



BSI Standards Publication

Cooking fume extractors - Methods for measuring performance

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National foreword

This British Standard is the UK implementation of EN IEC 61591:2020+A11:2020. It is derived from IEC 61591:2019. It supersedes BS EN 61591:1997+A12:2015, which is withdrawn.

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 committee manager.

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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Amendments/corrigenda issued since publication

Date	Text affected
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EUROPÄISCHE NORM

July 2020

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English Version

Cooking fume extractors - Methods for measuring performance (IEC 61591:2019)

Extracteurs de fumée de cuisine - Méthodes de mesure de
l'aptitude à la fonction
(IEC 61591:2019)

Absauger für Kochdünste - Verfahren zur Messung der
Gebrauchseigenschaft
(IEC 61591:2019)

This European Standard was approved by CENELEC on 2019-11-18. 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.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

The text of document 59K/304/CDV, future edition 2 of IEC 61591, prepared by SC 59K "Performance of household and similar electrical cooking appliances" of IEC/TC 59 "Performance of household and similar electrical appliances" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61591:2020.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2021-01-10
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-07-10

This document supersedes EN 61591:1997 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 61591:2019 was approved by CENELEC as a European Standard without any modification.

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

IEC 60335-1	NOTE	Harmonized as EN 60335-1
IEC 60335-2-31	NOTE	Harmonized as EN 60335-2-31
IEC 60704-3	NOTE	Harmonized as EN 60704-3

Foreword to amendment A11

This document (EN IEC 61591:2020/A11:2020) 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) 2021-01-10
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2023-07-10

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This document has been prepared under a mandate M/495 given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Regulations.

For the relationship with EU Regulations see informative Annex ZZA and Annex ZZB which are integral parts of this document.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 61591:2019 are prefixed "Z".

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(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 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60584-1	-	Thermocouples - Part 2: Tolerances	EN 60584-1	2013
IEC 60704-2-13	-	Household and similar electrical appliances - Test code for the determination of airborne acoustical noise - Part 2-13: Particular requirements for range hoods and other cooking fume extractors	EN 60704-2-13	2017
IEC 62301	-	Household electrical appliances - Measurement of standby power	EN 50564	2011
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	2003
ISO 5167-2	-	Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full - Part 2: Orifice plates	EN ISO 5167-2	2003
ISO 5167-3	-	Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full - Part 3: Nozzles and Venturi nozzles	EN ISO 5167-3	2003
ISO 5167-4	-	Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full - Part 4: Venturi tubes	EN ISO 5167-4	2003
ISO 80000-1	2009	Quantities and units - Part 1: General	EN ISO 80000-1	2013

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(informative)

Relationship between this European Standard and the energy labelling requirements of Commission Delegated Regulation (EU) No 65/2014 aimed to be covered

This European Standard has been prepared under a Commission's standardization request M/495 Standardization mandate to CEN, CENELEC and ETSI under Directive 2009/125/EC relating to harmonized standards in the field of Ecodesign to provide one voluntary means of conforming to the energy labelling requirements of Commission Delegated Regulation (EU) No 65/2014 of 1 October 2013 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to the energy labelling of domestic ovens and range hoods [OJ L 29/1, 31.01.2014].

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 65/2014 of 1 October 2013 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of domestic ovens and range hoods [OJ L 29/1, 31.01.2014] and Commission's standardisation request M/495 Standardization mandate to CEN, CENELEC and ETSI under Directive 2009/125/EC relating to harmonized standards in the field of Ecodesign

Energy labelling requirements of Regulation No 65/2014 [OJ L 29/1, 31.01.2014]	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
Scope; general description of the appliance model (Art 2); defining general test conditions	1 Scope 2 Normative references 3 Definitions 4 Classification 6 General conditions for measurements 7 Dimensions and mass	
Determining the airflow in general and at the Best Efficiency Point (BEP) in m ³ /h. (Annex I Table 3, Annex II 2.2)	10 Volumetric air flow	
Determining the grease filtering efficiency (Annex I Table 5, Annex II 2.4)	13 Grease absorption	The grease absorption factor is stated in the standard as GFE and corresponds to GFE_{hood} in Energy labelling requirements of Regulation No 65/2014.
Determining the lighting efficiency (Annex I Table 4, Annex II 2.3)	11 Effectiveness of the lighting system	
Determining the fluid dynamic efficiency and measuring the energy consumption (Annex II 2.1, 2.2)	10.4 Calculation of the Fluid Dynamic Efficiency (FDE)	

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of Regulation No 65/2014 [OJ L 29/1, 31.01.2014]	of this EN	
Measuring the noise value (Annex II, 2.5)	9 Airborne acoustical noise	
Standby and off mode (Annex II, 2.1)	8 Power measurement of low power modes	

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.

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Relationship between this European Standard and the ecodesign requirements of Commission Regulation (EU) No 66/2014 aimed to be covered

This European Standard has been prepared under a Commission's standardization request M/495 Standardization mandate to CEN, CENELEC and ETSI under Directive 2009/125/EC relating to harmonized standards in the field of Ecodesign to provide one voluntary means of conforming to the ecodesign requirements of Commission Regulation (EU) No 66/2014 of 14 January 2014 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for domestic ovens, hobs and range hoods [OJ L 29/33, 31.01.2014].

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Table ZZB.1 — Correspondence between this European Standard and Commission Regulation (EU) No 66/2014 of 14 January 2014 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for domestic ovens, hobs and range hoods [OJ L 29/33, 31.01.2014] and Commission's standardization request M/495 Standardization mandate to CEN, CENELEC and ETSI under Directive 2009/125/EC relating to harmonized standards in the field of Ecodesign

Ecodesign requirements of Regulation No 66/2014 [OJ L 29/33, 31.01.2014]	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
Scope; general description of the appliance model (Art 2); defining general test conditions	1 Scope 2 Normative references 3 Definitions 4 Classification 6 General conditions for measurements 7 Dimensions and mass	
Determining the airflow in general and at the Best Efficiency Point (BEP) in m ³ /h (Annex I, 1.3, Annex II, 3.2)	10 Volumetric air flow	
Determining the lighting efficiency (Annex I, 1.3, Annex II, 3.4)	11 Effectiveness of the lighting system	
Determining the fluid dynamic efficiency and measuring the energy consumption (Annex I, 1.3, Annex II, 3.2)	10.4 Calculation of the Fluid Dynamic Efficiency (FDE)	
Measuring the noise value (Annex II, 3.5)	9 Airborne acoustical noise	
Standby and off mode (Annex II, 3.1)	8 Power measurement of low power modes	

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COOKING FUME EXTRACTORS – METHODS FOR MEASURING PERFORMANCE

FOREWORD

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International Standard IEC 61591 has been prepared by subcommittee 59K: Performance of household and similar electrical cooking appliances, of IEC technical committee 59: Performance of household and similar electrical appliances.

This second edition cancels and replaces the first edition published in 1997, Amendment 1:2005 and Amendment 2:2010. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) new subclause about instruments and measurements (see 6.6);
- b) new procedure for measuring the fluid dynamic efficiency (FDE), which follows the CENELEC proposal in principle;
- c) revised procedure for determining the odour reduction for cooking fume extractors in recirculation mode (see Clause 12);
- d) modification to the measurement of the effectiveness of the lighting system (see Clause 11);
- e) clearer procedure to measure the grease absorption (see Clause 13);

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The text of this International Standard is based on the following documents:

CDV	Report on voting
59K/304/CDV	59K/306/RVC

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

In this standard, the following print types are used:

- terms listed in Clause 3: **Arial bold**.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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COOKING FUME EXTRACTORS – METHODS FOR MEASURING PERFORMANCE

1 Scope

This document applies to **cooking fume extractors** incorporating a fan for the **recirculation** or **extraction mode** situated in a household kitchen.

It can also be used for **cooking fume extractors** where the fan is mounted separately from the appliance, but controlled by the appliance when the fan is defined in the technical documentation (e.g. name plate data) and instructions for installation.

This document deals also with **down-draft systems** arranged beside, behind or under the cooking appliance.

This document defines the main performance characteristics of these appliances, which are of interest to the user, and specifies methods for measuring these characteristics.

This document does not specify a classification or ranking for performance.

NOTE This document does not deal with safety requirements that are in accordance with IEC 60335-1 and IEC 60335-2-31.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 60584-1, *Thermocouples – Part 1: EMF specifications and tolerances*

IEC 60704-2-13, *Household and similar electrical appliances – Test code for the determination of airborne acoustical noise – Part 2-13: Particular requirements for range hoods and other cooking fume extractors*

IEC 62301, *Household electrical appliances – Measurement of standby power*

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*

ISO 5167-2, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full – Part 2: Orifice plates*

ISO 5167-3, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full – Part 3: Nozzles and Venturi nozzles*

ISO 5167-4, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full – Part 4: Venturi tubes*

ISO 80000-1:2009, *Quantities and units – Part 1: General*