BSI Standards Publication

Household and similar electrical appliances — Safety

Part 2-7: Particular requirements for washing machines

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National foreword

This British Standard is the UK implementation of EN IEC 60335-2-7:2023+A11:2023. It is derived from IEC 60335-2-7:2019. It supersedes BS EN 60335-2-7:2010+A2:2019, which will be withdrawn on 2 August 2025.

The start and finish of text introduced or altered by amendment A11 is indicated in the text by tags. Tags indicating changes to text carry the number of the CENELEC amendment. For example, text altered by CENELEC amendment A11 is indicated by [A11⟩ ⟨A11].

The UK participation in its preparation was entrusted to Technical Committee CPL/61, Safety of household and similar electrical appliances.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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EUROPEAN STANDARD

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English Version

Household and similar electrical appliances - Safety - Part 2-7: Particular requirements for washing machines (IEC 60335-2-7:2019)

Appareils électrodomestiques et analogues - Sécurité - Partie 2-7: Exigences particulières pour les machines à laver le linge
(IEC 60335-2-7:2019)

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke - Teil 2-7: Besondere Anforderungen für Waschmaschinen
(IEC 60335-2-7:2019)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN IEC 60335-2-7:2023) consists of the text of IEC 60335-2-7:2019 prepared by IEC/TC 61 “Safety of household and similar electrical appliances”.

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2024-08-02
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2025-08-02

This document supersedes EN 60335-2-7:2010 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

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Any feedback and questions on this document should be directed to the users’ national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60335-2-7:2019 was approved by CENELEC as a European Standard without any modification.

European foreword to amendment A11

This document (EN IEC 60335-2-7:2023/A11:2023) has been prepared by CLC/TC 61 “Safety of household and similar electrical appliances”.

The following dates are fixed:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-7: Particular requirements for washing machines

FOREWORD

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International Standard IEC 60335-2-7 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

This eighth edition cancels and replaces the seventh edition published in 2008, Amendment 1: 2011 and Amendment 2:2016. This edition constitutes a technical revision.

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

– requirements for steam generators in 3.1.9, 3.6.101, 19.101, 22.106, 22.107;
– additional definitions for washing machine types in 3.5.101,3.5.102, 3.5.103;
– revised temperature limits for external accessible surfaces in 11.3 and 11.8;
– revised test procedure for the spillage test in 15.2;

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– additional requirements for appliances that are controlled by programmable electronic circuits that limit the number of heating elements and motors from being energised at the same time, Subclause 22.108.

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

FDIS	Report on voting
61/5798/FDIS	61/5839/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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. It was established on the basis of the fifth edition (2010) 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 washing machines.

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 "http://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.

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The following differences exist in the countries indicated below.

– 3.1.9: Different size cloths are used. The initial water temperature for machines without heating elements and without a wringer is 71 °C (USA).

– 6.2: IPX0 appliances are allowed (USA).

– 11.7: The test durations are different (USA).

– 15.101: The test is different (USA).

– 19.7: Appliances without a programmer are operated until steady conditions are established (USA).

– 19.101: A redundant set of contacts is not required (USA).

– 22.6: The test is different (USA).

– 22.101: The test is different (USA).

– Annex AA: The detergent and rinsing agent are different (USA).

– Annex BB: Different tests are carried out (USA).

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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.

〖A11〉 With European Amendment A11 the EN 60335-2-7:2010+A1:2013+A11:2013+A2:2019 is superseded.

This European Amendment A11, supplements or modifies the corresponding clauses of the standards below:

— EN 60335-1:2012+A11:2014+ A13:2017+A1:2019 A14:2019 A2:2019+A15:2021 (Part 1)

— EN IEC 60335-2-7:2023 (Part 2) 〈A11〉

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HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-7: Particular requirements for washing machines

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric washing machines for household and similar use, that are intended for washing clothes and textiles, their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances.

This standard also deals with the safety of electric washing machines for household and similar use employing an electrolyte instead of detergent. Additional requirements for these appliances are given in Annex CC.

〈A11〉 Appliances intended to be used by laymen in shops and other premises for normal housekeeping purposes, are within the scope of this document.

NOTE Z101 Examples of appliance for household environment are appliances for typical housekeeping functions used in the household environment that may also be used by non-expert users for typical housekeeping functions:

— in shops and other similar working environments;
— in farm houses;
— by clients in hotels, motels and other residential type environments;
— in bed and breakfast type environments.

NOTE Z102 Household environments include the dwelling and its associated buildings, the garden, etc.

As far as is practicable, this standard deals with the common hazards presented by appliances that are encountered by all persons in household and similar environments.

However, in general, it does not take into account:

— **children** playing with the appliance,
— the **use of the appliance** by **very young children**,
— the **use of the appliance** by **young children** without supervision,
— **user maintenance** by **children**, including the cleaning of the appliance.

It is recognized that **very vulnerable people** may have needs beyond the level addressed in this document. 〈A11〉

NOTE 103 Attention is drawn to the fact that

– for washing machines 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, the national water supply authorities and similar authorities
– 〈A11〉 for washing machines having a separate spin container for water extraction, EN 60335-2-4 is also applicable;
– for washing machines having a drying function, EN 60335-2-11 is also applicable; 〈A11〉

NOTE 104 This standard does not apply to

– washing machines intended exclusively for industrial purposes (ISO 10472-2);
– 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);
– washing machines incorporating steam generating devices in which steam is produced at a pressure exceeding 50 kPa;
– 〈A11〉 washing machines to be used in commercial areas, e.g. laundrettes (EN 50571). 〈A11〉

2 Normative references

This clause of Part 1 is applicable except as follows.

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Addition:

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

IEC 60730-2-12:2015, *Automatic electrical controls for household and similar use – Part 2: Particular requirements for electrically operated door locks*

ISO 1817:2015, *Rubber, vulcanized or thermoplastic – Determination of the effect of liquids*

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1 Definitions relating to physical characteristics

Replacement:

3.1.9
normal operation
operation of the appliance under the following conditions.

The appliance is filled with dry textile material having a mass equal to the maximum mass stated in the instructions, and with the maximum quantity of water for which it is constructed. However, if the power input or current is higher when only 50 % of the textile material is used, the appliance is operated with this load instead if this gives more unfavourable conditions than the full load during the test of Clause 11.

Note 101 to entry: For some appliances incorporating a programmer, using the 50 % reduced load may result in automatic selection of a reduced wash programme.

The temperature of the water is

- 65 C ± 5 °C for appliances without heating elements;
- 15 °C ± 5 °C for appliances without heating elements and intended for connection to the cold water supply only;
- 15 °C ± 5 °C for other appliances.

If the appliance does not incorporate a programmer, the water is heated to 90 °C ± 5 °C or as high as the construction will allow if lower, before starting the first washing period.

The textile material consists of pre-washed double-hemmed cotton sheets having dimensions approximately 700 mm × 700 mm and a specific mass between 140 g/m^2 and 175 g/m^2 in the dry condition.

For **impeller washing machines**, if the textile material does not move properly during operation,

- the quantity of textile material may be reduced until the maximum power input of the motor is attained; or
- a textile material comprising pre-washed double-hemmed cotton sheets, having dimensions of approximately 900 mm × 900 mm and a mass between 90 g/m^2 and 110 g/m^2 in the dry condition, may be used.

However, for **impeller washing machines**, in case of doubt, the test is carried out using the reduced quantity of textile material.

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A **steam generator** intended to be filled by hand is filled according to the instructions, water being added to maintain the steam generation.

A **steam generator** intended to be filled automatically is connected to the water mains.

3.5 Definitions relating to types of appliances

3.5.101
agitator washing machine
washing machine in which the textiles are substantially immersed in the washing water, the mechanical action being produced by a device moving about or along its vertical axis with a reciprocating motion (an agitator)

Note 1 to entry: This device usually extends above the maximum water level.

3.5.102
impeller washing machine
washing machine in which the textiles are substantially immersed in the washing water, the mechanical action being produced by a device rotating about its axis continuously or which reverses after a number of revolutions (an impeller)

Note 1 to entry: The uppermost point of this device is substantially below the minimum water level.

3.5.103
drum washing machine
washing machine in which the textiles are placed in either a horizontal drum or a drum that is inclined up to and including 45° from the horizontal and the textile is partially immersed in the washing water, the mechanical action being produced by rotation of the drum about its axis, the movement being either continuous or periodically reversed

3.6 Definitions relating to parts of an appliance

3.6.101
steam generator
device in which steam is produced at a pressure not exceeding 50 kPa and in which the pressure drops to atmospheric pressure when the steam is not supplied

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:*

The relevant tests of 21.101, 21.102 and 22.104 shall be carried out on the same appliance as that used for the test of Clause 18.

5.3 *Addition:*

The test of 15.101 is carried out before the test of 15.3.

The relevant tests of 21.101 and 21.102 are carried out before the test of Clause 18. The test of 22.104 is carried out after the test of Clause 18.

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