



BSI Standards Publication

Vacuum cleaners for household use

Part 1: Dry vacuum cleaners — Methods for measuring the performance (IEC 60312-1:2010, modified + A1:2011, modified)

National foreword

This British Standard is the UK implementation of EN 60312-1:2017. It is derived from IEC 60312-1:2010, incorporating amendment 1:2011. It supersedes BS EN 60312-1:2013 which will be withdrawn on 2 January 2020.

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 **Ⓒ** **Ⓒ**.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to IEC text carry the number of the IEC amendment. For example, text altered by IEC amendment 1 is indicated by **A₁** **A₁**.

The UK participation in its preparation was entrusted to Technical Committee CPL/59/6, Floor treatment appliances.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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31 December 2017	Common modifications of EN 60312-1:2013 implemented in text

EUROPEAN STANDARD
NORME EUROPÉENNE
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EN 60312-1

February 2017

ICS 97.080

Supersedes EN 60312-1:2013

English Version

**Vacuum cleaners for household use - Part 1: Dry vacuum
cleaners - Methods for measuring the performance
(IEC 60312-1:2010 , modified + A1:2011 , modified)**

Aspirateurs de poussière à usage domestique - Partie 1:
Aspirateurs à sec - Méthodes de mesure de l'aptitude à la
fonction
(IEC 60312-1:2010 , modifiée + A1:2011 , modifiée)

Staubsauger für den Hausgebrauch - Teil 1: Trockensauger
- Prüfverfahren zur Bestimmung der
Gebrauchseigenschaften
(IEC 60312-1:2010 , modifiziert + A1:2011 , modifiziert)

This European Standard was approved by CENELEC on 2017-01-02. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

This document (EN 60312-1:2017) consists of the text of IEC 60312-1:2010+A1:2011 prepared by SC 59F, "Surface cleaning 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) 2018-01-02
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2020-01-02

The common modifications of EN 60312-1:2013 still apply. They are partly modified.

Clauses, subclauses, notes, tables and figures which are additional to those in IEC 60312-1:2010 are prefixed "Z".

This European Standard also specifies, as far as necessary, the test methods which shall be applied in accordance with the standardisation mandate M540 related to Council Directive 92/75 of the European Commission.

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).

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

Endorsement notice

The text of the International Standard IEC 60312-1:2010+A1:2011 was approved by CENELEC as a European Standard with agreed common modifications.


COMMON MODIFICATIONS

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60688	-	Electrical measuring transducers for converting A.C. and D.C. electrical quantities to analogue or digital signals	EN 60688	-
IEC 60704-1	-	Household and similar electrical appliances - Test code for the determination of airborne noise - Part 1: General requirements	EN 60704-1	-
IEC 60704-2-1	-	Household and similar electrical appliances - Test code for the determination of airborne acoustical noise - Part 2-1: Particular requirements for vacuum cleaners	EN 60704-2-1	-
ISO 554	-	Standard atmospheres for conditioning and/or testing - Specifications	-	-
ISO 679	-	Methods of testing cements - Determination of strength	-	-
ISO 1763	-	Carpets - Determination of number of tufts and/or loops per unit length and per unit area	-	-
ISO 1765	-	Machine-made textile floor coverings - Determination of thickness	-	-
ISO 1766	-	Textile floor coverings - Determination of thickness of pile above the substrate	-	-
ISO 2424	-	Textile floor coverings - Vocabulary	-	-
ISO 2439	-	Flexible cellular polymeric materials - Determination of hardness (indentation technique)	EN ISO 2439	-
ISO 3386-1	-	Polymeric materials, cellular flexible - Determination of stress-strain characteristics in compression - Part 1: Low-density materials	EN ISO 3386-1	-
ISO 5167-1	-	Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full - Part 1: General principles and requirements	EN ISO 5167-1	-
ISO 8543	-	Textile floor coverings - Methods for determination of mass	-	-
ISO 12103-1	-	Road vehicles - Test dust for filter evaluation - Part 1: Arizona test dust 	-	-

Annex ZB
(normative)

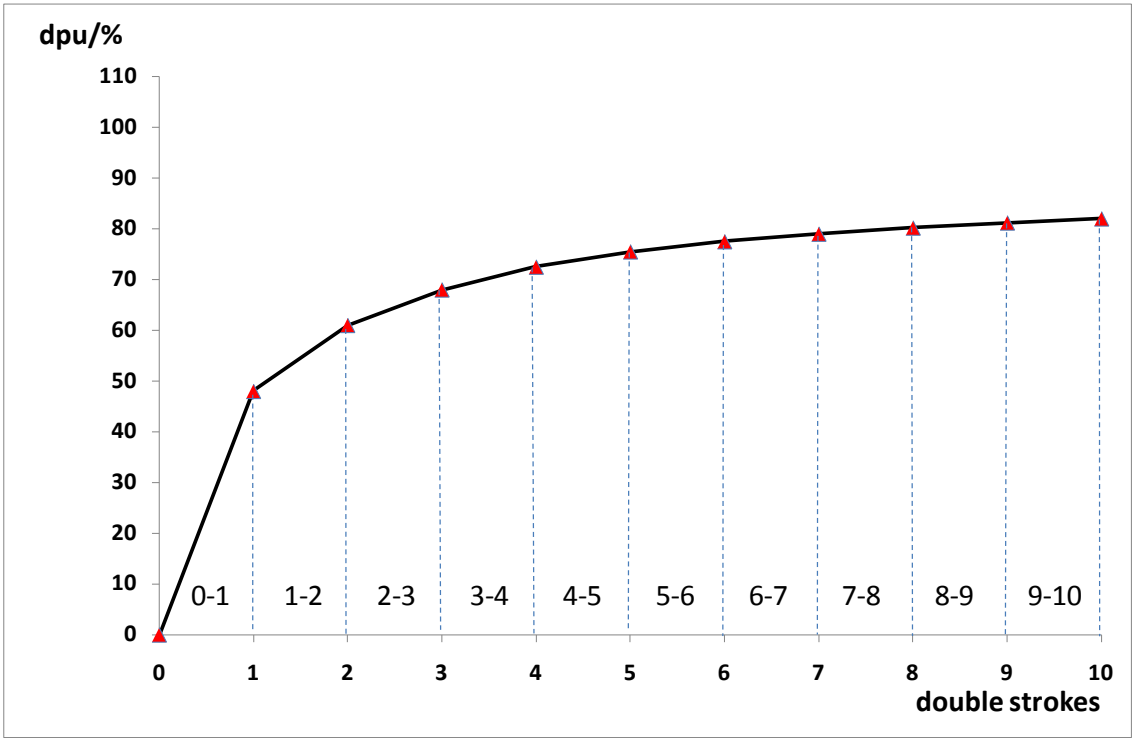
Calculation of the number of double strokes X_{calc} to reach the reference level K_{ref} for hard floor with crevice and normalised reference level K_{calc} for carpet.

All dust pick up measurements from zero to ten will be plotted on a graph and the points connected by straight lines as shown in figure below. Each section is described by a linear equation as follows:

$$dpu_{calc} = mX + k$$

where
 dpu_{calc} is the calculated dust pick up by linear equation in %
 m is the slope of the linear equation
 k is the intersection of each section with the y-axis

double stroke	dust pick up	section	slope	intersection	argument
1	dpu_1	0-1	m_1	k_1	X_1
2	dpu_2	1-2	m_2	k_2	X_2
3	dpu_3	2-3	m_3	k_3	X_3
4	dpu_4	3-4	m_4	k_4	X_4
5	dpu_5	4-5	m_5	k_5	X_5
6	dpu_6	5-6	m_6	k_6	X_6
7	dpu_7	6-7	m_7	k_7	X_7
8	dpu_8	7-8	m_8	k_8	X_8
9	dpu_9	8-9	m_9	k_9	X_9
10	dpu_{10}	9-10	m_{10}	k_{10}	X_{10}



C Calculation of all slopes, intersections and arguments as follow:

NOTE In case of carpet K_{ref} is to be replaced by k_{calc}

$m_1 = dpu_1$	$X_1 = (K_{ref} / m_1$	$k_1 = 0$
$m_2 = dpu_2 - dpu_1$	$X_2 = (K_{ref} - k_2) / m_2$	$k_2 = dpu_1 - m_2$
$m_3 = dpu_3 - dpu_2$	$X_3 = (K_{ref} - k_3) / m_3$	$k_3 = dpu_2 - 2 \times m_3$
$m_4 = dpu_4 - dpu_3$	$X_4 = (K_{ref} - k_4) / m_4$	$k_4 = dpu_3 - 3 \times m_4$
$m_5 = dpu_5 - dpu_4$	$X_5 = (K_{ref} - k_5) / m_5$	$k_5 = dpu_4 - 4 \times m_5$
$m_6 = dpu_6 - dpu_5$	$X_6 = (K_{ref} - k_6) / m_6$	$k_6 = dpu_5 - 5 \times m_6$
$m_7 = dpu_7 - dpu_6$	$X_7 = (K_{ref} - k_7) / m_7$	$k_7 = dpu_6 - 6 \times m_7$
$m_8 = dpu_8 - dpu_7$	$X_8 = (K_{ref} - k_8) / m_8$	$k_8 = dpu_7 - 7 \times m_8$
$m_9 = dpu_9 - dpu_8$	$X_9 = (K_{ref} - k_9) / m_9$	$k_9 = dpu_8 - 8 \times m_9$
$m_{10} = dpu_{10} - dpu_9$	$X_{10} = (K_{ref} - k_{10}) / m_{10}$	$k_{10} = dpu_9 - 9 \times m_{10}$

The choice of the right section, where the reference level K_{ref} for hard floor with crevice and normalised reference level K_{calc} for carpet is located has to be done as follows:

when $dpu_1 > K_{ref}$	then $X_{calc} = X_1$
when $dpu_2 \geq K_{ref}$ and $dpu_1 < K_{ref}$	then $X_{calc} = X_2$
when $dpu_3 \geq K_{ref}$ and $dpu_2 < K_{ref}$	then $X_{calc} = X_3$
when $dpu_4 \geq K_{ref}$ and $dpu_3 < K_{ref}$	then $X_{calc} = X_4$
when $dpu_5 \geq K_{ref}$ and $dpu_4 < K_{ref}$	then $X_{calc} = X_5$
when $dpu_6 \geq K_{ref}$ and $dpu_5 < K_{ref}$	then $X_{calc} = X_6$
when $dpu_7 \geq K_{ref}$ and $dpu_6 < K_{ref}$	then $X_{calc} = X_7$
when $dpu_8 \geq K_{ref}$ and $dpu_7 < K_{ref}$	then $X_{calc} = X_8$
when $dpu_9 \geq K_{ref}$ and $dpu_8 < K_{ref}$	then $X_{calc} = X_9$
when $dpu_{10} \geq K_{ref}$ and $dpu_9 < K_{ref}$	then $X_{calc} = X_{10}$
when $dpu_{10} \leq K_{ref}$	then $X_{calc} = X_{10}$ C

Annex ZZA
(informative)**Relationship between this European Standard and the energy labelling requirements of Commission Delegated Regulation (EU) No 665/2013 aimed to be covered**


This European standard has been prepared under a Commission's standardisation request 'M/540' / 'C(2015) 8753 final' to provide one voluntary means of conforming to the energy labelling requirements of Commission Delegated Regulation (EU) No 665/2013 of 3 May 2013 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of energy labelling of vacuum cleaners [OJEU L192 of 13 July 2013].

Once this standard is cited in the Official Journal of the European Union under that Regulation, compliance with the normative clauses of this standard given in Table ZZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding energy labelling requirements of that Regulation and associated EFTA Regulations.

Table ZZA.1 – Correspondence between this European Standard and Commission Delegated Regulation (EU) No 665/2013 of [3 May 2013] supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of k vacuum cleaners [OJEU L192 of 13 July 2013] and Commission's standardisation request 'M/540' / 'C(2015) 8753 final'

Energy labelling requirements of Regulation No 665/2013 [OJEU L192]	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
annual energy consumption	6.16	
rated input power		see list of harmonised standards (OJEU 2014/C 272/06) EN 60335-2-2:2010/A11:2012 EN 60335-2-2:2010/A1:2013 IEC 60335-2-2:2009/A1:2012
dust pick up on carpet (dpu_c)	5.3 in conjunction with 6.Z1.2	
dust pick up on hard floor (dpu_{hf})	5.2	
dust re-emission	5.11	
sound power level	6.15	The reference to verification given in Annex ZZ of EN 60704-2-1:2015 shall not apply.

WARNING 1: Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2: Other Union legislation may be applicable to the products falling within the scope of this standard. 

Annex ZZB
(informative)

Relationship between this European Standard and the ecodesign requirements of Commission Regulation (EU) No 666/2013 aimed to be covered


This European standard has been prepared under a Commission's standardisation request 'M/540' / 'C(2015) 8753 final' to provide one voluntary means of conforming to the ecodesign requirements of Commission Regulation (EU) No 666/2013 of 8 July 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for vacuum cleaners [OJEU L 192 of 13 July 2013].

Once this standard is cited in the Official Journal of the European Union under that Regulation, compliance with the normative clauses of this standard given in Table ZZB.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding ecodesign requirements of that Regulation and associated EFTA Regulations.

Table ZZB.1 – Correspondence between this European Standard and Commission Regulation (EU) No 666/2013 of 8 July 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for vacuum cleaners [OJEU L 192 of 13 July 2013] and Commission's standardisation request 'M/540' / 'C(2015) 8753 final'

Ecodesign requirements of Regulation No 666/2013 [OJEU L 192]	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
annual energy consumption	6.16	
rated input power		see list of harmonised standards (OJEU 2014/C 272/06) EN 60335-2-2:2010/A11:2012 EN 60335-2-2:2010/A1:2013 IEC 60335-2-2:2009/A1:2012
dust pick up on carpet (dpu _c)	5.3 in conjunction with 6.Z1.2	
dust pick up on hard floor (dpu _{hf})	5.2	
dust re-emission	5.11	
sound power level	6.15	The reference to verification given in Annex ZZ of EN 60704-2-1:2015 shall not apply.
durability of hose	6.9	
operational motor lifetime	6.Z17	

WARNING 1: Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2: Other Union legislation may be applicable to the products falling within the scope of this standard. 

CONTENTS

INTRODUCTION (to amendment 1).....	10
1 Scope	11
2 Normative references	11
3 Terms and definitions	12
4 General conditions for testing	14
4.1 Atmospheric conditions	14
4.2 Test equipment and materials	14
4.3 Voltage and frequency	14
4.4 Running-in of vacuum cleaner	15
4.5 Equipment of the vacuum cleaner	15
4.6 Operation of the vacuum cleaner	15
4.7 Conditioning prior to each tests	17
4.8 Mechanical operator	17
4.9 Number of samples.....	17
4.Z1 Reference vacuum cleaner systems.....	18
5 Dry vacuum cleaning tests	18
5.1 Dust removal from hard flat floors	18
5.2 Dust removal from hard floors with crevices	20
5.3 Dust removal from carpets	21
5.4 Dust removal along walls	24
5.5 Fibre removal from carpets and upholstery	26
5.6 Thread removal from carpets	30
5.7 Maximum usable volume of the dust receptacle	31
5.8 Air data	32
5.9 Performance with loaded dust receptacle	34
5.10 Total emission while vacuum cleaning	37
5.11 Filtration efficiency and dust re-emission of the vacuum cleaner	38
6 Miscellaneous tests	45
6.1 General	45
6.2 Motion resistance	45
6.3 Cleaning under furniture	46
6.4 Radius of operation	46
6.5 Impact resistance for detachable cleaning heads	47
6.6 Deformation of hose and connecting tubes	47
6.7 Bump test	48
6.8 Flexibility of the hose	50
6.9 Repeated bending of the hose	51
6.10 Life test	54
6.11 Mass	55
6.12 Weight in hand	55
6.13 Specific cleaning time	55
6.14 Dimensions	56
6.15 Noise level	56
6.16 Energy consumption	56
7 Test material and equipment	63
7.1 General	63
7.2 Material for measurements	64