Draft

SAUDI STANDARD

No. 15746

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

PART 2-23: PARTICULAR REQUIREMENTS FOR APPLIANCES FOR SKIN OR HAIR CARE

SAUDI ARABIAN STANDARDS ORGANIZATION
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>FOREWORD</strong></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>INTRODUCTION</strong></td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>Scope</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Normative references</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>Definitions</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>General requirement</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>General conditions for the tests</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>Classification</td>
<td>11</td>
</tr>
<tr>
<td>7</td>
<td>Marking and instructions</td>
<td>11</td>
</tr>
<tr>
<td>8</td>
<td>Protection against access to live parts</td>
<td>13</td>
</tr>
<tr>
<td>9</td>
<td>Starting of motor-operated appliances</td>
<td>14</td>
</tr>
<tr>
<td>10</td>
<td>Power input and current</td>
<td>14</td>
</tr>
<tr>
<td>11</td>
<td>Heating</td>
<td>14</td>
</tr>
<tr>
<td>12</td>
<td>Void</td>
<td>16</td>
</tr>
<tr>
<td>13</td>
<td>Leakage current and electric strength at operating temperature</td>
<td>16</td>
</tr>
<tr>
<td>14</td>
<td>Transient overvoltages</td>
<td>16</td>
</tr>
<tr>
<td>15</td>
<td>Moisture resistance</td>
<td>17</td>
</tr>
<tr>
<td>16</td>
<td>Leakage current and electric strength</td>
<td>17</td>
</tr>
<tr>
<td>17</td>
<td>Overload protection of transformers and associated circuits</td>
<td>17</td>
</tr>
<tr>
<td>18</td>
<td>Endurance</td>
<td>17</td>
</tr>
<tr>
<td>19</td>
<td>Abnormal operation</td>
<td>17</td>
</tr>
<tr>
<td>20</td>
<td>Stability and mechanical hazards</td>
<td>20</td>
</tr>
<tr>
<td>21</td>
<td>Mechanical strength</td>
<td>20</td>
</tr>
<tr>
<td>22</td>
<td>Construction</td>
<td>21</td>
</tr>
<tr>
<td>23</td>
<td>Internal wiring</td>
<td>23</td>
</tr>
<tr>
<td>24</td>
<td>Components</td>
<td>23</td>
</tr>
<tr>
<td>25</td>
<td>Supply connection and external flexible cords</td>
<td>24</td>
</tr>
<tr>
<td>26</td>
<td>Terminals for external conductors</td>
<td>26</td>
</tr>
<tr>
<td>27</td>
<td>Provision for earthing</td>
<td>26</td>
</tr>
<tr>
<td>28</td>
<td>Screws and connections</td>
<td>26</td>
</tr>
<tr>
<td>29</td>
<td>Clearances, creepage distances and solid insulation</td>
<td>27</td>
</tr>
<tr>
<td>30</td>
<td>Resistance to heat and fire</td>
<td>27</td>
</tr>
<tr>
<td>31</td>
<td>Resistance to rusting</td>
<td>28</td>
</tr>
<tr>
<td>32</td>
<td>Radiation, toxicity and similar hazards</td>
<td>28</td>
</tr>
</tbody>
</table>
Figure 101 – Wire frame .............................................................................. 29

Annexes...................................................................................................... 30

Annex "AAA" (Normative) National Modifications........................................30

Annex "AAA/1" (Normative) National Modifications on the clauses of the Adopted
IEC standard ........................................................................................................30

Annex "AAA/2" (Normative) Additional requirements.....................................39

Annex "AAA/3" (Normative) Rated Voltages and Frequencies.........................41

Bibliography ....................................................................................................41
FOREWORD


SASO has stated the National Modifications that must be done on both Arabic and English text of this adopted SASO standard according to the Annex "AAA", mentioned at the end of this standard.

Note: On implementing this Saudi Standard, the Saudi Standards corresponding to the International Standards, if any, mentioned in this adopted Saudi Standard shall be taken into consideration.
INTRODUCTION

The Saudi Arabian Standards Organization (SASO) has adopted the International Standard 60335-1/2006 "Household and Similar Electrical Appliances – Safety – Part 1: General Requirements", and approved as Saudi Standard SASO 1062/2007. SASO has also issued a number of standards each of which is concerned with the requirements of a particular electrical appliance and among which is IEC 60335-2-23/2003 "Household and Similar Electrical Appliances – Safety – Part 2-23: Particular Requirements for Appliances for Skin or Hair Care" including its Amendment No.1/2008.

In order to apply this Saudi Standard, it should be read in conjunction with SASO 1062/2007 because the Clause numbers herein are the same as those of Part 1. If a Clause in Part 1 is not applicable to this standard, the Clause number is included herein but with the words "Not applicable". And if a Clause in Part 1 has been replaced by new text to suit this standard, the Clause number herein is followed by the word "Replacement" and the new text of this Clause then follows on the next line. And if any addition has been added to this standard, the Clause number herein is followed by the word "Addition" and the new addition then follows on the next line. And if any modification has been done on a Clause of Part 1, the Clause number herein is followed by the word "Modification" and the modified text then follows on the next line. In case of introducing new Sub-clause, they should take the Clause number of Part 1 followed by the divisions 101, 102, … etc. In case of introducing new Figures, they should take the numerals 101, 102, … etc. In case of introducing new Annexes and/or Figures for the Annexes, they should take the numerals AA, BB, etc.

SASO reviews also the Saudi Standards adopted from the corresponding International Standards in order to know to which extent they are appropriate to the conditions of the Kingdom. When SASO assures that there is a necessity to carry out Deletion (or not applicable) and/or Replacement and/or Addition and/or Modification, etc. on any Clause and/or Sub-clause of the adopted Standard, SASO will list these in an Annex of the National Modifications which will be added at the end of the relevant Standard.
1 Scope

This clause of Part 1 is replaced by the following:

This International Standard 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;
- Curing rollers with separate heaters;
- Facial saunas;
- Hairdryers;
- Hand dryers;
- Heaters with 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 hazards presented by appliances that are encountered by all persons in and around the home. However, in general, it does not take into account

– Persons (including children) whose
  • Physical, sensory or mental capabilities; or
  • Lack of experience and knowledge
    Prevents them from using the appliance safely without supervision or instruction;

– Children playing with the appliance.

NOTE 104 Attention is drawn to the fact that

– For appliances intended to be used in vehicles or on board ships or aircraft, additional requirements may be necessary;

– In many countries additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour and similar authorities.

NOTE 105 This standard does not apply to

– 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);

– UV and IR radiation appliances (IEC 60335-2-27);

– sauna heating appliances (IEC 60335-2-53);

– appliances intended for medical purposes (IEC 60601).

2 Normative references

This clause of Part 1 is applicable except as follows:

Addition:

ISO 3864-1, Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs in workplaces and public areas

3 Definitions

This clause of Part 1 is applicable except as follows:
3.1.9 Replacement:

normal operation

Operation of the appliance under the following conditions:

**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. 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 101 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:

Handdryers 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 IEC 60417-5582 (2002-10) combined with the prohibition sign of ISO 3864-1, except for the specified colours, 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 IEC 60417-5582 (2002-10)] Suitable for use in a bath or Shower

7.12 Addition:

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

– When the hairdryer is used in a bathroom, unplug it after use since the proximity of water presents a hazard even when the hairdryer 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.

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

If symbol IEC 60417-5582 (2002-10) 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.

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.

7.14 Addition:

The diameter of the circle superimposed on symbol IEC 60417-5582 (2002-10) shall be at least 10 mm.

Compliance is checked by measurement.
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.

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.

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.

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 rev/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 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.

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 m²K/W.

19.7 Addition:

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.

**NOTE 101** Hand dryers are subjected to the test only when 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 x 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 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 requirements of
Clauses 8 and 29 shall be fulfilled.

22 Construction

This clause of Part 1 is applicable except as follows:

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 shall be resistant to aging.

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 K ± 1 K in excess of the temperature rise of the part determined during the tests of Clause 19 or at 70 °C ± 2 °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.

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.

25 **Supply connection and external flexible cords**

This clause of Part 1 is applicable except as follows:

25.5 Addition:

**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 are allowed regardless of the mass of the appliance.

The temperature rise limit of 130 K is allowed as long as 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 mm²;
- 10 N, for other cords.

**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, 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.

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, 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.
Key
A  Frame consisting of 32 equally spaced wires Ø 1.5 mm ± 0.5 mm
B  Location of the wooden sphere

Figure 101 – Wire frame
Annexes

The annexes of Part 1 are applicable, in addition to the following:

Annex "AAA"
(normative)

NATIONAL MODIFICATIONS

Annex "AAA/1"
(normative)

National Modifications on the clauses of the Adopted IEC standard

1 SCOPE

This Standard is concerned with household hair dryers (hand-held type) designed for connection according to the voltages and frequencies mentioned in annex (AAA/3).

2 COMPLEMENTARY REFERENCES

This Clause of the clauses of the Adopted IEC standard is applicable except as follows:

Addition:

SASO 716/1994, Methods of Test for Hand-Held Household Hair Dryers
SASO 717/1994, Hand-Held Household Hair Dryers
3 DEFINITIONS

This Clause of the clauses of the Adopted IEC standard is applicable except as follows:

3.104 Hand-held hair dryer

An appliance, with an electric blower and heating element, used for accelerated drying of wet hair by channelling a continuous stream of hot or cold air through the hair locks. It is of the portable type intended to be held by hand during normal use, referred to hereinafter as 'dryer'

3.105 Electric blower

A motor operated impeller used to push the rated quantity of air delivered through the dryer air outlet

3.106 Rated air delivery

The quantity of air delivered by the hairdryer under conditions of normal load per unit of time. This is generally expressed in cubic metres per minute

3.107 Rated duty period

The duration for which the hair dryer is designed to work continuously under normal load without exceeding specified temperature rise

4 General requirement

This Clause of the clauses of the Adopted IEC standard is applicable.
5 General conditions for the tests

This Clause of the clauses of the Adopted IEC standard is applicable.

6 Classification

This Clause of the clauses of the Adopted IEC standard is applicable.

7 Marking

This Clause of the clauses of the Adopted IEC standard is applicable except as follows:

7.1 Addition:

The positions of switches of hair dryer for different operating conditions shall have their (ON-OFF and other operation positions) clearly indicated in a readily visible location by means of letters, symbols or colours.

Compliance is checked by inspection and by manual test.

7.12.1 Addition:

Any additional information on certain characteristics the manufacturer finds necessary to indicate on his product.

Compliance is checked by inspection

8 Protection against access to live parts

This Clause of the clauses of the Adopted IEC standard is applicable.
9  Starting of motor-operated appliances

The motor shall be started under a test voltage equal to 0.85 times the rated voltage and at rated frequency.

Compliance is checked by the following test:

The hair dryer shall be operated under the most unfavourable conditions encountered in normal use for ten times at a voltage equal to 0.85 times the rated voltage. The test result shall be recorded.

10  Power input and current

This Clause of the clauses of the Adopted IEC standard is applicable.

11  Heating

This Clause of the clauses of the Adopted IEC standard is applicable.

12  Void

13  Leakage current and electric strength at operating temperature

This Clause of the clauses of the Adopted IEC standard is applicable.

14  Transient overvoltages

This Clause of the clauses of the Adopted IEC standard is applicable.

15  Moisture resistance

This Clause of the clauses of the Adopted IEC standard is applicable.
16  **Leakage current and electric strength**

This Clause of the clauses of the Adopted IEC standard is applicable.

17  **Overload protection of transformers and associated circuits**

This Clause of the clauses of the Adopted IEC standard is applicable.

18  **Endurance**

This Clause is not applicable, same as for the clauses of the Adopted IEC standard.

19  **Abnormal operation**

This Clause of the clauses of the Adopted IEC standard is applicable.

20  **Stability and mechanical hazards**

This Clause of the clauses of the Adopted IEC standard is applicable.

21  **Mechanical strength**

This Clause of the clauses of the Adopted IEC standard is applicable.

22  **Construction**

This Clause of the clauses of the Adopted IEC standard is applicable except as follows:
22.103 The materials used in the manufacture of the hair dryer shall be corrosion resistant and flameproof.

Compliance shall be checked by the relevant test.

22.104 The hair dryer shall be so designed as to prevent the penetration of body oils, perspiration and hair to the blades, motor shaft, other rotating parts and to the heater.

Compliance shall be checked by inspection and by manual test.

22.105 External finish of the hair dryer shall be smooth, round-edged, free from blow holes, pits and other surface imperfections.

Compliance shall be checked by inspection.

22.106 The hair dryer shall be properly shaped and well-assembled, and shall operate smoothly without noticeable noise and vibration, and shall not cause hazards in normal use.

Compliance shall be checked by inspection and by manual test.

22.107 Lubricating points for the hair dryer motor (if any) shall be clearly indicated.

Compliance shall be checked by inspection.

22.108 The hair dryer shall be so designed that, in normal use, hair cannot be easily drawn into its openings.

Compliance shall be checked by inspection and by manual test.

22.109 The hair dryer shall be compact, self contained or of rigid construction.
and fancy appearance. It shall withstand all stresses encountered during normal use.

Compliance shall be checked by inspection and by relevant tests.

**22.110** The design of hair dryer shall ensure that excess oil from the rotating motor or the impeller is not carried to the heater and that all fire hazards are avoided.

Compliance shall be checked by inspection.

**22.111** The hair dryer shall be provided with a self-resetting thermal cut-out to cut off the supply in the event of an abnormal operation of the blower resulting from an open or short circuit or locking of the rotor of the motor.

Compliance shall be checked by inspection and by relevant tests.

**23 Internal wiring**

This Clause of the clauses of the Adopted IEC standard is applicable except as follows:

**23.101** Wiring shall ensure that the heater cannot be switched “ON” without the air blower being switched “ON”.

Compliance shall be checked by the relevant test.

**24 Components**

This Clause of the clauses of the Adopted IEC standard is applicable except as follows:

**24.101** The electric motor used in the hair dryer shall meet the requirements

Compliance shall be checked by inspection and by the relevant tests

25 Supply connection and external flexible cords

This Clause of the First Section is applicable except as follows:

25/101 The hair dryer shall be provided with a flexible cord (detachable or non-detachable) of not less than 2 m long.

Compliance shall be checked by inspection and by the following test.

The length of the cord shall be measured from the point at which it enters the hair dryer (non-detachable cord), or the cord connector (detachable cord), including any cord guard. The length in metres, rounded off to the nearest 0.05 m, shall be recorded.

25/102 If the hair dryer is provided with a detachable flexible cord, the hair dryer inlet (plug) shall be so positioned that the cord connected (socket) can be inserted without difficulty. It shall be so located or enclosed that no contact with live parts is possible during insertion or removal of the cord connector.

Compliance shall be checked by inspection and by manual test.

26 Terminals for external conductors

This Clause of the clauses of the Adopted IEC standard is applicable.
27 Provision for earthing

This Clause of the clauses of the Adopted IEC standard is applicable.

28 Screws and connections

This Clause of the clauses of the Adopted IEC standard is applicable.

29 Clearances, creepage distances and solid insulation

This Clause of the clauses of the Adopted IEC standard is applicable.

30 Resistance to heat and fire

This Clause of the clauses of the Adopted IEC standard is applicable.

31 Resistance to rusting

This Clause of the clauses of the Adopted IEC standard is applicable.

32 Radiation, toxicity and similar hazards

This Clause of the clauses of the Adopted IEC standard is applicable.
Annex "AAA/2"

(Normative)

Additional requirements

AAA.2.1 Rated air delivery and performance

AAA.2.1 The rated air delivery shall not be less than 0.5 cubic metres per minute.

AAA.2.2 The hair dryer shall deliver the rated air delivery as mentioned above when measured according to the following test:

The hair dryer shall be connected to the supply at the rated voltage and under normal load. The quantity of air displaced shall be measured at the input port by an airflow meter or air-velocity meter. The meter port shall be adjusted to the inlet port of the dryer by suitable reducer/expander cone which has a length of not less than 300 mm. The reducer/expander cone shall not have any other openings through which air can leak.

The readings of the flow meter shall be taken and recorded after the hair dryer has operated for at least 15 minutes from starting. During this period the thermal cut-out shall not be activated.

AAA.2.2 Normal operation

The hair dryer shall continue to function normally while being subjected to a fluctuating supply voltage from 90% to 110% of the rated voltage, and the self-resetting thermal cut-out shall not operate.

Compliance shall be checked by the following test:
The hair dryer shall be operated for one rated duty period at the rated voltage and the rated frequency, then it shall be subjected to ± 10% fluctuation of voltage against the rated voltage. Any malfunction, damage or deformation shall be recorded.
Table (AAA/3-1)

**RATED SINGLE-PHASE A-C VOLTAGES AND FREQUENCIES AVAILABLE IN G.C.C COUNTRIES**

<table>
<thead>
<tr>
<th>Country</th>
<th>Rated Voltage (V)</th>
<th>Rated Frequency (Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Arab Emirates</td>
<td>240</td>
<td>50</td>
</tr>
<tr>
<td>Bahrain</td>
<td>230</td>
<td>50</td>
</tr>
<tr>
<td>Kingdom of Saudi Arabia</td>
<td>127,220</td>
<td>60</td>
</tr>
<tr>
<td>Sultanate of Oman</td>
<td>240</td>
<td>50</td>
</tr>
<tr>
<td>Qatar</td>
<td>240</td>
<td>50</td>
</tr>
<tr>
<td>Kuwait</td>
<td>240</td>
<td>50</td>
</tr>
</tbody>
</table>

Table (AAA/3-2)

**RATED THREE-PHASE A-C VOLTAGES AND FREQUENCIES AVAILABLE IN G.C.C COUNTRIES**

<table>
<thead>
<tr>
<th>Country</th>
<th>Rated Voltage (V)</th>
<th>Rated Frequency (Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Arab Emirates</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bahrain</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kingdom of Saudi Arabia</td>
<td>220</td>
<td>60</td>
</tr>
<tr>
<td>Sultanate of Oman</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Qatar</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kuwait</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
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 and similar flexible heating appliances*


DRAFT STANDARD

NO. 15746

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

PART 2-23: PARTICULAR REQUIREMENTS FOR APPLIANCES FOR SKIN OR HAIR CARE

The preliminary draft of this Standard has been prepared by the work team composed of the following:

<table>
<thead>
<tr>
<th>Name</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eng. Youssef Abdel-Hamid obaya</td>
<td>INTERTEK Testing Services</td>
</tr>
</tbody>
</table>

The draft Standard was accepted for distribution to the concerned bodies of the Technical Committee No. (1) "Household Appliances and Their Accessories" composed of the following

<table>
<thead>
<tr>
<th>Name</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dr Mohammed A Al-Kadi</td>
<td>King Saud University, Faculty of Engineering</td>
</tr>
<tr>
<td>2. Dr Abdul-Rahman Al-Badry</td>
<td>The technical Faculty - Riyadh</td>
</tr>
<tr>
<td>3. Eng. Youssef Abdel-Hamid obaya</td>
<td>INTERTEK Testing Services</td>
</tr>
<tr>
<td>4. Eng. Cherine Helmy Gohary</td>
<td>International</td>
</tr>
<tr>
<td>5. Eng Amro M. Mohammed</td>
<td>International SASO</td>
</tr>
</tbody>
</table>