BS EN 61121:2013+A11:2019

BSI Standards Publication

Tumble dryers for household use – Methods for measuring the performance

National foreword

This British Standard is the UK implementation of EN 61121:2013+A11:2019. It is derived from IEC 61121:2012. It supersedes BS EN 61121:2013, which is withdrawn.

The CENELEC common modifications have been implemented at the appropriate places in the text. The start and finish of each common modification is indicated in the text by tags 〈C〉 〈C〉.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to text carry the number of the CENELEC amendment. For example, text altered by CENELEC amendment A11 is indicated by 〈A11〉 〈A11〉.

The UK participation in its preparation was entrusted to Technical Committee CPL/59, Performance of household electrical appliances.

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

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Published by BSI Standards Limited 2019

ISBN 978 0 580 52489 9

ICS 97.060

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 July 2015.

Amendments/corrigenda issued since publication

Date	Text affected
31 October 2019	Implementation of CENELEC amendment A11:2019

EUROPEAN STANDARD

EN 61121:2013/A11

EUROPÄISCHE NORM

August 2019

ICS 97.060

English version

Tumble dryers for household use - Methods for measuring the performance
(IEC 61121:2012, modified)

Sèche-linge à tambour à usage domestique - Méthodes de mesure de l'aptitude à la fonction (CEI 61121:2012, modifiée)

Wäschetrockner für den Hausgebrauch - Verfahren zur Messung der Gebrauchseigenschaften (IEC 61121:2012, modifiziert)

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CENELEC
European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 61121:2013 E

European foreword

This document (EN 61121:2013) consists of the text of IEC 61121:2012 prepared by IEC/SC 59D "Home laundry appliances" of IEC/TC 59 "Performance of household and similar electrical appliances", together with the common modifications prepared by CLC/TC 59X "Performance of household and similar electrical appliances".

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2013-12-31
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2015-12-31

This document supersedes EN 61121:2005.

EN 61121:2013 includes the following significant technical changes with respect to EN 61121:2005:

a) a test procedure for a combined test sequence of full and **partial load** was introduced;

b) a test procedure for measuring power consumption in low power modes is introduced;

c) a formula to calculate the energy consumption of **tumble dryers** including low power modes was added;

d) control procedures for checking measured values in comparison to values declared by the manufacturer under consideration of permitted tolerances are updated.

Clauses, subclauses, notes, tables and figures which are additional to those in IEC 61121:2012 are prefixed “Z”.

Words in **bold** in the text are defined in Clause 3.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

This European Standard specifies, as far as necessary, the test methods which shall be applied in accordance with the COMMISSION DELEGATED REGULATION (EU) No 392/2012 implementing Directive 2010/30/EU the European Parliament and of the Council with regard to energy labelling of household **tumble dryers** and in accordance with the COMMISSION REGULATION (EU) No 932/2012 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for household **tumble dryers**.

The procedures described in this European Standard were modified substantially compared to the previous version, e.g. with regard to **partial load**. Therefore, results of tests according to this standard cannot and shall not be directly compared to results of similar procedures of previous versions. In addition, results based on a specific reference **programme** shall not be compared to results based on other reference programs.

Annex ZA sets out the procedure to be applied for testing according to Commission Regulations with regard to energy labelling and ecodesign and provides all necessary links to all relevant clauses of this European Standard.

Annex ZB provides control procedures for checking measured values in comparison to values declared by the manufacturer under consideration of permitted tolerances.

Annex ZC lists normative references.

Endorsement notice

The text of the International Standard IEC 61121:2012 was approved by CENELEC as a European Standard with agreed common modifications

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Foreword to amendment A11

This document (EN 61121:2013/A11:2019) has been prepared by CLC/TC 59X " Performance of household and similar electrical appliances".

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2020-02-23
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2022-08-23

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For the relationship with EU Directive(s) see informative Annexes ZZA and ZZB, which are integral parts of this document.

Annex ZA
(normative)

Test procedure for a combined test sequence of cotton dry with full load and partial load

ZA.1 General

This annex sets out the procedure for the determination of performance and related parameters for **full load** and for **partial load** for a **cotton dry programme** of the **tumble dryer**.

The combined test sequence to measure performance parameters is defined as a **test series** consisting of 7 **test runs** with two different **treatments** as follows:

– **Treatment full**: 3 **test runs**

– **Treatment half**: 4 **test runs**

The two low power modes (Left-on mode and Off-mode) shall be determined for **treatment full**.

〚A11〛 The airborne acoustical noise shall be measured according with EN 60704-2-6. 〚A11〛

ZA.2 Preparation for testing – Test loads

Subclause 6.5 sets out requirements for the preparation of the **test loads** used in the **tumble dryer**.

All requirements of 6.4 shall be applied to define the **full load** for a **test series**. For the **test runs** with **partial load,** a full **test load** shall be split into two parts. This clause defines the splitting of a **full load** into the two **partial loads** (part A and part B) as detailed in Table ZA.1.

Table ZA.1 – Partial loads: number of items in part A and part B of the cotton test load

Nominal mass of full load kg		Nominal mass of half the full load kg	Number of sheets	Number of pillowcases	Number of towels	Mass of half load kg
1	Part A	**0,5**	0	1	2	0,46
	Part B	**0,5**	0	1	3	0,57
1,5	Part A	**0,75**	0	1	5	0,79
	Part B	**0,75**	0	2	2	0,70
2	Part A	**1**	0	2	5	1,03
	Part B	**1**	0	2	4	0,92
2,5	Part A	**1,25**	0	2	7	1,25
	Part B	**1,25**	0	3	5	1,27
3	Part A	**1,5**	1	2	3	1,54
	Part B	**1,5**	1	2	2	1,43
3,5	Part A	**1,75**	1	2	5	1,76
	Part B	**1,75**	1	2	5	1,76
4	Part A	**2**	1	2	7	1,98
	Part B	**2**	1	2	7	1,98
4,5	Part A	**2,25**	1	3	7	2,22
	Part B	**2,25**	1	3	8	2,33
5	Part A	**2,5**	1	3	10	2,55
	Part B	**2,5**	1	3	9	2,44
5,5	Part A	**2,75**	1	4	10	2,79
	Part B	**2,75**	1	4	9	2,68
6	Part A	**3**	1	4	12	3,01
	Part B	**3**	1	4	12	3,01
6,5	Part A	**3,25**	1	5	12	3,25
	Part B	**3,25**	1	5	12	3,25
7	Part A	**3,5**	1	6	12	3,49
	Part B	**3,5**	1	6	12	3,49
7,5	Part A	**3,75**	2	6	8	3,77
	Part B	**3,75**	1	6	14	3,71
8	Part A	**4**	2	6	10	3,99
	Part B	**4**	1	6	17	4,04
8,5	Part A	**4,25**	2	7	10	4,23
	Part B	**4,25**	1	7	17	4,28
9	Part A	**4,5**	2	7	12	4,45
	Part B	**4,5**	2	7	13	4,56
9,5	Part A	**4,75**	2	7	15	4,78
	Part B	**4,75**	2	7	14	4,67
10	Part A	**5**	2	8	15	5,02
	Part B	**5**	2	8	15	5,02
10,5	Part A	**5,25**	3	7	13	5,29
	Part B	**5,25**	2	8	17	5,24

Nominal mass of full load kg		**Nominal mass of half the full load** kg	**Number of sheets**	**Number of pillowcases**	**Number of towels**	**Mass of half load** kg
11	Part A	**5,5**	3	7	15	5,51
	Part B	**5,5**	2	8	19	5,46
11,5	Part A	**5,75**	3	8	15	5,75
	Part B	**5,75**	2	8	22	5,79
12	Part A	**6**	3	8	17	5,97
	Part B	**6**	3	9	15	5,99
12,5	Part A	**6,25**	3	8	20	6,30
	Part B	**6,25**	3	9	17	6,21
13	Part A	**6,5**	3	9	20	6,54
	Part B	**6,5**	3	9	19	6,43
13,5	Part A	**6,75**	3	9	22	6,76
	Part B	**6,75**	3	10	20	6,78
14	Part A	**7**	3	9	24	6,98
	Part B	**7**	3	10	22	7,00
14,5	Part A	**7,25**	4	10	18	7,28
	Part B	**7,25**	3	10	24	7,22
15	Part A	**7,5**	4	10	20	7,50
	Part B	**7,5**	3	11	24	7,46

NOTE The number of towels in each half load A and B may differ from the number indicated above. In this case the formulas below shall be used to evaluate the number of towels in each test load.

Part A and Part B shall be made entirely from the **full load** without adding or subtracting any towels. For each **partial load**, the conditioned **test load mass** shall be recorded.

The requirement for **test load mass** to be within ± 60 g of the **nominal test load mass** shall not apply to **partial loads**.

For **test load masses** which are greater than those specified in the Table 3 (> 15 kg), the number of items for part A and part B is defined as follows:

Part A:

Number of sheets: is the half of the number of sheets at rated **test load mass** rounded to the next whole sheet (always round up)

$$n_{A,SH} = \left\lfloor \frac{n_{SH}}{2} \right\rfloor$$

where

n_{SH} is the number of sheets at rated **test load mass.**

Number of pillowcases: is half the number of pillowcases at rated **test load mass** rounded to the next whole pillowcase (always round down).

$$n_{A,PC} = \left\lceil \frac{n_{PC}}{2} \right\rceil$$

where

n_{PC} is the number of pillowcases at rated **test load mass.**

Number of towels: is the nominal partial **test load mass** minus the number of pillowcases from part A multiplied by 0,240 minus the number of sheets from part A multiplied by 0,725 and divided by 0,109 rounded to the nearest whole towel.

$$n_{A,T} = \left\lceil \frac{W_{n,part} - (n_{A,PC} \times 0{,}240) - (n_{A,SH} \times 0{,}725)}{0{,}109} \right\rceil$$

where

$W_{n,part}$ is the nominal partial **test load mass;**

$n_{A,PC}$ is the number of pillowcases in part A;

$n_{A,SH}$ is the number of sheets in part A.

Part B:

Number of sheets: is the number of sheets at rated **test load mass** minus the number of sheets from part A.

$$n_{B,SH} = n_{SH} - n_{A,SH}$$

where

n_{SH} is the number of sheets at rated **test load mass;**

$n_{A,SH}$ is the number of sheets in part A.

Number of pillowcases: is the number of pillowcases at rated **test load mass** minus the number of pillowcases from part A.

$$n_{B,PC} = n_{PC} - n_{A,PC}$$

where

n_{PC} is the number of pillowcases at rated **test load mass;**

$n_{A,PC}$ is the number of pillowcases in part A.

Number of towels: is the number of towels at rated **test load mass** minus the number of towels from part A.

$$n_{B,T} = n_T - n_{A,T}$$

where

n_T is the number of towels at rated **test load mass;**

$n_{A,T}$ is the number of towels in part A.