 7.12 pour qu'il s'applique aux appareils, et non uniquement aux sèche-cheveux;
- ajout de nouvelles instructions en 7.12 relatives aux lisseurs et aux fers à friser;
- exemption des sèche-cheveux installés à poste fixe et des sèche-mains installés à poste fixe de la fourniture d'un autre format d'instructions;
- exclusion des surfaces des parties frisantes amovibles de l'exigence relative à l'échauffement au Paragraphe 11.8;
- clarification dans le Paragraphe 19.7 précisant que l'appareil ne doit pas émettre de flammes après l'essai;
- clarification de la méthode d'essai et des critères de conformité au Paragraphe 21.101;
- ajout d'une exigence en 22.13 visant à délimiter les poignées sur les fers à friser et les lisseurs;
- en 22.103, ajout d'une exigence relative à la protection contre l'aspiration des cheveux au niveau de l'arrivée d'air du sèche-cheveux;
- révision du Paragraphe 24.101 pour indiquer que les dispositifs de protection ne doivent pas être à réarmement automatique;
- révision et conversion de notes en texte normatif dans les Paragraphes 19.7, 22.32, et 25.14.

Le texte de cette norme est issu des documents suivants:

FDIS	Rapport de vote
61/5135/FDIS	61/5171/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette norme.

Cette publication a été rédigée selon les Directives ISO/IEC, Partie 2.

La présente partie 2 doit être utilisée conjointement avec la dernière édition de l'IEC 60335-1 et ses amendements. Elle a été établie sur la base de la cinquième édition (2010) de cette norme.

NOTE 1 L'expression "Partie 1" utilisée dans la présente norme fait référence à l'IEC 60335-1.

La présente partie 2 complète ou modifie les articles correspondants de l'IEC 60335-1, de façon à transformer cette publication en norme IEC: Exigences de sécurité pour les appareils destinés aux soins de la peau ou des cheveux.

Lorsqu'un paragraphe particulier de la Partie 1 n'est pas mentionné dans cette partie 2, ce paragraphe s'applique pour autant qu'il est raisonnable. Lorsque la présente norme spécifie "addition", "modification" ou "remplacement", le texte correspondant de la Partie 1 doit être adapté en conséquence.

NOTE 2 Le système de numérotation suivant est utilisé:

- paragraphes, tableaux et figures: ceux qui sont numérotés à partir de 101 sont complémentaires à ceux de la Partie 1;
- notes: à l'exception de celles qui sont dans un nouveau paragraphe ou de celles qui concernent des notes de la Partie 1, les notes sont numérotées à partir de 101, y compris celles des articles ou paragraphes qui sont modifiés ou remplacés;
- annexes: les annexes supplémentaires sont appelées AA, BB, etc.

NOTE 3 Les caractères d'imprimerie suivants sont utilisés:

- exigences: caractères romains;
- *modalités d'essais: caractères italiques;*
- notes: petits caractères romains.

Les mots en **gras** dans le texte sont définis à l'Article 3. Lorsqu'une définition concerne un adjectif, l'adjectif et le nom associé figurent également en gras.

Le comité a décidé que le contenu de cette publication ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous "http://webstore.iec.ch" dans les données relatives à la publication recherchée. A cette date, la publication sera

- reconduite,
- supprimée,
- remplacée par une édition révisée, ou
- amendée.

NOTE 4 L'attention des Comités Nationaux est attirée sur le fait que les fabricants d'appareils et les organismes d'essai peuvent avoir besoin d'une période transitoire après la publication d'une nouvelle publication IEC, ou d'une publication amendée ou révisée, pour fabriquer des produits conformes aux nouvelles exigences et pour adapter leurs équipements aux nouveaux essais ou aux essais révisés.

Le comité recommande que le contenu de cette publication soit entériné au niveau national au plus tôt 12 mois et au plus tard 36 mois après la date de publication.

Les différences suivantes existent dans les pays indiqués ci-après.

- 3.1.9: Le fonctionnement normal est différent (États-Unis).
- 6.1: Les appareils comportant un câble d'alimentation peuvent être de la classe 0 (États-Unis).
- 6.2: L'addition n'est pas applicable (États-Unis).
- Article 7: Des marquages et des instructions supplémentaires sont exigés (États-Unis).
- 11.7: Des périodes de repos ne sont pas admises (États-Unis).
- 11.8: L'exigence relative à la température de surface est différente (États-Unis).
- 11.101: L'essai n'est pas effectué (États-Unis).
- 19.2: D'autres méthodes sont utilisées pour obtenir un dégagement de chaleur réduit (États-Unis).
- 19.101: L'essai est différent (États-Unis).
- 19.102: L'essai est différent (États-Unis).
- 21.101: L'essai est différent (États-Unis).
- Article 22: Les sèche-cheveux portatifs doivent comporter un dispositif de protection pour satisfaire à un essai d'immersion (États-Unis).
- 22.36: L'exigence n'est pas applicable (États-Unis).
- 22.102: L'exigence n'est pas applicable (États-Unis).
- 24.1.3: Le nombre de cycles de fonctionnement est différent (États-Unis).
- 24.101: L'exigence n'est pas applicable (États-Unis).
- 25.7: Les câbles sous gaine de PVC ne sont pas autorisés s'ils peuvent venir au contact de surfaces dont la température dépasse 121 °C (États-Unis).
- 25.14: L'essai est différent (États-Unis).
- 25.101: L'essai est différent (États-Unis).

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## INTRODUCTION

Il a été considéré en établissant la présente Norme internationale que l'exécution de ses dispositions était confiée à des personnes expérimentées et ayant une qualification appropriée.

La présente norme reconnaît le niveau de protection internationalement accepté contre les dangers tels que les dangers électriques, mécaniques, thermiques, liés au feu et au rayonnement des appareils, lorsqu'ils fonctionnent comme en usage normal en tenant compte des instructions du fabricant. Elle couvre également les situations anormales auxquelles on peut s'attendre dans la pratique et prend en considération les phénomènes électromagnétiques qui peuvent affecter le fonctionnement en toute sécurité des appareils.

Cette norme tient compte autant que possible des exigences de l'IEC 60364, de façon à rester compatible avec les règles d'installation quand l'appareil est raccordé au réseau d'alimentation. Cependant, des règles nationales d'installation peuvent être différentes.

Si un appareil compris dans le domaine d'application de cette norme comporte également des fonctions qui sont couvertes par une autre partie 2 de l'IEC 60335, la partie 2 correspondante est appliquée à chaque fonction séparément, dans la limite du raisonnable. Si cela est applicable, l'influence d'une fonction sur les autres fonctions est prise en compte.

NOTE 1 Par exemple, si les appareils compris dans le domaine d'application de la présente Partie 2 comportent un générateur d'ions, alors l'IEC 60335-2-65 est applicable dans la limite du raisonnable.

Lorsqu'une partie 2 ne comporte pas d'exigences complémentaires pour couvrir les dangers traités dans la Partie 1, la Partie 1 s'applique.

NOTE 2 Cela signifie que les comités d'études responsables pour les parties 2 ont déterminé qu'il n'était pas nécessaire de spécifier des exigences particulières pour l'appareil en question en plus des exigences générales.

Cette norme est une norme de famille de produits traitant de la sécurité des appareils et a préséance sur les normes horizontales et génériques couvrant le même sujet.

NOTE 3 Les normes horizontales et génériques couvrant un danger ne sont pas applicables parce qu'elles ont été prises en considération lorsque les exigences générales et particulières ont été étudiées pour la série de normes IEC 60335. Par exemple, dans le cas des exigences de température de surface pour de nombreux appareils, des normes génériques, comme l'ISO 13732-1 pour les surfaces chaudes, ne sont pas applicables en plus de la Partie 1 ou des parties 2.

Un appareil conforme au texte de la présente norme ne sera pas nécessairement jugé conforme aux principes de sécurité de la norme si, lorsqu'il est examiné et soumis aux essais, il apparaît qu'il présente d'autres caractéristiques qui compromettent le niveau de sécurité visé par ces exigences.

Un appareil utilisant des matériaux ou présentant des modes de construction différents de ceux décrits dans les exigences de cette norme peut être examiné et soumis à essai en fonction de l'objectif poursuivi par ces exigences et, s'il est jugé pratiquement équivalent, il peut être estimé conforme à la présente norme.

## APPAREILS ÉLECTRODOMESTIQUES ET ANALOGUES – SÉCURITÉ –

### Partie 2-23: Exigences particulières pour les appareils destinés aux soins de la peau ou des cheveux

#### 1 Domaine d'application

L'article de la Partie 1 est remplacé par l'article ci-après.

La présente partie de l'IEC 60335 traite de la sécurité des appareils électriques pour les soins de la peau ou des cheveux des personnes ou des animaux, destinés aux usages domestiques et analogues et dont la **tension assignée** n'est pas supérieure à 250 V.

NOTE 101 Des exemples d'appareils compris dans le domaine d'application de la présente norme sont donnés ci-après:

- les peignes à friser;
- les fers à friser;
- les rouleaux à friser avec dispositif de chauffage séparé;
- les appareils de sauna facial;
- les sèche-cheveux;
- les lisseurs;
- les sèche-mains;
- les **dispositifs de chauffage pour parties frisantes amovibles**;
- les appareils à permanente.

NOTE 102 Les appareils couverts par la présente norme peuvent comporter des dispositifs à production de vapeur ou à aspersion.

Les appareils non destinés à un usage domestique normal, mais qui peuvent néanmoins constituer une source de danger pour le public, tels que les appareils destinés à être utilisés par des utilisateurs non avertis dans des magasins, chez des artisans et dans des fermes, sont compris dans le domaine d'application de la présente norme.

NOTE 103 Les appareils utilisés dans les salons de coiffure constituent des exemples de ce type d'appareils.

La présente norme traite des dangers raisonnablement prévisibles présentés par les appareils, encourus par tous les individus. Cependant, cette norme ne tient pas compte en général

- des personnes (y compris des enfants) dont
  - les capacités physiques, sensorielles ou mentales; ou
  - le manque d'expérience et de connaissanceles empêchent d'utiliser l'appareil en toute sécurité sans surveillance ou instruction;
- de l'utilisation de l'appareil comme jouet par des enfants.

NOTE 104 L'attention est attirée sur le fait que

- il est reconnu que des personnes présentant des handicaps très importants et complexes sont susceptibles d'avoir des besoins supérieurs au niveau couvert dans la présente norme.
- pour les appareils destinés à être utilisés dans des véhicules ou à bord de navires ou d'avions, des exigences supplémentaires peuvent être nécessaires;
- dans de nombreux pays, des exigences supplémentaires sont spécifiées par les organismes nationaux de la santé, par les organismes nationaux responsables de la protection des travailleurs et par des organismes similaires.

NOTE 105 La présente norme ne s'applique pas

- aux appareils prévus exclusivement pour des usages industriels;
- aux appareils destinés à être utilisés dans des locaux présentant des conditions particulières, telles que la présence d'une atmosphère corrosive ou explosive (poussière, vapeur ou gaz);
- aux rasoirs, tondeuses et appareils analogues (IEC 60335-2-8);
- aux couvertures, coussins, vêtements et appareils chauffants souples analogues (IEC 60335-2-17);
- aux appareils d'exposition de la peau au rayonnement optique (IEC 60335-2-27);
- aux appareils de chauffage des saunas (IEC 60335-2-53);
- appareils destinés aux soins cosmétiques et esthétiques comportant des lasers et des sources de lumière de forte intensité (IEC 60335-2-113)
- aux appareils à usage médical (IEC 60601).

## 2 Références normatives

L'article de la Partie 1 est applicable avec l'exception suivante:

*Addition:*

ISO 7010:2011, *Symboles graphiques – Couleurs de sécurité et signaux de sécurité – Signaux de sécurité enregistrés*

## 3 Termes et définitions

L'article de la Partie 1 est applicable avec les exceptions suivantes.

### 3.1.9 Remplacement:

#### **conditions de fonctionnement normal**

fonctionnement de l'appareil dans les conditions suivantes:

Les **casques sèche-cheveux** sont mis en fonctionnement, l'axe du casque étant incliné selon un angle de 60° par rapport à l'horizontale ou selon l'angle maximal autorisé par la construction s'il est inférieur. Une sphère en bois peint en noir mat, de 200 mm de diamètre, est placée dans le casque de façon que son centre coïncide avec l'axe du casque, la plus courte distance entre la sphère et la grille de sortie d'air étant de 50 mm.

Les sèche-cheveux munis d'un casque accessoire souple sont mis en fonctionnement, le casque accessoire étant mis en place sur l'armature de fils de la Figure 101, l'armature étant placée sur la sphère en bois.

Les **casques sèche-cheveux** soutenus par la tête sont mis en fonctionnement comme les sèche-cheveux munis d'un casque accessoire souple.

Les **sèche-cheveux portatifs** sont mis en fonctionnement, le courant d'air n'étant pas limité et étant dirigé vers le bas.

Les appareils à permanente sont mis en fonctionnement en position normale d'emploi, les rouleaux à friser pendant librement.

Les **dispositifs de chauffage pour parties frisantes amovibles** sont mis en fonctionnement avec les parties frisantes, dans la position normale d'emploi.

Les fers à friser, les peignes à friser et les appareils analogues sont mis en fonctionnement, leur grand axe étant dans le plan horizontal.

Les appareils munis de dispositifs à production de vapeur ou à aspersion sont mis en fonctionnement, réservoir vide ou plein, suivant la condition la plus défavorable. Toutefois, si le marquage sur l'appareil indique que celui-ci doit être mis en fonctionnement avec le

réservoir plein, le réservoir est rempli. De l'eau est ajoutée, si nécessaire, pour compenser l'évaporation.

Les sèche-mains sont mis en fonctionnement en position normale d'emploi, le courant d'air n'étant pas limité.

Les appareils de sauna facial sont mis en fonctionnement en position normale d'emploi, remplis d'eau. De l'eau est ajoutée, si nécessaire, afin de maintenir la production de vapeur.

### 3.101

#### **casque sèche-cheveux**

sèche-cheveux muni d'un casque rigide qui, en usage normal, est placé au-dessus de la tête de l'utilisateur

Note 1 à l'article: Le casque peut comporter un support ou des moyens de fixation à un support.

### 3.102

#### **dispositif de chauffage pour parties frisantes amovibles**

appareil destiné à chauffer les fers à friser ou les rouleaux à friser qui accumulent de la chaleur

### 3.103

#### **connexion pivotante**

moyen de raccorder le **câble d'alimentation** de telle sorte que l'appareil puisse être tourné de façon continue sans que le câble ne soit tordu

## 4 Exigences générales

L'article de la Partie 1 est applicable.

## 5 Conditions générales d'essais

L'article de la Partie 1 est applicable avec l'exception suivante.

### 5.2 *Addition:*

L'essai complémentaire de 25.14 pour les **appareils portatifs** est effectué sur un appareil séparé.

## 6 Classification

L'article de la Partie 1 est applicable avec les exceptions suivantes.

### 6.1 *Remplacement:*

Les appareils doivent appartenir à l'une des classes suivantes, par rapport à la protection contre les chocs électriques:

- les sèche-cheveux, les fers à friser, les peignes à friser, les appareils de sauna facial et les autres appareils à production de vapeur ou à aspersion doivent être de la **classe II** ou de la **classe III**. Toutefois, les **sèche-cheveux installés à poste fixe** destinés à être raccordés de façon permanente aux câblages fixes, les **casques sèche-cheveux** pour coiffeurs et les appareils à production de vapeur et à aspersion pour coiffeurs peuvent être de la **classe I**;
- les autres appareils doivent être de la **classe I**, de la **classe II** ou de la **classe III**.

La vérification est effectuée par examen et par les essais correspondants.

## 6.2 Addition:

Les sèche-mains doivent être au moins IPX1.

Les rouleaux à friser des appareils à permanente doivent être au moins IPX4.

## 7 Marquage et instructions

L'article de la Partie 1 est applicable avec les exceptions suivantes.

### 7.1 Addition:

Les **sèche-cheveux portatifs**, les fers à friser et appareils analogues doivent porter le symbole ISO 7010-P026 (2011-05) ou porter en substance la mise en garde suivante:

MISE EN GARDE: Ne pas utiliser cet appareil près de l'eau.

### 7.6 Addition:



[Symbole ISO 7010-P026 (2011-05)]

Ne pas utiliser ce dispositif dans une baignoire, une douche ou dans un réservoir rempli d'eau

### 7.12 Addition:

Les instructions des **appareils mobiles** doivent inclure, en substance, l'indication suivante:

- lorsque l'appareil est utilisé dans une salle de bains, débranchez-le après usage car la proximité de l'eau peut présenter un danger même lorsque l'appareil est arrêté;
- pour assurer une protection supplémentaire, l'installation, dans le circuit électrique alimentant la salle de bain, d'un dispositif à courant différentiel résiduel (DDR) de courant différentiel de fonctionnement assigné n'excédant pas 30 mA, est conseillée. Demandez conseil à votre installateur.

Si le symbole ISO 7010-P026 (2011-05) est utilisé, la signification doit être explicitée. Les instructions doivent également comporter en substance les indications suivantes:

MISE EN GARDE: Ne pas utiliser cet appareil près des baignoires, des douches, des lavabos ou autres récipients contenant de l'eau.

Les instructions pour les appareils de sauna facial doivent indiquer qu'après usage, il convient de nettoyer l'appareil afin d'éviter l'accumulation de graisse et autres dépôts.

Les instructions pour les lisseurs et les fers à friser doivent comporter en substance les indications suivantes:

- danger de brûlure. Conserver l'appareil hors de portée des jeunes enfants, en particulier lors de son utilisation et de son refroidissement;
- lorsque l'appareil est raccordé à l'alimentation, ne jamais le laisser sans surveillance;
- toujours placer l'appareil avec le support, s'il existe, sur une surface plate stable, résistante à la chaleur.