BRITISH STANDARD

BS EN
13141-3:2004

Ventilation for buildings — Performance testing of components/products for residential ventilation —

Part 3: Range hoods for residential use

The European Standard EN 13141-3:2004 has the status of a British Standard

ICS 91.140.30; 97.040.20

BSI
British Standards

National foreword

This British Standard is the official English language version of EN 13141-3:2004.

The UK participation in its preparation was entrusted to Technical Committee RHE/2, Air distribution and air diffusion, 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 committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled "International Standards Correspondence Index", or by using the "Search" facility of the *BSI Electronic Catalogue* or of British Standards Online.

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

Compliance with a British Standard does not of itself confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 29 January 2004

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 9 and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments

ISBN 0 580 43329 3

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13141-3

January 2004

ICS 91.140.30; 97.040.20

English version

Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 3: Range hoods for residential use

Ventilation des Bâtiments - Essais des performances des composants/produits pour la ventilation des logements - Partie 3: Hottes de cuisine pour utilisation domestique

Lüftung von Gebäuden - Leistungsprüfungen von Bauteilen/Produkten für die Lüftung von Wohnungen - Teil 3: Dunstabzugshauben für den Hausgebrauch

This European Standard was approved by CEN on 22 October 2003.

CEN 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 CEN 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 CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 13141-3:2004: E

Contents

Foreword

This document (EN 13141-3:2004) has been prepared by Technical Committee CEN/TC 156 "Ventilation for buildings", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2004, and conflicting national standards shall be withdrawn at the latest by July 2004.

The standard is one of a series of standards on residential ventilation. The performance characteristics of the components/products for residential ventilation are given in EN 13142.

The position of this standard in the field of mechanical building services is shown in Figure 1.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

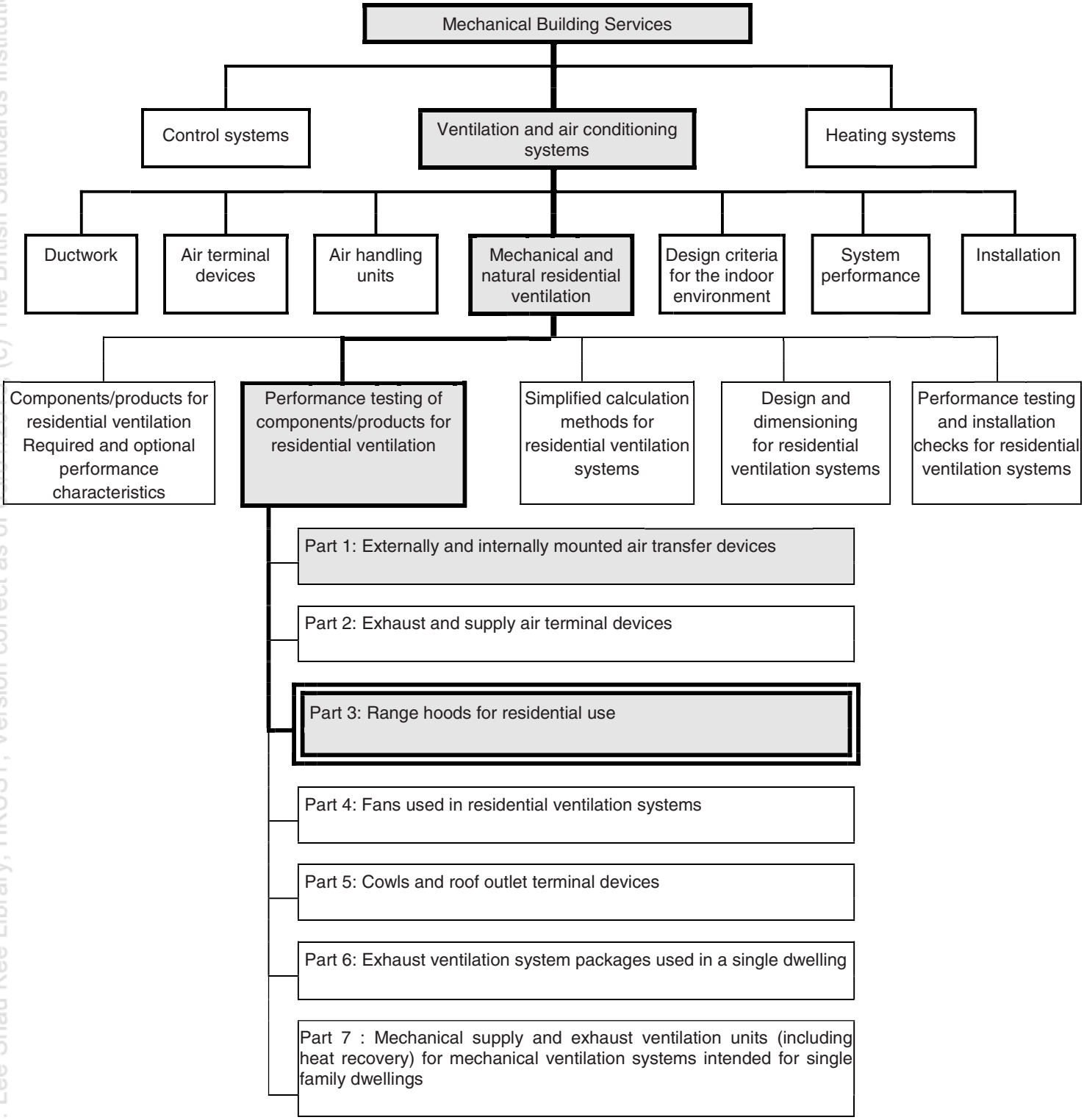

Figure 1 — Position of EN 13141-3 in the field of mechanical building services

1 Scope

This European Standard specifies methods for measuring the main performance characteristics of range hoods for residential use. It applies to recirculating range hoods, air extraction range hoods incorporating a fan and air extraction range hoods without fan.

This standard does not specify values for performance characteristics.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed here after. For dated references, subsequent amendment to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 12792, *Ventilation for buildings – Symbols, terminology and graphical symbols.*

EN 13141-2:2003, *Ventilation for buildings – Performance testing of components/products for residential ventilation – Part 2: Exhaust and supply air terminal devices.*

EN 13141-4:2003, *Ventilation for buildings – Performance testing of components/products for residential ventilation – Part 4: Fans used in residential ventilation systems.*

EN 60335-2-31, *Safety of household and similar electrical appliances – Part 2: Particular requirements for range hoods (IEC 60335-2-31:1995).*

ISO 5801, *Industrial Fans – Performance testing using standardized airways*.

IEC 61591:1997, *Household range hoods – Methods for measuring performance.*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 12792 and EN 13141-2 together with the following definitions apply.

3.1
range hood (cooker hood)
device intended to collect contaminated air from above a cooking appliance and either discharge it into the room or remove it from the room

NOTE Range hood may incorporate one or more of the following components:
- filters (essential when the contaminated air is discharged into the room);
- fan;
- fire damper;
- non return flow damper.

3.2
recirculating-air range hood
range hood containing filters to remove contaminants after which the cleaned air is discharged back into the room

3.3
air-extraction range hood
range hood which discharges the collected air to the outside of the building by means of ducting

3.4
test-voltage
voltage to be used for supplying the range hood during the testing

3.5
grease absorption factor
measure of the percentage of grease retained within a filter

3.6
odour reduction factor
measure of the capability of the range hood to reduce odours

3.7
odour dispersion time
time taken to reduce odour to a defined level after odour generating source has been switched off

4 Performance testing of aerodynamic characteristics

4.1 Principle

The test consists in measuring the volume flow rates induced through the device at several values of the pressure difference across the device in order to define the flow rate/pressure characteristic curve.

Tests shall be carried out with all new filters.

Range hoods not incorporating a fan shall be tested according to the Exhaust/Supply Air Terminal Device test method, described in EN 13141-2:2003, clause 4.

Where reference is made to existing test methods, care shall be taken in the installation of the range hood because its dimensions could be much larger than those of other air terminal devices.

4.2 Test Installation and Conditions

For the recirculating-air range hood, the test installation and conditions shall conform to 4.2 of prEN 14134-4:2003 under Category A conditions.

For the air-extraction range hood (incorporating a fan), the test installation and conditions shall conform to 4.2 of EN 13141-4:2003 under Category B conditions. The air-extraction range hood shall be connected to ductwork which gives a pressure drop of 30 Pa through the ductwork at maximum flow rate.

4.3 Test procedure

The test procedure shall conform to 4.3 of EN 13141-4:3003.

Measurements shall be made at the lowest and highest air flow rate settings, and for any other level specified by the manufacturer.

Where a single value is assigned by the manufacturer as rated voltage, this shall be the test voltage. Where a voltage range is assigned to the product by the manufacturer that includes 230 V, the test voltage shall be 230 V.

This voltage shall be maintained to $\pm$ 1 % throughout the testing.

4.4 Analysis of results

Analysis of the results shall conform to 4.4 of EN 13141-4:2003, for the determination of the flow rate/pressure characteristic curves.

The volumetric airflow rate of the range hood shall then be determined, for each setting of fan speed, by the intersection between the characteristic curve and the air flow/pressure curves of two standard duct systems.

4.5 Presentation of results

Results shall be presented according to 4.4 of EN 13141-4:2003.

5 Performance testing of acoustic characteristics

5.1 Noise production

5.1.1 Principle

When operating, the range hood generates noise, some of which is radiated into the room. The method described below allows to determine the acoustic power level of the noise thus emitted.

Range hoods not incorporating a fan shall be tested according to the Exhaust Air Terminal Device test method specified in 5.1 of EN 13141-2:2003.

5.1.2 Test installation and conditions

Test installation and conditions shall conform to 5.1 of EN 13141-2:2003 with the following arrangements:

— for the recirculating-air range hood, the complete device shall be located in the reverberant room where the measurements are made. There shall be no connection with the second room;

— for the air-extraction range hood (incorporating a fan), a duct with a nominal length of 1,8 m shall be connected to the device and positioned in the adjacent reverberant room;

— due to the size of the range hood and its position in a room in normal use, the position of the range hood in/on the wall separating the 2 reverberant rooms shall be at a minimum distance of 1 m from all other walls, and preferably away from any symmetry axis of the room.

5.1.3 Test procedure

The test shall be carried out in accordance with 5.1 of EN 13141-2:2003.

5.1.4 Presentation of results

The results shall be presented according to 5.3 of EN 13141-2:2003.

5.2 Insertion loss

5.2.1 Principle

The following test quantifies the sound attenuation through a range hood, the objective being to allow the evaluation of sound transmission from one dwelling to another through the ventilation duct. This test is therefore not required for recirculating air range hoods.

NOTE For a range hood incorporating a fan, it is assumed that when the fan is operating, the noise transmission is less significant than the noise production determined in 5.1.

5.2.2 Test installation and conditions

The test shall conform to 5.2.2 of EN 13141-2:2003.

5.2.3 Test procedure

The test shall be carried out in accordance with 5.2.3 of EN 13141-2:2003.

5.2.4 Analysis of results

Analysis of the results shall conform to 5.2.4 of EN 13141-2:2003.

5.2.5 Presentation of results

The results shall be presented according to 5.3 of EN 13141-2:2003.

6 Performance testing of grease absorption

The grease absorption performance shall be determined according to clause 12 of IEC 61591:1997. For range hoods not incorporating a fan, the same procedure shall be followed taking into account the flow rate specified by the manufacturer.

7 Performance testing of odour extraction

The odour extraction performance (odour reduction factor and odour dispersion time) shall be determined according to clause 13 of IEC 61591:1997. For range hoods not incorporating a fan, the same procedure shall be followed taking into account the flow rate specified by the manufacturer.

8 Performance testing of electrical power

8.1 Method

The electrical power for the fan motor of the range hood shall be determined according to ISO 5801.

8.2 Analysis of results

That electrical power shall be used to calculate the electrical power per unit of air flow rate.

8.3 Presentation of results

The results shall be presented in a graph (electrical power per unit of air flow rate VS air flow rate).

9 Safety

In addition to the requirements of this standard, range hoods shall also satisfy the safety requirements specified in EN 60335-2-31.

Bibliography

EN 13142, *Ventilation for buildings – Components/products for residential ventilation – Required and optional performance characteristics.*

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: +44 (0)20 8996 9000. Fax: +44 (0)20 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: +44 (0)20 8996 9001. Fax: +44 (0)20 8996 7001. Email: orders@bsi-global.com. Standards are also available from the BSI website at http://www.bsi-global.com.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: +44 (0)20 8996 7111. Fax: +44 (0)20 8996 7048. Email: info@bsi-global.com.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: +44 (0)20 8996 7002. Fax: +44 (0)20 8996 7001. Email: membership@bsi-global.com.

Information regarding online access to British Standards via British Standards Online can be found at http://www.bsi-global.com/bsonline.

Further information about BSI is available on the BSI website at http://www.bsi-global.com.

Copyright

BSI
389 Chiswick High Road
London
W4 4AL