# IEC 60335-2-3

Edition 7.0 2022-10
COMMENTED VERSION

# INTERNATIONAL STANDARD

colour inside

## Household and similar electrical appliances – Safety – Part 2-3: Particular requirements for electric irons



IEC 60335-2-3:2022-10 CMV(en)

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INTERNATIONAL
ELECTROTECHNICAL
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# CONTENTS

FOREWORD ..... 4
INTRODUCTION ..... 7
1 Scope ..... 8
2 Normative references ..... 8
3 Terms and definitions ..... 9
4 General requirement ..... 10
5 General conditions for the tests ..... 10
6 Classification ..... 11
7 Marking and instructions ..... 11
8 Protection against access to live parts ..... 11
9 Starting of motor-operated appliances ..... 12
10 Power input and current ..... 12
11 Heating ..... 12
12 ~~Void~~ Charging of metal-ion batteries ..... 14
13 Leakage current and electric strength at operating temperature ..... 14
14 Transient overvoltages ..... 14
15 Moisture resistance ..... 14
16 Leakage current and electric strength ..... 15
17 Overload protection of transformers and associated circuits ..... 15
18 Endurance ..... 15
19 Abnormal operation ..... 15
20 Stability and mechanical hazards ..... 16
21 Mechanical strength ..... 16
22 Construction ..... 17
23 Internal wiring ..... 19
24 Components ..... 19
25 Supply connection and external flexible cords ..... 20
26 Terminals for external conductors ..... 21
27 Provision for earthing ..... 21
28 Screws and connections ..... 21
29 Clearances, creepage distances and solid insulation ..... 21
30 Resistance to heat and fire ..... 21
31 Resistance to rusting ..... 21
32 Radiation, toxicity and similar hazards ..... 21
Annexes ..... 25
Bibliography ..... 26
List of comments ..... 27

Figure 101 – Probe for measuring surface temperatures ..... 22
Figure 102 – Simulated hand ..... 22
Figure 103 – Feeler gauge ..... 23

Figure 104 – Application of the simulated hand in a handle with closed ends .....23
Figure 105 – Application of the simulated hand in a handle with an open end.....24

Table 101 – Maximum temperature rises for specified external accessible surfaces under normal operating conditions.....14

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

## Part 2-3: Particular requirements for electric irons

## FOREWORD

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**This commented version (CMV) of the official standard IEC 60335-2-3:2022 edition 7.0 allows the user to identify the changes made to the previous IEC 60335-2-3:2012+ AMD1:2015 CSV edition 6.1. Furthermore, comments from IEC TC 61 experts are provided to explain the reasons of the most relevant changes, or to clarify any part of the content.**

**A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text. Experts' comments are identified by a blue-background number. Mouse over a number to display a pop-up note with the comment.**

**This publication contains the CMV and the official standard. The full list of comments is available at the end of the CMV.**

IEC 60335-2-3 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances. It is an International Standard.

This seventh edition cancels and replaces the sixth edition published in 2012 and Amendment 1:2015. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) alignment with IEC 60335-1:2020;
b) deletion or conversion of some notes to normative text (Clause 1, 5.2, 21.101);
c) addition of external accessible surface temperature limits (3.6.103, 11.3, 11.8);
d) clarification of surfaces likely to be contacted when gripping a handle (22.13);
e) clarification of the applicability of 30.2.2 and 30.2.3 (30.2, 30.2.3).

The text of this International Standard is based on the following documents:

| Draft | Report on voting |
|---|---|
| 61/6670/FDIS | 61/6746/RVD |

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



The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.



A list of all parts of the IEC 60335 series, under the general title: *Household and similar electrical appliances – Safety*, can be found on the IEC website.

This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments unless that edition precludes it; in that case, the latest edition that does not preclude it is used. It was established on the basis of the sixth edition (2020) of that standard.

NOTE 1 When "Part 1" is mentioned in this standard, it refers to IEC 60335-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Safety requirements for electric irons.

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 document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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

NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

**IMPORTANT – The "colour inside" logo on the cover page of this document 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.

Guidance documents concerning the application of the safety requirements for appliances can be accessed via TC 61 supporting documents on the IEC website

https://www.iec.ch/tc61/supportingdocuments

This information is given for the convenience of users of this International Standard and does not constitute a replacement for the normative text in this standard.

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~~ can differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

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

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 2 Horizontal ~~and generic standards~~ publications, basic safety publications, group safety publications 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.~~ 1

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 which 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.

NOTE 3 Standards dealing with non-safety aspects of household appliances are:

– IEC standards published by TC 59 concerning methods of measuring performance;

– CISPR 11, CISPR 14-1 and relevant IEC 61000-3 series standards concerning electromagnetic emissions;

– CISPR 14-2 concerning electromagnetic immunity;

– IEC standards published by TC 111 concerning environmental matters. 2

# HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

## Part 2-3: Particular requirements for electric irons

## 1 Scope

This clause of Part 1 is replaced by the following.

This part of IEC 60335 deals with the safety of electric dry irons and **steam irons**, including those with a separate water reservoir or boiler having a capacity not exceeding 5 l, for household and similar purposes, their **rated voltage** being not more than 250 V including direct current (DC) supplied appliances and **battery-operated appliances**. 3

Appliances not intended for normal household use, but which nevertheless ~~may~~ can 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.

As far as is practicable, this standard deals with the common hazards presented by appliances, which 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 101~~ Attention is drawn to the fact that

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

~~NOTE 102~~ This standard does not apply to

– ironers (IEC 60335-2-44);
– ironing boards;
– appliances designed 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).

## 2 Normative references

This clause of Part 1 is applicable except as follows.

*Addition:*

IEC 60584-1, *Thermocouples – Part 1: EMF specifications and tolerances*

## 3 Terms and definitions

This clause of Part 1 is applicable except as follows.

### 3.1 Definitions relating to physical characteristics

**3.1.9** ~~*Replacement*~~ *Addition:* **4**
~~**normal operation**~~
operation of the appliance under the following conditions:

The iron is placed on its **stand** and is operated with its **thermostat** at the highest setting.

If the iron does not have a **thermostat**, the surface temperature at the mid-point of the centre line of the **soleplate** is maintained at 250 °C ± 10 °C by switching the supply on and off, or at the highest temperature if it is lower.

**Steam irons** with a separate water reservoir or boiler are operated with the water reservoir or boiler filled with water.

**Pressurized steam irons** incorporating the boiler are operated with or without water, whichever is more unfavourable with respect to the compliance criteria for each test. **5**

Note 1 to entry: It can be necessary to conduct a test with and without water to determine the more unfavourable condition.



Other **steam irons** are operated empty.

### 3.5 Definitions relating to types of appliances

**3.5.101**
**steam iron**
iron having means to produce and supply steam to the textile material during ironing



Note 1 to entry: **Steam irons** ~~may~~ can incorporate a means for blowing steam onto clothes.

**3.5.102**
**vented steam iron**
**steam iron** in which steam is produced when the water contacts the **soleplate**, the water reservoir being at atmospheric pressure

Note 1 to entry: The water reservoir ~~may~~ can be incorporated in the iron or connected to the iron by a hose.

**3.5.103**
**pressurized steam iron**
**steam iron** in which steam is produced in a boiler at a pressure exceeding 50 kPa

Note 1 to entry: The boiler ~~may~~ can be incorporated in the iron or connected to the iron by a hose.

**3.5.104**
**instantaneous steam iron**
**steam iron** in which small quantities of water are pumped from the water reservoir and in which steam is produced when the water contacts the walls of the boiler, the water reservoir and the boiler being at atmospheric pressure

Note 1 to entry: The water reservoir and the boiler are connected to the iron by a hose.

**3.5.105**
**cordless iron**
iron that is connected to the supply only when placed on its **stand**

Note 1 to entry: **Cordless irons** ~~may~~ can be directly connected to the supply mains during ironing by a **detachable part** to which the **supply cord** is fixed.

### 3.6 Definitions relating to parts of appliances

**3.~~106~~6.101**
**soleplate**
heated part of the iron which is pressed against the textile material while ironing

**3.~~107~~6.102**
**stand**
heel of the iron or a separate part provided with the iron, on which the iron is placed when at rest

Note 1 to entry: The separate water reservoir or boiler may serve as the **stand**.

**3.6.103**
**functional surface**
surface that is intentionally heated by an internal heat source and has to be hot to carry out the function for which the appliance is intended

Note 1 to entry: An example is the **soleplate**.



## 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:*

*If a **protective device** becomes open circuit during the tests of 21.101, the test is continued on a separate appliance.*

~~NOTE 101~~ *The test of 21.102 is carried out on a separate appliance. The additional test of 25.14 is carried out on a separate appliance.*

**5.3** *Addition:*

*For irons with a **thermostat**, the test of 21.101 is carried out before the test of Clause 11.*

*The test of 22.102 is carried out during the test of Clause 11.*

**5.101** *Irons are tested as **heating appliances** even if they incorporate a motor.*

**5.102** *If a **cordless iron** can also be directly connected to the supply mains during ironing, the relevant tests are applicable for both modes of operation.*

## 6 Classification

This clause of Part 1 is applicable.

## 7 Marking and instructions

This clause of Part 1 is applicable except as follows.

**7.1** *Modification:*

Appliances shall be marked with their **rated power input**.

*Addition:*

Separate **stands** shall be marked with

– name, trademark or identification mark of the manufacturer or responsible vendor;
– model or type reference of the **stand**.

**Stands** of **cordless irons** shall be marked with their

– **rated voltage** or **rated voltage range**;
– **rated power input**.



**7.12** *Addition:*

The instructions shall contain the substance of the following:

– the iron must not be left unattended while it is connected to the supply mains;
– the iron must not be stored until it has cooled; 6
– the plug must be removed from the socket-outlet before the water reservoir is filled with water (for **steam irons** and irons incorporating means for spraying water);
– the filling, or decalcifying, or rinsing, or inspection apertures that are under pressure shall not be opened during use (for **steam irons** with pressurized compartments only);
– the iron must only be used with the stand provided (for **cordless irons**);
– the iron is not intended for regular use (for travel irons);
– the iron must be used and rested on a flat, stable surface;
– when placing the iron on its stand, ensure that the surface on which the stand is placed is stable;
– the iron is not to be used if it has been dropped, if there are visible signs of damage or if it is leaking.

**7.15** *Addition:*

For **steam irons** with a separate water reservoir or boiler, the total **rated power input** shall be marked on the part containing the supply terminals or **supply cord**.

## 8 Protection against access to live parts

This clause of Part 1 is applicable except as follows.

**8.1.2** *Addition:*

NOTE 101 Connecting devices in **stands** of **cordless irons** are not considered to be socket-outlets.

## 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.

**11.2** *Replacement:*

*Irons are placed on their **stands** on the floor of a test corner and away from the walls. However, the separate water reservoir or boiler of **steam irons** is placed as near to the walls as possible. Dull black painted plywood approximately 20 mm thick is used for the test corner.*

*__Vented steam irons__ with a separate water reservoir, __pressurized steam irons__ and __instantaneous steam irons__ are tested with the water reservoir empty and filled but without steam emission.*

*Irons, other than __cordless irons__, are also tested with the __soleplate__ in the horizontal position placed on three pointed metallic supports that have a height of at least 100 mm. __Vented steam irons__ with a separate water reservoir, __pressurized steam irons__ and __instantaneous steam irons__ are operated with the water reservoir or boiler filled.*



*For appliances provided with an automatic cord reel, one-third of the total length of the cord is unreeled. The temperature rise of the cord sheath is determined as near as possible to the hub of the reel and also between the two outermost layers of the cord on the reel. However, if the cord reel is incorporated in a part that is moved during ironing, the cord is completely unreeled.*

*For cord storage devices, other than automatic cord reels, that are intended to partially accommodate the __supply cord__ while the appliance is in operation, 50 cm of the cord is unwound. However, for cord storage devices on parts that are moved during ironing, the cord is completely unwound. The temperature rise of the stored part of the cord is determined at the most unfavourable place.*

**11.3** *Addition:*

*Where the external __accessible surfaces__ are suitably flat and access permits, then the test probe of Figure 101 is used to measure the temperature rises of external __accessible surfaces__ specified in Table 101. The probe is applied with a force of 4 N ± 1 N to the surface in such a way that the best possible contact between the probe and the surface is ensured. The measurement is performed after a contact period of 30 s.*

*The probe may be held in place using a laboratory stand clamp or similar device. Any measuring instrument giving the same results as the probe may be used.* **7**