

Tumble dryers for household use — Methods for measuring the performance

The European Standard EN 61121:1999 with the incorporation of amendment A11:2000 has the status of a British Standard

ICS 97.060

National foreword

This British Standard is the official English language version of EN 61121:1999 including amendment A11:2000. It was derived by CENELEC from IEC 61121:1997 including amendment A11:2000. It supersedes BS EN 61121:1994 which will be withdrawn on 1999-10-01.

The CENELEC common modifications have been implemented at the appropriate places in the text and are indicated by a sideline in the margin.

The UK participation in its preparation was entrusted by Technical Committee CPL/59, Performance of household electrical appliances, to Subcommittee CPL/59/4, Home laundry appliances, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

From 1 January 1997, all IEC publications have the number 60000 added to the old number. For instance, IEC 27-1 has been renumbered as IEC 60027-1. For a period of time during the change over from one numbering system to the other, publications may contain identifiers from both systems.

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Attention is drawn to the fact that CEN and CENELEC Standards normally include an annex which lists normative references to international publications with their corresponding European publications. The British Standards which implement these international or European publications may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 23 and a back cover

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Amendments issued since publication

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13078	May 2001	Correction to the eleventh paragraph of 9.2.1.

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English version

Tumble dryers for household use — Methods for measuring the performance

(includes amendment A11:2000)
(IEC 61121:1997, modified)

Sèche-linge à tambour à usage domestique —
Méthodes de mesure de l'aptitude à la fonction
(inclut l'amendement A11:2000)
(CEI 61121:1997, modifiée)

Wäschetrockner für den Hausgebrauch
Verfahren zur Messung der
Gebrauchseigenschaften
(enthält Änderung A11:2000)
(IEC 61121:1997, modifiziert)

This European Standard was approved by CENELEC on 1999-05-01. Amendment A11 was approved by CENELEC on 2000-08-01. 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

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Foreword

The text of the International Standard IEC 61121:1997, prepared by SC 59D, Home laundry appliances, of IEC TC 59, Performance of household electrical appliances, together with common modifications prepared by the Technical Committee CENELEC TC 59X, Consumer information related to household electrical appliances, was submitted to the formal vote and was approved by CENELEC as EN 61121 on 1999-05-01.

This European Standard supersedes EN 61121:1993 and its amendment A11:1995.

Significant technical differences are:

- a) Tolerance limits have been specified for instrumentation and base loads.
- b) For condenser tumble dryers an option of two methods for measuring the efficiency of condensation is included
- c) An optional method for measurement and calculation of the evenness of drying has been added.
- d) The final moisture content for iron dry cotton program has been changed.

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) 1999-10-01
- latest date on which national standards conflicting with the EN have to be withdrawn (dow) 1999-10-01

Annexes designated “normative” are part of the body of the standard.

Annexes designated “informative” are given for information only.

In this standard, annexes A, B and ZA are normative and annex C is informative.

ZA has been added by CENELEC.

In the official version, for annex C, Bibliography, the following notes have to be added for the standards indicated:

- IEC 60704-1 NOTE: Harmonized as EN 60704-1:1994, which is superseded by EN 60704-1:1997 (not modified.)
- IEC 60704-2-6 NOTE: Harmonized as EN 60704-2-6:1995 (Not modified).

Foreword to amendment A1

This amendment was prepared according to decisions made by CENELEC TC 59 X, Consumer information related to household electrical appliances, at the meeting of 22nd/23rd June 1999. It shall determine unmistakably the drying conditions for non-automatic tumble dryers and for automatic tumble dryers as well.

Taking into account the urgency of this matter due to the Commission’s Implementing Directive on energy labelling of household tumble dryers the draft amendment was submitted to the Unique Acceptance Procedure. It was approved by CENELEC as amendment A11 to EN 61121:1999 on 2000-08-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2001-01-01
- latest date by which national standards conflicting with the amendment have to be withdrawn (dow) 2001-01-01

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INTRODUCTION

Experience of the use of IEC 61121, first edition together with some revised test conditions and a common base load with IEC 60456 are the reasons for a second edition.

The main changes are:

1) Reproducibility:

- repeatability of drying results has been improved by specifying tolerance limits for instrumentation and base loads;
- the tolerance limits for initial moisture content are reduced.

2) Test methods:

- the condenser tumble dryer has become a more common variant. For this type of tumble dryer it is important to measure the efficiency of condensation. The second edition includes an option of two methods of measurement;
- an optional method for the measurement and calculation of the evenness of drying has been added.

3) Loads:

- the test load for cottons has been rationalized, the Standard Load I of IEC 61121, first edition, has been eliminated and now programmes for both dry cotton and iron-dry cotton will be conducted with the Standard Load II. This load has been renamed "Cotton base load" throughout the second edition. This cotton base load is also specified in IEC 60456, third edition;
- the test load for easy-care textile programmes is unchanged except for renaming. Standard Load III of IEC 61121, first edition, has become "Easy-care textile base load" for the second edition. This easy-care textile base load is also specified in IEC 60456, third edition;
- tolerances for size and mass per unit area of base load materials have been introduced;
- the preparation of the base loads has been changed;
- to minimize the influence of ageing of the textiles, a method of mixing old and new textiles is specified.

4) Other changes include:

- the final moisture content for the iron dry cotton programme has been changed;
- the formula for the correction of consumption figures has been modified, but this method is still under consideration.

5) Methods under consideration:

- the method of determination of creasing is still under consideration. A separate IEC SC 59D Working Group (WG 9) has been set up to investigate this aspect for both washing machines and tumble dryers;
- the method for measurement of lint content in exhaust air is still under consideration. A separate IEC SC 59D Working Group (WG 12) has been set up to investigate this aspect;
- the need to specify the properties of water (water hardness and conductivity) for automatic tumble dryers is under consideration;
- the use of a second water hardness test is also under consideration.

TUMBLE DRYERS FOR HOUSEHOLD USE – Methods for measuring the performance

1 Scope

This International Standard is applicable to household electric **tumble dryers** of the **automatic** and **non-automatic** type, with or without a cold water supply and incorporating a heating device.

The object is to state and define the principal performance characteristics of household electric **tumble dryers** of interest to users and to describe standard methods for measuring these characteristics.

This standard is concerned neither with safety nor with performance requirements.

This European Standard also specifies, as far as necessary, the test methods which shall be applied in accordance with the Commission's Directive 95/13/EC of 23 May 1995 implementing Council Directive 92/75/EEC with regard to energy labelling of household Electric Tumble Dryers and adds clauses defining permitted tolerances to values declared by the manufacturer and control procedures for checking these declared values.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60456:1997, *Electric clothes washing machines for household use - Methods for measuring the performance*

IEC 60734:1993, *Hard water to be used for testing the performance of some household electrical appliance*

ISO 5167-1:1991, *Measurement of fluid flow by means of pressure differential devices - Part 1: Orifice plates, nozzles and Venturi tubes inserted in circular cross-section conduits running full*

IEC 60704-2-6:1994 *Test code for the determination of airborne acoustical noise emitted by household and similar electrical appliances – Part 2: Particular requirements for tumble dryers*

IEC 60704-3:1992 *Test code for the determination of airborne acoustical noise emitted by household and similar electrical appliances – Part 3: Procedure for determining and verifying declared noise emission values*

3 Definitions and symbols

For the purposes of this standard, the following definitions apply.

3.1

tumble dryer

appliance in which textile material is dried by tumbling in a rotating drum, through which heated air is blown

3.2

air vented tumble dryer

tumble dryer with a fresh-air intake which is heated and drawn or blown over the textile material and where the resulting moist air is exhausted into the room or vented outside

3.3

condenser tumble dryer

tumble dryer in which the air used for the drying process is dehumidified by cooling

NOTE - Combinations of the above-mentioned types are possible.

3.4

automatic tumble dryer

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

3.5

non-automatic tumble dryer

tumble dryer which does not switch off the drying process when a certain moisture content of the load is reached

3.6

programme

series of operations which are pre-defined and which are declared as suitable for drying certain types of textiles

3.7

cycle

complete drying process, as defined by the **programme** selected, consisting of a series of different operations (heat, cool down etc.)

3.8

rated capacity

maximum mass of dry textiles which the manufacturer declares can be treated in a specific **programme**