
Varnost gospodinjskih in podobnih električnih aparatov - Posebna pravila za rutinsko preskušanje, ki se nanaša na aparate v okviru standardov EN 60335-1 in EN 60967

Safety of household and similar electrical appliances - Particular rules for routine tests referring to appliances under the scope of EN 60335 1 and EN 60967

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Descriptors: Household appliances, routine test, electric strength, earthing continuity

English version

**Safety of household and similar electrical appliances
Particular rules for routine tests referring to appliances
under the scope of EN 60335-1 and EN 60967**

Sécurité des appareils
électrodomestiques et analogues
Règles particulières pour les essais de
série concernant les appareils dans le
domaine d'application de la EN 60335-1
et de la EN 60967

Sicherheit elektrischer Geräte für den
Hausgebrauch und ähnliche Zwecke
Besondere Regeln für Stückprüfungen
von Geräten im Anwendungsbereich der
EN 60335-1 und EN 60967

This European Standard was approved by CENELEC on 1996-10-01. 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.

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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 transform Harmonization Document HD 289 S1:1990 including its amendment A1:1992 into a European Standard, document CLC/TC 61(SEC)858, was circulated in July 1992.

This proposal was discussed during the Pettenasco meeting in September 1992 when it was decided to submit a draft for EN 50106 to the voting procedure. This decision was modified during the El Campello meeting in October 1993 when it was decided to submit a new draft to the unique acceptance procedure (UAP). The procedure started in October 1994 but due to the number of comments received, the draft was rediscussed during the Dublin meeting in May 1995 when it was decided to submit a revised draft to the formal vote.

This draft was circulated in March 1996 and was ratified by CENELEC as EN 50106 on 1996-10-01.

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

The following dates are applicable:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 1997-04-01
- date on which national standards
conflicting with the EN have to be withdrawn (dow) 1999-04-01

For products which have complied with HD 289 S1:1990 and its amendment A1:1992 before 1999-04-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2004-04-01.

National deviations from this European Standard are given with the relevant standard sheet.

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Introduction

The tests detailed in this standard are carried out by the manufacturer and apply to products within the scope of EN 60335-1 and EN 60967.

These tests are intended to reveal a variation during the manufacture of appliances which could impair safety. They do not impair the properties and the reliability of the appliance and are to be carried out on each appliance. They are normally carried out on the complete appliance after assembly but the manufacturer may perform the tests at an appropriate stage during production, provided later manufacturing operations would not affect the results.

NOTE: Components are not subjected to these routine tests if they have been previously checked by suitable routine tests.

The manufacturer may use a test procedure which is better suited to his production arrangements provided that appliances which withstand those tests have at least the same degree of safety as appliances that withstand the tests specified in this standard.

The routine tests listed in this standard are the minimum considered necessary to cover essential safety aspects. It is the responsibility of the manufacturer to decide if additional routine tests are necessary. It may be determined from engineering considerations that some of the tests required in this standard are impracticable or inappropriate and therefore unnecessary.

If a product fails any of the tests, it is subjected to all of the tests after repair and/or adjustment.

There are no additional requirements for particular appliances unless stated in the relevant standard sheet of section 2.

SECTION 1 - GENERAL TESTS

1.1 Earth continuity test

For Class I appliances, a current of at least 10 A derived from a source having a no-load voltage not exceeding 12 V, is passed between each of the accessible earthed metal parts and

- *the earthing pin or earthing contact of the plug;*
- *the earthing terminal, for appliances intended to be permanently connected to fixed wiring;*
- *the earthing pin of the appliance inlet.*

The voltage drop is measured and the resistance is calculated from the current and voltage drop.

NOTE 1: The test is only carried out for the duration necessary for the measurement to be made.

The resistance shall not exceed

- *0,2 Ω for appliances having a supply cord;*
- *0,1 Ω for other appliances.*

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NOTE 2: Care is to be taken to ensure that the contact resistance between the tip of the measuring probe and the metal part under test does not influence the test results.

NOTE 3: For appliances having a long supply cord the resistance may exceed 0,2 Ω but it is not to exceed the sum of the resistance of the supply cord and 0,1 Ω .

1.2 Electric strength test

The insulation of the appliance is subjected to a voltage of substantially sinusoidal waveform having a frequency of approximately 50 Hz or 60 Hz for 1 s. The value of the test voltage (r.m.s.) and the points of application are shown in the following table.

Points of application	Test voltage V		
	Class I appliances	Class II appliances	Class III appliances
Between live parts and accessible metal parts separated from live parts by - basic insulation only - double or reinforced insulation	1 000 2 500	2 500	400
Between live parts and metal parts separated from live parts by basic insulation only ¹⁾		1 000	
1) This test may be carried out on components during assembly			

No breakdown shall occur.

NOTE 1: The circuit used for the test incorporates a current sensing device which trips when the current exceeds 5 mA. However, it may be necessary to set the device to trip at a higher value which is not to exceed 30 mA. Tripping of the device indicates breakdown by audible or visual means. The high voltage transformer is to be capable of maintaining the specified voltage until the tripping current flows.

NOTE 2: Instead of being subjected to an a.c. voltage, the insulation may be subjected to a d.c. voltage of 1,5 times the value shown in the table. An a.c. voltage having a frequency up to 5 Hz is considered to be a d.c. voltage.

1.3 Functional test

The functioning of a component is checked by inspection or an appropriate test if its malfunction could result in a hazard.

NOTE: Verifying the correct direction of rotation of motors and the appropriate operation of switches and controls are examples of checks which may be necessary.

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SECTION 2 - STANDARD SHEETS

These standard sheets state additional routine tests for the following appliances:

Sheet	Appliance
EN 50106-2-21	Storage water heaters
EN 50106-2-25	Microwave ovens
EN 50106-2-29	Battery chargers
EN 50106-2-35	Instantaneous water heaters
EN 50106-2-45	Portable electric heating tools
EN 50106-2-967	Heated blankets, pads and similar flexible heating appliances

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**Routine tests for storage water heaters
within the scope of EN 60335-2-21**

**Standard sheet
50106-2-21**

This sheet modifies or supplements section 1 of EN 50106.

Addition:

2.1 Construction

The water container is subjected to a pressure test using water, air or an other gas.

During the test, no leakage shall occur.

When water is used the pressure is

- *0,7 MPa, for closed water heaters or 1,1 times rated pressure for those having a rated pressure greater than 0,6 MPa;*
- *0,3 MPa, for cistern-fed water heaters;*
- *0,15 MPa, for open-outlet water heaters;*
- *0,03 MPa, for cistern-type water heaters.*

When air or gas is used, the pressure is to be sufficient to reveal any leakage.

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A-deviation: National deviation due to regulations, the alteration of which is for the time being outside the competence of the CEN/CENELEC member.

This European Standard does not fall under any Directive of the EC. In the relevant CENELEC countries these A-deviations are valid instead of the provisions of the European Standard until they have been removed.

Deviation

Sweden ((Ordinance AFS 1990:15)

All closed water heaters must be tested with 1,5 times rated pressure.