



SLOVENSKI STANDARD

SIST EN 50229:2008

01-januar-2008

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SIST EN 50229:2002

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Electric clothes washer-dryers for household use - Methods of measuring the performance

Elektrische Wasch-Trockner für den Hausgebrauch - Prüfverfahren zur Bestimmung der Gebrauchseigenschaften

Lavantes-séchantes électriques a usage domestique - Méthodes de mesure de l'aptitude a la fonction

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Ta slovenski standard je istoveten z: **EN 50229:2007**

ICS:

97.060

Aparati za nego perila

Laundry appliances

SIST EN 50229:2008

en

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English version

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This European Standard was approved by CENELEC on 2007-06-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the 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

This European Standard was prepared by the Technical Committee CENELEC TC 59X, Consumer information related to household electrical appliances, according to the decisions made by CLC/TC 59X at the meeting in September 22nd/23rd 2005 and of CLC/TC 59X WG 1 at the meeting 21st/22nd September 2005.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50229 on 2007-06-01.

This European Standard supersedes EN 50229:2001.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2008-06-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2010-06-01

It is based on the EN 50229:2001 taking into account the current versions of EN 60456:2005 and EN 61121:2005. Significant technical differences to the revised second edition, EN 50229:2001, are:

- revised referring to revised EN 60456;
- revised referring to revised EN 61121.

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directive 96/60/EC implementing Council Directive 92/75/EEC on "indication by labelling and standard product information of the consumption of energy and other resources by household appliances".

It deals **only** with those test procedures that are required for the EC Directive as described in the scope of this standard.

It also defines permitted tolerances to values declared by the manufacturer and control procedures for checking these values.

Contents

	Page
1 Scope.....	4
2 Normative references	4
3 Definitions	5
4 External dimensions	5
5 Range of rated capacity.....	5
6 General conditions for measurements.....	6
7 Materials	6
8 Instrumentation and accuracy	6
9 Methods of measurement.....	6
10 Tolerances and control procedures	11
Annex A (normative) Splitting of the base load into two or three partial loads.....	12
Annex B (informative) Suggested form in which the data is reported.....	13
Bibliography	14

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1 Scope

This European Standard specifies the test methods which shall be applied in accordance with the Commission Directive 96/60/EC of 19 September 1996 implementing Council Directive 92/75/EEC with regard to energy labelling of household combined washer-driers.

It deals with

- performance criteria, including energy and water consumption, for the 60 °C cotton wash programme as specified in EN 60456:2005,
- energy and water consumption of the drying cycle based on the “Dry cotton programme” as specified in EN 61121:2005,
- permitted tolerances to values declared by the manufacturer and control procedures for checking these declared values.

This European Standard is concerned neither with safety nor with performance requirements.

NOTE Washer-dryers for communal use in blocks of flats or in launderettes are within the scope of this standard, but machines for commercial laundries are not included.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 60456	2005	Clothes washing machines for household use – Methods for measuring the performance (IEC 60456:2003, mod.)
EN 60704-2-4		Household and similar electrical appliances – Test code for the determination of airborne acoustical noise – Part 2-4: Particular requirements for washing machines and spin extractors (IEC 60704-2-4)
EN 60704-2-6		Household and similar electrical appliances – Test code for the determination of airborne acoustical noise – Part 2-6: Particular requirements for tumble dryers (IEC 60704-2-6)
EN 60704-3		Household and similar electrical appliances – Test code for the determination of airborne acoustical noise – Part 3: Procedure for determining and verifying declared noise emission values (IEC 60704-3)
EN 61121	2005	Tumble dryers for household use – Methods for measuring the performance (IEC 61121:2002, mod. + corr. Apr. 2003 + corr. Sept. 2003)

3 Definitions

For the purpose of this document, the terms and definitions in Clause 3 of EN 60456 apply, except for 3.1.12 and 3.1.13.

Additional definitions:

3.101

rated washing capacity

maximum mass of conditioned textiles (conditioned according to Subclause 6.3.3 in EN 60456), in kg, which the manufacturer declares can be treated in one complete **washing cycle**

3.102

rated drying capacity

maximum mass of conditioned textiles (conditioned according to Subclause 6.3.3 in EN 60456), in kg, which the manufacturer declares can be treated in one complete single drying operation

3.103

complete operation cycle

complete washing and drying process, as defined by the required programme(s), consisting of a the **washing cycle** and the **drying cycle**

3.104

washing cycle

complete washing process, as defined by the required programme, consisting of a series of different operations (wash, rinse, spin)

3.105

drying cycle

complete drying process, as defined by the required programme, consisting of a series of different operations (heat, cool down). The drying cycle comprise drying of all partial loads, if the **base load** is split up according to 9.4.3.2 – c)

3.106

automatic drying

drying process which automatically switches off when a certain moisture content of the load is reached

4 External dimensions

See Subclause 3.3 of EN 60456.

5 Range of rated capacity

The **rated capacity** for measurements to determine values to be declared for the 60 °C cotton **cycle** according to the Commission's Directive on energy labelling is the value declared by the manufacturer as highest amount of cotton textiles to be washed, given in the instruction manual or on the energy label supplied with the machine, whatever is higher.

If the **rated capacity** is not declared, the **rated capacity** for a cotton load shall be deduced from the volume of the drum according to the following ratio:

- horizontal drum washing machine 1 kg / 13 l.

If the **rated capacity** for easy care textiles and woollens is not specified by the manufacturer, the load shall be respectively 40 % and 20 % of that for cotton.

When the manufacturer gives a range of values for the **rated capacity** for a particular textile type, the highest value shall be used.

NOTE For different textile types the **rated capacity** of an appliance is usually different.

6 General conditions for measurements

See Clause 5 of EN 60456, however 5.2.2 and 5.2.3 are modified and 5.2.4 is added as follows:

6.2.2 Water supply

Delete the last paragraph of Subclause 5.2.2 of EN 60456: “for appliances without heating element...”.

6.2.3 Ambient temperature

The ambient temperature shall be in accordance with Subclause 6.2.3 in EN 61121.

6.2.4 Ambient humidity

The ambient humidity shall be in accordance with Subclause 6.2.4 in EN 61121.

7 Materials

See Clause 6 of EN 60456.

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NOTE IEC reference detergent A will be replaced in the future by a new reference detergent A*.

8 Instrumentation and accuracy

See Clause 7 of EN 60456.

9 Methods of measurement

9.1 Determination of the washing performance

See Clause 8 of EN 60456 with regard to the cotton test load.

9.2 Determination of the spin extraction

See Clause 10 of EN 60456.

9.3 Determination of the maximum spin speed (rpm)

See Clause Z1 of EN 60456.

9.4 Determination of the water and energy consumption and programme time

9.4.1 General

This clause specifies the procedure and evaluation for the determination of water and energy consumption during washing, spin extraction and drying. It also specifies the method for the determination of the duration of these cycles and of the **complete operating cycle**.

NOTE The tests in this clause may be combined with the tests in 9.1 and 9.2.

9.4.2 Washing cycle

The measurement shall be carried out in accordance with Subclause 5.1 and Clause 11 of EN 60456.

9.4.3 Drying cycle

9.4.3.1 General

The mass of the conditioned **base load** is recorded as W_0 .

The number of valid **drying cycles** shall be five.

9.4.3.2 Procedure

- a) A **washing cycle** shall be performed according to 9.1.
- b) Immediately when the **washing cycle** is finished the strips are removed from the test load and the initial mass of the base load is recorded in kg as W_i . The actual initial moisture content is calculated as:

$$\mu_i = \frac{W_i - W_0}{W_0} \times 100 \quad (1)$$

where

- μ_i is the actual initial moisture content,
- W_i is the actual initial mass of the **base load** after the **washing cycle**,
- W_0 is the mass of the conditioned **base load**.

- c) The **base load** W_i shall be dried under the conditions specified below (dry cotton) to nominal final moisture content $\mu_{fo} = 0 \%$, allowable range for μ_{fo} : -3% to $+3 \%$. [Table 3 in Subclause 9.2.1 of EN 61121]

- 1) The **base load** shall be divided according to the instruction of the manufacturer. If no instruction is given and the **rated drying capacity** is lower than the **rated washing capacity**, the **base load** is divided in nearly equal partial loads each part not being above the **rated drying capacity**. The division of the **base load** shall be according to Annex A.

In this case all items of the **base load** shall be marked before starting the **washing cycle**, in order to identify to which partial load each item belongs. The partial loads shall consist of the same items throughout the test.

- 2) Within 5 min after finishing the **washing cycle** the drying of the first partial load has to be started. The other partial load(s) shall be kept in (a) closed plastic bag(s).

For washer-dryers with **automatic drying** the programme under test is selected and the washer dryer is started. For washer-dryers without **automatic drying** the timer is set to obtain the final moisture given above under c). The time required for this is determined by monitoring the drying process. This can be done by either having the washer dryer placed on a platform scale or by pre-testing.