

INTERNATIONAL STANDARD

IEC
60335-2-45

Third edition
2002-10

Household and similar electrical appliances – Safety –

Part 2-45: Particular requirements for portable heating tools and similar appliances

*Appareils électrodomestiques et analogues –
Sécurité –*

*Partie 2-45:
Règles particulières pour les outils chauffants mobiles
et appareils analogues*

<https://standards.iteh.ai/catalog/standards/iec/60335-2-45-2002>



Reference number
IEC 60335-2-45:2002(E)

Publication numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series. For example, IEC 34-1 is now referred to as IEC 60034-1.

Consolidated editions

The IEC is now publishing consolidated versions of its publications. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

Further information on IEC publications

The technical content of IEC publications is kept under constant review by the IEC, thus ensuring that the content reflects current technology. Information relating to this publication, including its validity, is available in the IEC Catalogue of publications (see below) in addition to new editions, amendments and corrigenda. Information on the subjects under consideration and work in progress undertaken by the technical committee which has prepared this publication, as well as the list of publications issued, is also available from the following:

- **IEC Web Site** (www.iec.ch)

- **Catalogue of IEC publications**

The on-line catalogue on the IEC web site (www.iec.ch/catlg-e.htm) enables you to search by a variety of criteria including text searches, technical committees and date of publication. On-line information is also available on recently issued publications, withdrawn and replaced publications, as well as corrigenda.

- **IEC Just Published**

This summary of recently issued publications (www.iec.ch/JP.htm) is also available by email. Please contact the Customer Service Centre (see below) for further information.

- **Customer Service Centre**

If you have any questions regarding this publication or need further assistance, please contact the Customer Service Centre:

Email: custserv@iec.ch
Tel: +41 22 919 02 11
Fax: +41 22 919 03 00

INTERNATIONAL STANDARD

IEC 60335-2-45

Third edition
2002-10

Household and similar electrical appliances – Safety –

Part 2-45: Particular requirements for portable heating tools and similar appliances

*Appareils électrodomestiques et analogues –
Sécurité –*

*Partie 2-45:
Règles particulières pour les outils chauffants mobiles
et appareils analogues*

<https://standards.iteh.ai/catalog/standards/iec/60335-2-45-2002>

© IEC 2002 — Copyright - all rights reserved

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 the publisher.

International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE

R

For price, see current catalogue

CONTENTS

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

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –**
**Part 2-45: Particular requirements for portable heating tools
and similar appliances**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The 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 third edition cancels and replaces the second edition published in 1996. It constitutes a technical revision.

The text of this part of IEC 60335 is based on the following documents:

FDIS	Report on voting
61/2219/FDIS	61/2294/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 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 fourth edition (2001) 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 portable electric heating tools and similar appliances

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 2004. At this date, the publication will be

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

The following differences exist in the countries indicated below.

- 3.1.9: The conditions of normal operation are different for soldering guns and plastic-cutting tools (USA).
- 6.1: Class 0 appliances are allowed if their rated voltage does not exceed 150 V and class 0I appliances are allowed (Japan).
- 6.1: Class 0 soldering irons are allowed if their rated power input does not exceed 18 W (Poland).
- 6.1: Class I dehorning tools are allowed. Class 0 appliances are allowed if their rated voltage does not exceed 150 V and they are for indoor use only (USA).
- 11.7: The test for firelighters is different (USA).
- 11.8: The modification does not apply (USA).
- 21.101: The drop test is different (USA).
- 24.1.3: Switches are tested for 6 000 cycles of operation (Canada and USA).
- 25.7: Lighter cords are allowed (USA).
- 25.7: The modification does not apply (Japan).
- 25.8: Shorter supply cords are allowed for class II dehorning tools (USA).

A bilingual version of this publication may be issued at a later date.

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.

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.

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.

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.

[IEC 60335-2-45:2002](https://standards.iteh.ai/Document/iec/5234ea12-7c55-4c82-b366-2cf6f7249e86/iec-60335-2-45-2002)

<https://standards.iteh.ai/catalog/standards/iec/5234ea12-7c55-4c82-b366-2cf6f7249e86/iec-60335-2-45-2002>

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-45: Particular requirements for portable heating tools and similar appliances

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of **portable electric heating tools** and similar appliances, their **rated voltage** being not more than 250 V.

Appliances not intended for normal household use, but which 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.

Appliances that may also be used when mounted on a support are within the scope of this standard.

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

- **branding tools;**
- **burning-in pens;**
- **conduit-soldering tools;**
- **dehorning tools;**
- **desoldering irons;**
- **firelighters;**
- **glue guns;**
- **heat guns;**
- **household film-welding appliances;**
- **paint strippers;**
- **plastic-cutting tools;**
- **soldering guns;**
- **soldering irons;**
- **stripping pliers;**
- **thermoplastic conduit-welding tools.**

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 in general take into account

- the use of appliances by young children or infirm persons without supervision;
- playing with the appliance by young children.

NOTE 102 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 103 This standard does not apply to

- hand-held motor-operated electric tools (IEC 60745);

- transportable motor-operated electric tools (IEC 61029);
- 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);
- tools using high-frequency heating;
- arc-welding equipment.

2 Normative references

This clause of Part 1 is applicable.

3 Definitions

This clause of Part 1 is applicable except as follows.

3.1.9 Replacement:

normal operation

operation of appliances under the following conditions

Appliances having a stand are operated on the stand, unless otherwise specified.

Other appliances are operated in accordance with the instructions, unless otherwise specified.

Soldering guns and plastic-cutting tools incorporating a **biased-off switch** are operated in cycles in accordance with the instructions but they are switched on for at least 12 s with rest periods not exceeding 48 s. For **soldering guns**, the on-period is such that the temperature at the tip reaches at least 300 °C at the end of the first on-period.

Household film-welding appliances are operated in cycles in accordance with the instructions but they are switched on at least for the time necessary to weld together two sheets of plastic film with rest periods not exceeding 2 min. The plastic film is high pressure (low density) polyethylene, each sheet having a thickness of 50 µm.

Heat guns are operated with the airflow horizontal.

Firelighters are operated to ignite charcoal placed in a tray having a diameter of 600 mm and a side 50 mm high. The pile of charcoal is 500 mm in diameter and 100 mm high at its centre.

Contact firelighters are positioned with the heating element horizontal and inserted in the centre of the charcoal.

Hot-air firelighters are positioned with the airflow horizontal, or directed downwards up to 45° if allowed by the construction, whichever is more unfavourable.

3.1 3.101

biased-off switch

switch that automatically returns to the **off position** when its actuating member is released

3.2 3.102

branding tool

appliance for marking wood, leather and other materials by means of a heated metal stamp

3.3 3.103

burning-in pen

appliance for scribing on wood, leather and other materials by means of a heated tip

3.4 3.104

conduit-soldering tool

appliance used for joining metal piping by means of solder

3.5 3.105

dehorning tool

appliance for burning out horn buds

3.6 3.106

desoldering iron

appliance for melting and removing solder

3.7 3.107

firelighter

appliance for igniting solid fuel such as charcoal or wood

3.8 3.108

contact firelighter

firelighter incorporating a heating element that is in direct contact with the fuel

3.9 3.109

hot-air firelighter

firelighter that incorporates a fan and a heating element and blows hot air at the fuel

3.10 3.110

heat gun

appliance that produces a jet of hot air

NOTE Heat guns may be used for fusing materials or for softening paint or plastics.

3.11 3.111

household film-welding appliance

appliance for household use only, used for welding or cutting thin thermoplastic sheets by means of electrically heated parts between which the material is clamped

3.12 3.112

paint stripper

appliance for softening paint using hot air

NOTE Paint strippers may incorporate a scraper.

3.13 3.113

soldering gun

appliance incorporating a transformer, the soldering tip being part of the secondary circuit

3.14 3.114

soldering iron

appliance having a heated tip for soldering

3.15 3.115

thermoplastic conduit-welding tool

appliance for welding conduit by partly melting the thermoplastic material of a separate fitting

NOTE The fitting has an integral heating wire and is used only once.

4 General requirement

This clause of Part 1 is applicable.