

Specification for

Safety of household and similar electrical appliances — Requirements for the connection of washing machines, dishwashers and tumble dryers to the water mains

The European Standard EN 50084:1992 has the status of a
British Standard

ICS 97.040.40; 97.060

Cooperating organizations

The European Committee for Electrotechnical Standardization (CENELEC), under whose supervision this European Standard was prepared, comprises the national committees of the following countries:

Austria	Italy
Belgium	Luxembourg
Denmark	Netherlands
Finland	Norway
France	Portugal
Germany	Spain
Greece	Sweden
Iceland	Switzerland
Ireland	United Kingdom

This British Standard, having been prepared under the direction of the Light Electrical Engineering Standards Policy Committee, was published under the authority of the Standard Board and comes into 15 June 1992

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The following BSI references relate to the work on this standard:
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National foreword

This British Standard has been prepared under the direction of the Light Electrical Engineering Standards Policy Committee. It is the English language version of EN 50084 “*Safety of household and similar electrical appliances. Requirements for the connection of washing machines, dishwashers and tumble dryers to the water mains*”, including amendment A1 which is published by the European Committee for Electrotechnical Standardization (CENELEC).

The United Kingdom national deviations from EN 50084 have resulted from the United Kingdom Water Byelaws. The full list of national deviations is given in the informative Annex B.

The foreword of EN 50084 makes reference to the “date of withdrawal” dow, of the relevant national standard. In this case the relevant national standard is BS 6614:1991 which will be withdrawn on 1993-07-01. Certificates and Marks will not be awarded after this date with respect to the withdrawn British Standard. However such Certificates and Marks, already awarded, may continue to apply to production until 1998-07-01.

Product certification. Users of this British Standard are advised to consider the desirability of third party certification of product conformity with this British Standard based on testing and continuing surveillance, which may be coupled with assessment of a supplier’s quality systems against the appropriate Part of BS 5750.

Enquiries as to the availability of third party certification schemes will be forwarded by BSI to the Association of Certification Bodies. If a third party certification scheme does not already exist, users should consider approaching an appropriate body from the list of Association members.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 18, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

English version

Safety of household and similar electrical appliances Requirements for the connection of washing machines, dishwashers and tumbler dryers to the water mains

(includes amendment A1:1998)

Sécurité des appareils électrodomestiques et
analogues
Prescriptions pour le raccordement des
machines à laver le linge, des lave-vaisselle et
des sèche-linge au réseau d'alimentation en eau
(inclut l'amendement A1:1998)

Sicherheit elektrischer Geräte für den
Hausgebrauch und ähnliche Zwecke
Anforderungen für den Anschluß von
Waschmaschinen, Geschirrspülmaschinen und
Trommeltrocknern an die
Wasserversorgungsanlage
(enthält Änderung A1:1998)

This European Standard was approved by CENELEC on 15 March 1991. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B-1050 Brussels

Foreword

The proposal to convert HD 274 S2 into a European Standard was accepted by CENELEC TC 61 during the meeting held in Helsinki in May 1990. The voting procedure started in September 1990.

The text of the draft was ratified by CENELEC as EN 50084 on 15 March 1991.

This European Standard has been prepared by the secretariat of CENELEC Technical Committee TC 61.

The following dates are applicable:

- latest date of publication of an identical national standard (dop) 1992-07-01
- date of withdrawal of conflicting national standards (dow) 1993-07-01

For products which have complied with HD 274 S2: 1990 before 1993-07-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1998-07-01.

There are no special national conditions (snc) causing a deviation from this European Standard.

National deviations from this European Standard are listed in Annex B.

NOTE 1 In some countries there are additional requirements for materials in contact with potable water.

NOTE 2 Attention is drawn to the harmonization work on materials and protective devices being carried out by EUREAU Committees. The results of their work may lead to changes to this document.

NOTE 3 The European Directives

- 90/128/EEC dealing with materials in contact with food stuffs
- 80/778/EEC dealing with the quality of water intended for human consumption

may also have bearing on the use of materials in contact with potable water and may influence the requirements in this standard.

Other publication quoted in this standard:

ISO 1403:1976 *General purpose rubber water hose*

NOTE In this document, the following print types are used:

- requirements proper: in roman type;
- test specifications: in italic type;
- explanatory matter: in small roman type.

Foreword to amendment A1

A proposal to amend EN 50084:1992, document CLC/TC 61 (SEC) 959, was discussed during the Oslo meeting in April 1994 and during the Paris meeting in November 1994, when it was decided to submit a draft for an amendment to the Unique Acceptance Procedure (UAP). This draft was circulated as prAA in May 1996 but did not receive sufficient support. The comments were discussed during the Edinburgh meeting in May 1997 when it was decided to submit a revised draft to the formal vote (2MV).

This draft was circulated in September 1997 and was approved by CENELEC as amendment A1 on 1998-04-01.

This amendment has been prepared by the secretariat of CENELEC Technical Committee TC 61.

The following dates are applicable:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1999-01-01
- date on which national standards conflicting with the EN have to be withdrawn (dow) 2005-04-01

This amendment supplements or modifies the corresponding clauses of EN 50084:1992.

There are no special national conditions causing a deviation from this amendment.

There are no national deviations from this amendment.

1 Scope

This European Standard specifies requirements for the connection of washing machines, dishwashers and tumble dryers to the water mains having a water pressure not exceeding 1 MPa (10 bar), for household, commercial and similar purposes.

NOTE 1 The connection may be temporary or permanent.

NOTE 2 Commercial and similar purposes includes the installation of appliances in shops and communal flats, for the use by staff or residents; it does not include dry cleaning, laundrettes, medical, industrial, catering and transport use.

NOTE 3 The purpose of these requirements is to prevent:

- backsiphonage of non-potable water into the potable water mains, even under fault conditions;
- a failure in the connection of the appliance to the water mains, which may result in flooding.

NOTE 4 When reference is made to the water mains, water supplied from a cistern or similar system is also included.

2 Definitions

The following definitions apply for the purpose of this European Standard.

2.1 potable water

water which is obtained directly from the potable water mains and remains in a closed system up to the safety device

2.2 non-potable water

water which leaves the closed system after having passed the safety device

NOTE Non-potable water may have one or more characteristics giving rise to complaints by consumers with regard to taste, smell, colour or turbidity or may contain substances which are detrimental to health.

2.3 safety device

a device which is intended to prevent contamination of potable water by backflow of non-potable water

NOTE Examples of safety devices are airgaps and atmospheric pressure pipe interruptors.

2.4 airgap

an unobstructed free distance between the end of the water inlet or feeding pipe and the critical water level; it is intended to prevent water downstream of it being drawn into the potable water feeding pipe

NOTE An unobstructed free distance means that the airflow into the feeding pipe under vacuum conditions is not restricted by constructional parts of the appliance.

2.5 atmospheric pressure pipe interruptor

a device without movable or elastomeric parts into which air can enter while water is passing through it

NOTE In this document this device is called "pipe interruptor".

2.6 special safety device

a safety device having movable parts which prevent backsiphonage

2.7 overflow

a means for discharging excess water from the appliance to the open air when the normal outlet is partially or fully blocked

2.8 maximum water level:

the highest level of the non-potable water reached in any part of the appliance when it operates continuously under fault conditions

2.9 critical water level

the level of the non-potable water reached in any part of the appliance, 2 s after closing water inlets, starting from maximum water level

NOTE For appliances with more than one inlet hose, each water inlet is closed in turn, other inlets being left open if the programme permits simultaneous filling.

2.10 hose-set

an assembly consisting of a flexible hose and couplings necessary for its connection to the appliance upstream of the safety device and to the water mains

NOTE Couplings may be removable with or without the aid of a tool.

2.11 upstream

indicates, for a given point in a hydraulic system, the side from which the water flows

2.12 downstream

indicates, for a given point in a hydraulic system, the side to which the water flows

2.13 water softener

a device for reducing the hardness of the water and which is regenerated by means of common salt or a similar but not more corrosive substance

2.14 detachable part

a part which can be removed without the aid of a tool

3 General requirements

3.1 Appliances shall be provided with an airgap or pipe interruptor situated downstream of each of the inlet valves.

For appliances provided with an integral water softener connected upstream of an airgap or pipe interruptor, there shall be in addition a special safety device located upstream of the water softener.

Dispensers intended for adding softening, rinsing, cleaning, disinfecting or similar agents to the water, shall not be located upstream of the safety device.

No part of the pipework of the potable water system upstream of a safety device shall pass through non-potable water in the container.

Compliance is checked by inspection.

3.2 Safety devices shall be incorporated in the appliance and constructed so that:

- their functional characteristics cannot be changed, even intentionally;
- they can only be removed with the aid of a tool;
- if omitted, the appliance is rendered inoperable or manifestly incomplete.

Compliance is checked by inspection and by the tests of clauses 5 to 7, as applicable.

3.3 The connection of the appliance to the water mains shall be such that the risk of flooding is obviated as far as possible.

Compliance is checked by the tests of clauses 8 and 9.

3.4 Metallic parts of the water connection system of the appliance, the deterioration of which may cause the appliance to fail to comply with the requirements of this European Standard, shall be resistant to erosion, dezincification, oxidation or corrosion under the most unfavourable conditions occurring in normal use.

In general, compliance is checked by inspection.

NOTE 1 Recommendations for the prevention of bimetallic corrosion are given in Annex C.

NOTE 2 Resistance to dezincification can be checked in accordance with ISO 6509¹⁾.

4 General notes on tests

4.1 When reference is made to normal conditions, the following applies:

- the appliance is placed on a horizontal support;
- the appliance is connected to a water supply in accordance with the manufacturer's instructions;
- the water supply has a static pressure not exceeding 1 MPa (10 bar) and a dynamic pressure not less than 0,6 MPa (6 bar);
- the appliance is supplied at rated voltage;
- the appliance is tested without textile material or dishes, detergent, rinsing agents and the like, doors and lids being closed.

NOTE Appliances designed for special purposes are tested at the pressure indicated in the manufacturer's instructions if:

- the maximum permissible water pressure indicated is less than 0,6 MPa (6 bar);
- the appliance is clearly marked with a warning against connecting it to the water mains.

4.2 When reference is made to fault conditions, the appliance is inclined at an angle of 2° to the horizontal in the most unfavourable position, and the following applies, as far as is reasonable, in addition to the normal conditions:

- the connection between the dispenser, if any, intended for adding softening, rinsing, cleaning, disinfecting or similar agents to the water, and other parts of the appliance is blocked, unless the cross-sectional area of the connection exceeds 10 cm² throughout its length and no dimension across this area is less than 10 mm;
- overflows are blocked if they can easily be blocked accidentally or by a cork having a circular cross-section, or they have a dimension less than 3 mm and a cross-sectional area not exceeding 5 cm²;
- all magnetic valves upstream of an airgap or pipe interruptor which can be open simultaneously during the normal programme of the appliance are held open;
- all motors are disconnected from the supply mains and the normal drain outlet is blocked.

NOTE 1 The fault conditions are applied, one at a time, together with any consequential fault condition.

NOTE 2 The use of tape or the like for blocking an overflow is not considered to occur accidentally.

4.3 Unless otherwise specified, the tests are made in the order indicated and:

- for appliances, pipe interruptors and special safety devices, on a single sample as delivered, which shall withstand all the relevant tests;
- for other components, such as hose-sets and valves, on three samples; if one sample fails, the tests are repeated on a further set of three samples, all of which shall then withstand the repeated tests.

Each of the tests of 8.1.9 to 8.1.11 is carried out on three new samples.

4.4 Tests on air gaps, pipe interruptors and special safety devices are made inside the appliance, unless this is impracticable.

4.5 Where water pressures are stated, they are pressure differences from atmospheric pressure.

4.6 Unless otherwise specified, the tests are carried out at an ambient air temperature of 20 °C ± 5 °C.

¹⁾ ISO 6509: Corrosion of metals and alloys — Determination of dezincification resistance of brass.