

INTERNATIONAL STANDARD



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



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2022 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

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

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

Preview generated by EVS



IEC 60335-2-3

Edition 7.0 2022-10
COMMENTED VERSION

INTERNATIONAL STANDARD



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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 13.120; 97.060

ISBN 978-2-8322-5868-2

Warning! Make sure that you obtained this publication from an authorized distributor.

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

This document is a preview generated by EVS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –****Part 2-3: Particular requirements for electric irons**

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 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 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:

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 $250\text{ °C} \pm 10\text{ °C}$ 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.