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**Safety of household and similar electrical appliances - Requirements for the connection of washing machines, dishwashers and tumbler dryers to the water mains - Amendment A1**

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

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke - Anforderungen für den Anschluß von Waschmaschinen, Geschirrspülmaschinen und Trommelrocknern an die Wasserversorgungsanlage

SÉCURITÉ des appareils électrodomestiques et analogues - Prescriptions pour le raccordement des machines à laver le linge, des lave-vaisselle et des séchoirs à tambour au réseau d'eau d'alimentation

**Ta slovenski standard je istoveten z: EN 50084:1992/A1:1998**

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**ICS:**

97.040.40	Pomivalni stroji	Dishwashers
97.060	Aparati za nego perila	Laundry appliances

**SIST EN 50084:1999/A1:1998** en

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN 50084/A1

May 1998

ICS 97.040.40; 97.060

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Descriptors: Household electrical appliances, washing machine, dishwasher, tumbler dryer, water supply, connection, safety requirements, protection against electric shock, fire protection, protection against mechanical hazard

English version

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This amendment A1 modifies the European Standard EN 50084:1992; it was approved by CENELEC on 1998-04-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 amendment 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.

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REPUBLIKA SLOVENIJA  
MINISTRSTVO ZA ZNANOST IN TEHNOLOGIJO  
Urad RS za standardizacijo in meroslovje  
LJUBLJANA

SIST. EN 50084/A1

PREVZET PO METODI RAZGLASITVE

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

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Ref. No. EN 50084:1992/A1:1998 E

## Foreword

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.

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## 1 Scope

Add:

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

## 3 General requirements

3.4 Add the following notes:

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 6509<sup>1)</sup>.

## 4 General notes on tests

4.3 Add:

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

Add:

4.6 Unless otherwise specified, the tests are carried out at an ambient air temperature of  $20\text{ °C} \pm 5\text{ °C}$ .

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## 8 Hose-sets

Replace the text by:

8.1 Hose-sets shall withstand the stresses to which they may be subjected in normal use.

Compliance is checked by the relevant tests specified in 8.1.1 to 8.1.9 as shown in table 1 for different types of hoses and by the tests of 8.1.10 and 8.1.11 for couplings.

During the tests of 8.1.1 to 8.1.8, the hose shall not leak, burst or slip from its couplings.

NOTE 1: Deformation which does not impair the function of the hose-set is ignored.

NOTE 2: Flexible metal hose-sets having a length less than 1m are not subjected to the tests of 8.1.2 and 8.1.3.

NOTE 3: For hose-sets which incorporate devices for protection against flooding and the hose of which is contained in a flexible tube, only the hose is subjected to the tests of 8.1.6 to 8.1.8.

NOTE 4: Hoses downstream of a magnetic valve are not subjected to the tests of 8.1.6 to 8.1.8 as long as they cannot come under pressure due to the operation of another magnetic valve.

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

Table 1: Tests applicable to different types of hoses

Test	Type of hose				
	Non-thermoplastic	Non-thermoplastic with metal braiding	Thermoplastic	Thermoplastic with metal braiding	Flexible metal
Kinking	8.1.1	---	8.1.1	---	---
Flexing	---	---	---	---	8.1.2
Bending	---	---	---	---	8.1.3
Crushing	---	8.1.4	---	8.1.4	---
Low temperature	---	---	8.1.5	8.1.5	---
Ageing	8.1.6	8.1.6	8.1.6	8.1.6	---
Pulsing	8.1.7	8.1.7	8.1.7	8.1.7	8.1.7
Pressure	8.1.8	8.1.8	8.1.8	8.1.8	8.1.8
Ozone	8.1.9	8.1.9	8.1.9	8.1.9	---

8.1.1 The kinking test is carried out as follows.

The hose is folded through an angle of 180° at its mid-point between parallel plates so that the distance between the plates is equal to twice the outer diameter of the hose, as shown in figure 3. After 5 s the plates are removed.

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The test is carried out ten times, with a rest period of 1 min during which the hose is unstressed. The hose is folded in the same direction each time.

8.1.2 The flexing test is carried out as follows.

One of the couplings of the hose-set is fixed to an oscillating arm as shown in figure 8. A mass of 2 kg is attached to the other coupling, the hose being freely suspended. The oscillating arm is moved through an angle of 180° at a rate of  $(10 \pm 2)$  flexings per minute for 500 flexings.

NOTE: A flexing is one movement of 180°.

8.1.3 The bending test is carried out as follows.

The hose is folded through an angle of 180° at its mid-point between parallel plates as shown in figure 9. A force of 30 N is applied to the upper plate.

The distance between the plates shall not exceed 200 mm plus twice the outer diameter of the hose.

8.1.4 The crushing test is carried out as follows.

The hose is folded through an angle of 180° at its mid-point between parallel plates. A force of 100 N is applied to the plates and maintained for 5 s.

The test is carried out 10 times with a rest period of 1 min during which the hose is straightened out. The hose is folded in the same direction each time.

NOTE: The arrangement for the test is similar to that shown in figure 3.

8.1.5 The low temperature test is carried out as follows.

The hose is wound into coils having a diameter of  $300 \text{ mm} \pm 10 \text{ mm}$  and placed in a cabinet having a temperature of  $-15 \text{ }^\circ\text{C} \pm 2 \text{ }^\circ\text{C}$ . After 16 hours the hose is uncoiled and within 6 s a full turn is wound around a cylinder which is at the same temperature. The diameter of the cylinder is three times the outer diameter of the hose. The hose is then straightened out.

8.1.6 The ageing test is carried out as follows.

The hose is wound into coils having a diameter of  $300 \text{ mm} \pm 10 \text{ mm}$ . It is filled with water, which is maintained at a pressure of 1,2 MPa. The temperature of the water is:

- $50 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$  for hose-sets intended for cold water supply only;
- $90 \text{ }^\circ\text{C} + 5 \text{ }^\circ\text{C}$  for hose sets intended for hot water supply.

The hose-set is placed in a cabinet having the same temperature as specified for the water, for 168 h. The hose-set is then removed from the cabinet and allowed to cool to approximately room temperature.

8.1.7 The pulsing test is carried out as follows.

The hose-set is connected to a system in which water is circulated and subjected to pressure pulses as shown in figure 4. The temperature of the water is:

- $20 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$  for hose-sets intended for cold water supply only;
- $90 \text{ }^\circ\text{C} + 5 \text{ }^\circ\text{C}$  for hose sets intended for hot water supply.

The pressure is 1,5 MPa and varies sinusoidally with an amplitude of 0,5 MPa, the frequency being 30 pulses per minute. The number of pulses applied is 25 000.

8.1.8 The pressure test is carried out as follows.

The hose-set is filled with water having a temperature of

- $20 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$  for hose-sets intended for cold water supply only;
- $90 \text{ }^\circ\text{C} + 5 \text{ }^\circ\text{C}$  for hose sets intended for hot water supply.

The hose-set is connected to a pressurized water system. The hydrostatic pressure is increased at an uniform rate of approximately 100 kPa/s until 3,15 MPa is attained. This pressure is maintained for 1 min.

8.1.9 *The ozone test is carried out as follows.*

*The samples of hose, each approximately 10 cm long and provided with a coupling, are placed in a cabinet at a temperature of  $30\text{ °C} \pm 5\text{ °C}$  for 96 h. The ozone concentration in the cabinet is 0,5 ppm. The ratio between the total exposed surface area of the three samples in  $\text{cm}^2$ , and the volume of the cabinet in  $\text{cm}^3$  is not to exceed 0,1.*

*After the test, the samples shall show no cracks visible when using a glass with 6 times magnification.*

NOTE: If bulging of the hose caused by the coupling is not visible, for example when it is hidden by a cover, the coupling is replaced by a mandrel as shown in figure 6 pressed into the hose.

8.1.10 *The strength of coupling nuts is checked by the following test.*

*Before starting the test, coupling nuts of thermoplastic material are conditioned for 72 h at a temperature of  $23\text{ °C} \pm 2\text{ °C}$  and a relative humidity between 45 % and 55 %.*

*The coupling nut with its sealing washer is screwed onto the mandrel shown in figure 5 with a maximum of four full threads of engagement and tightened with a torque of 15 Nm.*

NOTE: Washers may be used to limit the engagement.

*The assembly is placed in a cabinet at a temperature of  $90\text{ °C} +5\text{ °C}$ , for 96 h. It is then allowed to cool to approximately room temperature.*

*The torque required to loosen the nut is measured and shall not be less than 8 Nm.*

*The test is carried out twice on the same assembly.*

*The nut shall not break and after removal from the mandrel it shall show no cracks visible to the naked eye and shall be fit for further use.*

8.1.11 *The strength of coupling tubes is checked by the tests of 8.1.11.1 and 8.1.11.2.*

*Before starting the test, coupling tubes of thermoplastic material are conditioned for 72 h at a temperature of  $23\text{ °C} \pm 2\text{ °C}$  and a relative humidity between 45 % and 55 %.*

*After the tests, the coupling tubes shall not be broken, shall show no cracks visible to the naked eye and shall be fit for further use.*

8.1.11.1 *The coupling tube is firmly attached by its coupling nut, without any sealing washer, to a fixed mandrel as shown in figure 10.*

*A steel tube having a wall thickness of at least 2 mm and an inner diameter 0,2 mm larger than the outer diameter of the coupling tube is slipped over the coupling tube as shown in the figure.*



*A force is applied to the steel tube so that the coupling tube is subjected to a bending moment of 10 Nm in 2 s. The force is maintained for 30 s.*

*For angled coupling tubes, two tests are carried out on separate samples. In one test the moment is applied in the direction of the angle and in the other test in the opposite direction.*

8.1.11.2 *The coupling tube is firmly attached by its coupling nut, without a sealing washer, to a fixed mandrel as shown in figure 11.*

*An impact having an energy of 1,6 J is applied to the end of the coupling tube as shown in the figure.*

8.2 If hose-sets incorporate water valves for protection against flooding, these valves shall comply with clause 9.

*Compliance is checked by the relevant tests.*

8.3 Hose-sets shall be durably marked with:

- name, trade mark or identification mark of the manufacturer or responsible vendor;
- model or type reference;
- production date code, identifiable by the manufacturer;
- rated pressure;
- "25 °C max" and a blue coloured identification such as a rim or strip, for hose-sets intended for cold water supply only;
- "90 °C" and a red coloured identification such as a rim or strip, for hose-sets intended for hot water supply.

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*Compliance is checked by inspection and by rubbing the marking by hand for 15 s with a piece of cloth soaked with water and again for 15 s with a piece of cloth soaked with petroleum spirit.*

*After the test, the marking shall be clearly legible, it shall not be easily possible to remove marking plates and they shall show no curling.*

NOTE: The petroleum spirit to be used for the test is aliphatic solvent hexane having a maximum aromatics content of 0,1% by volume, a kauri-butanol value of 29, an initial boiling point of approximately 65 °C, a dry point of approximately 69 °C and a specific mass of approximately 0,66 kg/l.

## 9 Magnetic valves

Replace this clause by:

## 9 Valves

Water valves shall comply with EN 60730-2-8.

In addition, the maximum and minimum working pressures and the maximum water temperature shall be marked on the valve.

*Compliance is checked by inspection.*