

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Household and similar electrical appliances – Safety –
Part 2-44: Particular requirements for ironers

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Appareils électrodomestiques et analogues – Sécurité –
Partie 2-44: Règles particulières pour les machines à repasser

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INTERNATIONAL
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COMMISSION

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CONTENTS

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

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-44: Particular requirements for ironers

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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This part of International Standard IEC 60335 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

This consolidated version of IEC 60335-2-44 consists of the third edition (2002) [documents 61/2167/FDIS and 61/2247/RVD], its amendment 1 (2008) [documents 61/3545/FDIS and 61/3599/RVD] and its amendment 2 (2011) [documents 61/4098/CDV and 61/4196/RVC].

The technical content is therefore identical to the base edition and its amendments and has been prepared for user convenience.

It bears the edition number 3.2.

A vertical line in the margin shows where the base publication has been modified by amendments 1 and 2.

The French version of this standard has not been voted upon.

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 electric ironers.

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 following differences exist in the countries indicated below.

- 11.7: The test conditions are different (USA).
- 19.13: The test criteria are different (USA).
- 20.2: The requirements for entrapment and mechanical hazards are different (USA).
- 22.7: The test is different (USA).
- 22.101: The test is different (USA).
- 22.104: The test is different (USA).

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

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

It is the recommendation of the committee that the content of the amendment 1 be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

2 | It is the recommendation of the committee that the content of the amendment 2 be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules may differ.

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

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 covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards.

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-44: Particular requirements for ironers

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric **ironers** for household and similar purposes, their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances.

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.

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

- **ironing presses** for one-person operation;
- **mangles**;
- **rotary ironers** for one-person operation;
- **trouser presses**.

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 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

- **rotary ironers** for operation by more than one person. The roller length of such appliances normally exceeds 1,6 m in length;
- 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);
- electric irons (IEC 60335-2-3)

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 the appliance under the following conditions

Appliances are operated without laundry.

Ironing presses are operated with the pressing surfaces separated as far as possible. Appliances that generate steam are operated in cycles with the water reservoir filled and with maximum steam emission. Each cycle consists of 10 s with the pressing surfaces in contact with each other and 10 s apart. Appliances that can generate steam or spray water are also operated with the water reservoir empty.

Rotary ironers are operated with the movable surface raised and lowered in cycles. Each cycle consists of 24 s with the pressing surfaces in contact with each other and 6 s apart.

Trouser presses are operated with the pressing surfaces in contact with each other.

Mangles are operated with the rollers in contact with each other.

NOTE 101 The mangle cloth is not removed.

3.101

ironer

appliance in which the laundry is supported by a padded surface and having a heated surface that can be brought into contact with the laundry

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3.102

rotary ironer

ironer in which the laundry is passed between a heated surface and a padded roller that is rotated by a motor

NOTE **Rotary ironers** may have more than one heated surface.

3.103

ironing press

ironer in which the surface supporting the laundry and the heated surface are substantially flat

NOTE **Ironing presses** may have means to generate steam or to spray water.

3.104

trouser press

appliance having a pair of flat surfaces, one or both of which can be heated and that can be closed together with trousers positioned between them

3.105

mangle

appliance for ironing laundry by unheated rollers that are pressed together and rotated by a motor

NOTE **Mangles** may have a cloth, one end of which is attached to one of the rollers and on which the laundry is placed for ironing.

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable.

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 Addition:

Appliances shall be marked on or near lampholders with the maximum power input of replaceable illumination lamps as follows:

lamp max. ... W

The word "lamp" may be replaced by symbol IEC 60417-5012 (2002-10).

Appliances intended to be supplied with compressed air shall be marked with the maximum air pressure in megapascals.

7.12 Addition:

The instructions for **mangles** shall state that the appliances must be disconnected when not in use and when the mangle cloth is being replaced.

The instructions for **ironing presses** in which steam is generated under pressure shall state that the filling cap must not be removed during use. Instructions for the safe refilling of the water reservoir shall be given.

8 Protection against access to live parts

This clause of Part 1 is 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.

11.2 Modification:

Appliances normally used on a floor or table are placed away from the walls of the test corner.

*Separate steam generators of **ironing presses** are placed as near as possible to the walls of the test corner.*

11.4 Addition:

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

11.6 Replacement:

Combined appliances are operated as heating appliances.

11.7 Addition:

Trouser presses incorporating a timer are operated for three cycles of operation without rest periods.

NOTE 101 One cycle is the maximum operating period allowed by the timer.

Other appliances are operated until steady conditions are established.

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**.*

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.

19.2 Addition:

Appliances are tested with their pressing surfaces in contact with each other unless they automatically separate when the closing force is released.

19.4 Addition:

For appliances that generate steam, any control that limits the pressure during the test of Clause 11 is rendered inoperative.

19.7 Addition:

Mangles are operated for 5 min.

19.9 Not applicable.

19.13 Addition:

*The temperature rise of the surface intended to support the laundry shall not exceed 150 K 5 min after a **protective device** has operated.*

20 Stability and mechanical hazards

This clause of Part 1 is applicable except as follows.

20.1 Addition:

The test with the angle of inclination increased to 15° is not carried out.

Mangles are also checked by the following test.

*The **mangle** is placed in any normal position of use on a horizontal plane. A force of 90 N is applied horizontally to the top of the **mangle**. The force is removed and a force of 180 N is applied vertically downwards at the most unfavourable place.*

The **mangle** shall not overturn.

NOTE 101 The **mangle** is prevented from sliding during the test.

21 Mechanical strength

This clause of Part 1 is applicable.

22 Construction

This clause of Part 1 is applicable except as follows.

22.7 Replacement:

Ironing presses in which steam is generated under pressure shall incorporate adequate safeguards against the risk of excessive pressure.

If jets of steam or hot water are emitted by **protective devices**, the electrical insulation shall not be affected or the user exposed to a hazard.

Compliance is checked by inspection and by the following test.

The appliance is operated as specified in Clause 11 but without steam emission. The pressure in the water reservoir is measured. All pressure regulating devices that operate during the test are rendered inoperative and the pressure measured again. The pressure shall not increase by more than 200 kPa.

*Any pressure limiting **protective device** is then rendered inoperative and the pressure in the water reservoir is raised hydraulically to five times the pressure measured originally, or twice the pressure measured with the pressure regulating devices rendered inoperative, whichever is higher.*

There shall be no leakage from the water reservoir.

22.101 Rotary ironers shall be constructed so that the feed aperture has a width not exceeding 8 mm during operation and a width of at least 20 mm when the surfaces are fully separated.

Rotary ironers having surfaces that are lowered and raised by a motor, shall be constructed so that the surfaces separate as soon as the closing force is released. It shall be possible to separate the surfaces when the supply mains is interrupted.

Compliance is checked by measurement and by manual test.

22.102 Ironing presses shall be constructed so that the pressing surfaces are held in contact with each other by using a hand, elbow, knee or foot and so that they separate when the closing force is released.

The pressing surfaces of **ironing presses**, intended for direct operation by both hands, may be locked in contact with each other and shall be constructed so that the pressing surfaces can be separated without using the hands, even when the supply mains is interrupted.

Compliance is checked by inspection and by manual test.