SLOVENSKI STANDARD
SIST EN 50229:2002

01-september-2002

Nadomeġļa:
SIST EN 50229:1998

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

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 à usage domestique - Méthodes de mesure de l'aptitude à la fonction

Ta slovenski standard je istoveten z: **EN 50229:2001**

ICS:

97.060	Aparati za nego perila	Laundry appliances

SIST EN 50229:2002 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50229

August 2001

ICS 97.060

Supersedes EN 50229:1997

English version

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

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

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

This European Standard was approved by CENELEC on 2001-05-01. 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, Czech Republic, 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

Ref. No. EN 50229:2001 E

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 May 2000 and of CLC/TC 59X WG 1 at the meeting in July 2000. It is based on EN 61121:1999 and EN 60456:1999.

Significant technical differences to the first edition, EN 50229:1997, are:

- undated references in clause 2,
- new definitions in clause 3,
- completely revised procedures for the determination of the water and energy consumption and programme time in 9.4.
- extended list of data to be reported in 9.4.5

This second edition of EN 50229 supersedes EN 50229:1997.

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 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.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50229 on 2001-05-01.

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)	2002-05-01
- latest date by which national standards conflicting with the EN have to be withdrawn	(dow)	2004-05-01

Annexes designated “normative” are part of the body of the standard.
Annexes designated “informative” are given for information only.
In this standard, annex A is normative and annex B is informative.

Contents

1 Scope

This European Standard specifies the test methods which shall be applied in accordance with the Directive 96/60/EC implementing Council Directive 92/75/EEC with regard to energy labelling of electric clothes washer-dryers for household use.

It deals with

- performance criteria, including energy and water consumption, for the 60 °C cotton wash programme as specified in EN 60456,
- energy and water consumption of the drying cycle based on the “Dry cotton programme“ as specified in EN 61121,
- 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

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 60456	Clothes washing machines for household use - Methods for measuring the performance (IEC 60456:1998, modified)
EN 60704-1	Household and similar electrical appliances - Test code for the determination of airborne acoustical noise Part 1: General requirements (IEC 60704-1)
EN 60704-2-4	Part 2: Particular requirements for washing machines and spin extractors (IEC 60704-2-4)
EN 60704-2-6	Part 2: Particular requirements for tumble-dryers (IEC 60704-2-6)
EN 60704-3	Part 3: Procedure for determining and verifying declared noise emission values (IEC 60704-3)
EN 61121	Tumble dryers for household use - Methods for measuring the performance (IEC 61121:1997, modified)

3 Definitions

For the purpose of this standard, the definitions in clause 3 of EN 60456 apply, except for 3.11 and 3.12.

Additional definitions:

3.101
rated washing capacity
maximum mass of conditioned textiles (conditioned according to 7.2.3 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 7.2.3 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 clause 4 of EN 60456.

5 Range of rated capacity

Where the manufacturer gives a range for the **rated capacity**, for example 4,5 kg – 5 kg, the maximum shall be used.

6 General conditions for measurements

See clause 6 of EN 60456, however 6.2.2 and 6.2.3 are modified and 6.2.4 is added as follows:

6.2.2 Water supply

Delete the last paragraph: "For appliances without heating elements ...".

6.2.3 Ambient temperature

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

6.2.4 Ambient humidity

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

7 Materials

See clause 7 of EN 60456.

8 Instrumentation and accuracy

See clause 8 of EN 60456.

9 Methods of measurement

9.1 Determination of the washing performance

See clause 9 of EN 60456 with regard to the cotton test load.

9.2 Determination of the spin extraction

See clause 11 of EN 60456.

9.3 Determination of the maximum spin speed (rpm)

See clause 101 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 6.1 and clause 12 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:

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

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 μ_{fo} = 0,
allowable range for μ_{fo}: -3 to +3. [Table 3 in 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.

3) When the programme has terminated and the washer-dryer has stopped, the partial load is then removed within 5 min and immediately weighed. This weight is recorded as W_{fp1}.

4) Within 5 minutes after finishing the drying of the first partial load the drying of the second partial load shall be started. Immediately after drying its weight is recorded as W_{fp2}.

5) The remaining partial load(s), if any, shall be dried as described in 4), the weight recorded as W_{fp3}, etc.

d) After drying of all partial loads the following measurements shall be carried out:

1) Drying time

The drying time in min is the sum of the drying times of all partial loads including the cool down period(s) measured during the tests according to 9.4.3.2 c). If the washer-dryer has no cool down period, it shall be reported.

The drying time does not include the 5 min preparation time as specified in item 2) and item 4) of 9.4.3.2 c).