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Cooking fume extractors - Methods for measuring performance

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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COOKING FUME EXTRACTORS – METHODS FOR MEASURING PERFORMANCE

FOREWORD

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This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 61591 edition 3.1 contains the third edition (2023-03) [documents 59K/352/CDV and 59K/361/RVC] and its amendment 1 (2026-08) [documents 59K/424/CDV and 59K/432/RVC].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

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. It is an International Standard.

This third edition cancels and replaces the second edition published in 2019. This edition constitutes a technical revision.

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

a) new definition of **working point**, see 3.19;
b) new definition for **lowest setting** and **automatic setting**, see 3.17 and 3.18;
c) revised requirements for installation and positioning, see 6.2;
d) added a normative reference ISO 5801 for the specification of the pressure compensation chamber, see Clause 10;
e) separate clauses for determining the volumetric airflow and fluid dynamic efficiency, see Clauses 10 and 11;
f) new approach for determining the fluid dynamic efficiency ("9-point calculation");
g) new definitions, new clause and new Annex B regarding the measurement of low-power modes;
h) new Annex A: assumption for the parameter b.

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

Draft	Report on voting
59K/352/CDV	59K/361/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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 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.

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

NOTE 2 **Cooking fume extractors** without fans operated by a central ventilation system are covered in EN 13141-3.

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 60751, *Industrial platinum resistance thermometers and platinum temperature sensors*

IEC 62301~~:2011~~, ~~*Household electrical appliances –*~~ *Measurement of standby power for appliances and equipment*

IEC 63474~~:~~ [1], *Electrical and electronic household and office equipment – Measurement of networked standby power consumption of edge equipment*

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*

[1] ~~Under preparation. Stage at the time of development: IEC CDV 63474:2022.~~

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 5801:2017, *Fans – Performance testing using standardized airways*

ISO 80000-1:~~2009~~2022, *Quantities and units – Part 1: General*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at https://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

3.1
active mode
mode in which the appliance is connected to a mains power source, has been activated, and is performing any of the intended functions

EXAMPLE Intended functions are running the fan or operating the lighting system.

Note 1 to entry: Associated activities include displaying information, software download, sensor controlled automatic mode and communication with the hob.

3.2
cooking fume extractor
CFE
appliance with fan and filter intended to collect and treat cooking fumes, which can be operated in **recirculation mode** or **extraction mode**

3.3
range hood
cooking fume extractor installed over a cooking appliance

3.3.1
wall range hood
range hood mounted to the wall

3.3.2
island range hood
range hood mounted to the ceiling

3.3.3
ceiling range hood
range hood integrated onto or into the ceiling

3.3.4
built-in range hood
range hood mounted onto or into a cabinet