



SLOVENSKI STANDARD

SIST EN 16475-2:2017

01-maj-2017

Dimovodne naprave - Oprema - 2. del: Ventilatorji za dimovodne naprave - Zahteve in preskusne metode

Chimneys - Accessories - Part 2: Chimney fans - Requirements and test methods

Abgasanlagen - Zubehörteile - Teil 2: Abgasventilatoren - Anforderungen und Prüfmethode

Conduits de fumée - Accessoires (Partie 2: Ventilateurs d'extraction - Exigences et méthodes d'essai)

iTeh STANDARD PREVIEW

(standards.iteh.ai)

SIST EN 16475-2:2017

Ta slovenski standard je istoveten z: EN 16475-2:2017

<https://standards.iteh.ai/catalog/standards/sist/fc8a3679-6e93-46f3-b13c-000a18a08fcc/sist-en-16475-2-2017>

ICS:

91.060.40 Dimniki, jaški, kanali Chimneys, shafts, ducts

SIST EN 16475-2:2017

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 16475-2:2017](https://standards.iteh.ai/catalog/standards/sist/fcba3679-6e93-46f3-b13c-b00a18a68fcc/sist-en-16475-2-2017)

<https://standards.iteh.ai/catalog/standards/sist/fcba3679-6e93-46f3-b13c-b00a18a68fcc/sist-en-16475-2-2017>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 16475-2

March 2017

ICS 91.060.40

English Version

Chimneys - Accessories - Part 2: Chimney fans - Requirements and test methods

Conduits de fumée - Accessoires - Partie 2: Ventilateurs
pour conduit de fumée - Exigences et méthodes d'essai

Abgasanlagen - Zubehörteile - Teil 2:
Abgasventilatoren - Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 28 November 2016.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

<https://standards.iteh.ai/catalog/standards/sist/fc3a3679-6e93-46f3-b13c-b00a18a68fcc/sist-en-16475-2-2017>



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

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

Contents

	Page
European foreword.....	4
Introduction	5
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions	6
4 Product characteristics.....	7
4.1 General.....	7
4.2 Dimensions and tolerances	8
4.3 Mechanical resistance and stability	8
4.3.1 General.....	8
4.3.2 Wind load.....	8
4.3.3 Resistance to freeze-thaw	8
4.4 Thermal performance	8
4.4.1 Reaction to fire.....	8
4.4.2 Fire resistance — Exhaust fan	8
4.4.3 Declaration of temperature class.....	9
4.4.4 Heat stress resistance.....	10
4.4.5 Sootfire resistance	10
4.5 Hygiene, health and the environment.....	10
4.5.1 Gas tightness.....	10
4.5.2 Condensate resistance.....	11
4.5.3 Durability against corrosion.....	11
4.5.4 Dangerous substances.....	11
4.6 Additional criteria for chimney operation.....	12
4.6.1 Flow characteristic	12
4.6.2 Resistance to ice formation	12
4.6.3 Cleaning and maintenance.....	12
4.6.4 Maintenance of the fan.....	12
4.7 Safety	12
4.7.1 Mechanical safety.....	12
4.7.2 Electrical safety.....	12
5 Testing, assessment and sampling methods	13
5.1 Mechanical resistance and stability	13
5.1.1 General.....	13
5.1.2 Wind load test.....	13
5.2 Thermal performance	14
5.2.1 General.....	14
5.2.2 Test assembly for heat stress and thermal shock tests.....	14
5.2.3 Test structures	17
5.2.4 Measuring parameters.....	17
5.2.5 Test procedure for heat stress test.....	19
5.2.6 Test procedure for sootfire resistance test	20
5.3 Hygiene, health and the environment	21
5.3.1 Gas tightness test.....	21
5.3.2 Flow resistance after thermal tests	22

5.3.3	Flow characteristic, capacity	24
5.3.4	Test method for icing behaviour for exhaust fans	25
6	Assessment and verification of constancy of performance - AVCP	27
6.1	General	27
6.2	Type testing	28
6.2.1	General	28
6.2.2	Test samples, testing and compliance criteria.....	28
6.2.3	Choice of size for type test and sampling.....	29
6.2.4	Test reports	30
6.2.5	Shared other party results	30
6.3	Factory production control (FPC).....	30
6.3.1	General	30
6.3.2	Requirements.....	31
6.3.3	Product specific requirements	33
6.3.4	Initial inspection of factory and of FPC.....	34
6.3.5	Continuous surveillance of FPC	34
6.3.6	Procedure for modifications.....	35
7	Designation	35
7.1	General	35
7.2	Exhaust fans.....	35
7.3	Inline fans.....	35
8	Marking, labelling and packaging.....	36
8.1	Marking chimney components	36
8.2	Chimney fan plate	36
8.3	Manufacturer's instructions	36
8.3.1	General	36
8.3.2	Minimum information to be included in the manufacturer's instructions	37
8.3.3	Product data	37
Annex A (informative)	Example of sound chart showing sound levels to surroundings.....	38
A.1	Sound levels to external surroundings.....	38
Annex B (informative)	Data for calculation programs.....	39
Annex C (normative)	Methods for combustible wood surface temperature measurements.....	40
Annex D (normative)	Methods for exhaust fan surface temperature measurements.....	41
Annex E (normative)	Ambient temperature.....	42
Annex ZA (informative)	Relationship of this European Standard with Regulation (EU) No.305/2011	43
ZA.1	Scope and relevant characteristics	43
ZA.2	System of Assessment and Verification of Constancy of Performance (AVCP)	45
ZA.3	Assignment of AVCP tasks	45
Bibliography	48

EN 16475-2:2017 (E)**European foreword**

This document (EN 16475-2:2017) has been prepared by Technical Committee CEN/TC 166 “Chimneys”, the secretariat of which is held by ASI.

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 September 2017, and conflicting national standards shall be withdrawn at the latest by December 2018.

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

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directives.

For relationship with EU Regulation, see informative Annex ZA, which is an integral part of this document.

EN 16475-2 is one part of the series EN 16475, *Chimneys — Accessories*, which currently consists of:

- *Part 2: Chimney fans — Requirements and test methods* [the present document];
- *Part 3: Draught regulators, standstill opening devices and combined secondary air devices — Requirements and test methods;* (standards.iteh.ai)
- *Part 6: Access components — Requirements and test methods* [currently at Enquiry stage];
- *Part 7: Rain caps — Requirements and test methods.*

This document defines the requirements related to CEN/TC 166 standards. Requirements related to other EU Directives are also applicable.

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

Introduction

In November 2009 CEN/TC 166 assigned TG 2 of CEN/TC 166/WG 1 the task to develop this standard for chimney accessories and issued a preliminary work item.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 16475-2:2017](https://standards.iteh.ai/catalog/standards/sist/fcba3679-6e93-46f3-b13c-b00a18a68fcc/sist-en-16475-2-2017)

<https://standards.iteh.ai/catalog/standards/sist/fcba3679-6e93-46f3-b13c-b00a18a68fcc/sist-en-16475-2-2017>

EN 16475-2:2017 (E)**1 Scope**

This European Standard covers electrically operated metal fans for chimneys that are able to create a stable positive or negative pressure for the chimney.

This European Standard covers fans installed inline in the connecting flue pipe (inline fans) or mounted on the chimney outlet (exhaust fans).

This standard excludes chimney cowls (Terminals with aerodynamic characteristics).

2 Normative references

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.

EN 1443:2003, *Chimneys — General requirements*

EN 1856-1:2009, *Chimneys — Requirements for metal chimneys — Part 1: System chimney products*

EN 1856-2:2009, *Chimneys — Requirements for metal chimneys — Part 2: Metal flue liners and connecting flue pipes*

EN 10088-1, *Stainless steels — Part 1: List of stainless steels*

EN 10346, *Continuously hot-dip coated steel flat products for cold forming — Technical delivery conditions*

EN 13216-1:2004, *Chimneys — Test methods for system chimneys — Part 1: General test methods*

EN 14297, *Chimneys — Freeze-thaw resistance test method for chimney products*

EN 15287-1:2007+A1:2010, *Chimneys — Design, installation and commissioning of chimneys — Part 1: Chimneys for non-roomsealed heating appliances*

EN 60335-1, *Household and similar electrical appliances — Safety — Part 1: General requirements (IEC 60335-1)*

EN 60335-2-80, *Household and similar electrical appliances — Safety — Part 2-80: Particular requirements for fans (IEC 60335-2-80)*

EN ISO 3744, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering methods for an essentially free field over a reflecting plane (ISO 3744)*

EN ISO 5136, *Acoustics — Determination of sound power radiated into a duct by fans and other air-moving devices — In-duct method (ISO 5136)*

EN ISO 5801, *Industrial fans — Performance testing using standardized airways (ISO 5801)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1443 and the following apply.

3.1**inline fan**

fan positioned in the connecting flue pipe

3.2**exhaust fan**

fan positioned on the outlet of the chimney

3.3**chimney fan**

exhaust fan or inline fan

3.4**soot fire safe accessories****As**

accessory that may not perform its intended function during and after a sootfire but does not prevent the safe operation or change the designation "G" of the chimney or connecting flue pipe

Note 1 to entry: "As" can only be used for accessories and not for chimneys, flue liners and connecting flue pipes.

Note 2 to entry: Measures to be taken after the event of a sootfire will be found in the relevant product standard.

4 Product characteristics

iTeh STANDARD PREVIEW
(standards.iteh.ai)

4.1 General

Recommended minimum material specifications for components of chimney fans in contact with combustion products are the following:

- a) stainless steel quality of 1.4301 in accordance with EN 10088-1 with a wall thickness of at least 0,7 mm;
- b) stainless steel quality of 1.4401 in accordance with EN 10088-1 with a wall thickness of at least 0,7 mm;
- c) aluminium with a wall thickness of at least 1,5 mm for EN AW-4047A;
- d) aluminium with a wall thickness of at least 1,5 mm for EN AW-6060 and of 1,0 mm for EN AW-1200A;
- e) cast aluminium (EN AB 46200, EN AB 46100) with a wall thickness of at least 2,5 mm;
- f) for galvanized products with a steel quality of 1.0306 in accordance with EN 10346 with a wall thickness of at least 0,7 mm.

Recommended minimum material specifications for impeller blades are the following:

- g) stainless steel quality of 1.4401 in accordance with EN 10088-1 with a wall thickness of at least 0,7 mm.

The exhaust fan or the inline fan shall fulfil the following requirements, if appropriate.

EN 16475-2:2017 (E)

4.2 Dimensions and tolerances

The manufacturer is free to choose dimensions and tolerances of the chimney fan.

4.3 Mechanical resistance and stability**4.3.1 General**

The chimney fan impeller shall be able to move freely before and after the thermal tests except for a product designated As after a soot fire test.

4.3.2 Wind load**4.3.2.1 General**

When tested in accordance with 5.1.2, the product shall remain mechanically stable and safe.

This test shall be performed only for the types that have performed the thermal tests.

4.3.2.2 Exhaust fans subject to wind load

When the fan is tested in accordance with 5.1.2, it shall be able to withstand a horizontal and vertical load of 1,5 KN/m².

4.3.2.3 Fan support**a) Exhaust fan**

In the design of the fixing of the fan, the risk of deflagration should be taken care of.

b) Inline fans

The design of the fixing of the inline fan, the risk of deflagration and static load should be taken care of. The fan shall support itself.

4.3.3 Resistance to freeze-thaw

Metal fans are considered to meet the requirement of EN 14297.

4.4 Thermal performance**4.4.1 Reaction to fire**

As the fire reaction is not relevant for chimney fans, no declaration is necessary.

4.4.2 Fire resistance — Exhaust fan

The distance to combustible material for exhaust fans (as shown in Figure 3) shall be one of the following:

- a) O(xx) M stands for “Measured value” as determined by 5.2.5. When related to an ambient temperature of 20 °C, the maximum surface temperature of combustible materials adjacent to the test fan shall not exceed 85 °C at the distance declared (see EN 15287-1:2007+A1:2010, 4.3.2 and EN 1856-2:2009, 6.6.2);
- b) As(xx) M, G (xx) M stands for “Measured value” as determined by 5.2.5 and 5.2.6. When related to an ambient temperature of 20 °C, the maximum surface temperature of combustible materials adjacent to the test fan shall not exceed 85 °C during the heat stress test and shall not exceed 100 °C during the sootfire resistance test, both at the distance declared (see EN 15287-1:2007+A1:2010, 4.3.2 and EN 1856-2:2009, 6.6.2);

- c) O (NM), As (NM), G (NM) stands for “Not Measured value” as determined by EN 1856-2:2009, 7.2.1. The spigot dimension of the fan is used in the formula. The requirements are met, if the distance to combustible material is calculated in accordance with EN 15287-1:2007+A1:2010, 4.3.9.3, or EN 1856-2:2009, 6.2.2.

NOTE The designation string of the exhaust fan does not include (NM) and (M).

4.4.3 Declaration of temperature class

4.4.3.1 General

The temperature class of the exhaust fan is declared by the manufacturer as specified in Table 1, and shall be verified in accordance with the tests described in 5.2.5 and 5.2.6.

Table 1 — Temperature levels and test temperature

Temperature level	Nominal working temperature (T) °C	Test temperature °C
T 080	≤ 80	100
T 100	≤ 100	120
T 120	≤ 120	150
T 140	≤ 140	170
T 160	≤ 160	190
-	-	-
T 200	≤ 200	250
T 250	≤ 250	300
T 300	≤ 300	350
-	-	-
T 400	≤ 400	500
T 450	≤ 450	550
T 600	≤ 600	700

4.4.3.2 Inline fan

4.4.3.2.1 General

The distance to combustible material (as shown in Figure 2) for inline fans shall be:

- a) O(xx) M stands for “Measured value” as determined by 5.2.5. When related to an ambient temperature of 20 °C, the maximum surface temperature of combustible materials adjacent to the test fan shall not exceed 85 °C at the distance declared (see EN 15287-1:2007+A1:2010, 4.3.2 and EN 1856-2:2009, 6.6.2);
- b) As(xx) M, G (xx) M stands for “Measured value” as determined by 5.2.5 and 5.2.6. When related to an ambient temperature of 20 °C, the maximum surface temperature of combustible materials

EN 16475-2:2017 (E)

adjacent to the test fan shall not exceed 85 °C during the heat stress test and shall not exceed 100 °C during the sootire resistance test, both at the distance declared (see EN 15287-1:2007+A1:2010, 4.3.2 and EN 1856-2:2009, 6.6.2);

- c) O (NM), As (NM), G (NM) stands for “Not Measured value” as determined by EN 1856-2:2009, 7.2.1. The spigot dimension of the fan is used in the formula. The requirements are met, if the distance to combustible material is calculated in accordance with EN 15287-1:2007+A1:2010, 4.3.9.3, or EN 1856-2:2009, 6.2.2.

4.4.3.2.2 Declaration of temperature class

The temperature class of the inline fan is declared by the manufacturer as specified in Table 1, and shall be verified in accordance with the tests 5.2.5 and 5.2.6.

4.4.4 Heat stress resistance

A chimney fan shall be tested in accordance with 5.2.5. After performing the heat stress test, the criteria to pass the test are:

- a) Flow resistance: When tested in accordance with 5.3.2, the flow resistance shall not be higher than declared by the manufacturer.
- b) Capacity: When tested in accordance with 5.3.3, the product is not allowed to lose its ability to create mechanical draught during the test. The manufacturer shall provide a formula for the capacity chart (for an example, see 5.3.3).
- c) Gas tightness: Only inline fans shall declare a pressure type and pass a gas tightness test in accordance with 5.3.1.

4.4.5 Sootfire resistance

<https://standards.iteh.ai/catalog/standards/sist/fc3a3679-6e93-46f3-b13c-b00a18a68fcc/sist-en-16475-2-2017>

When a chimney fan is designated as sootfire resistant G or sootfire safe As, it shall be tested in accordance with 5.2.6. After performing the sootfire resistance test, the criteria to pass the test are:

- a) Flow resistance: After tested in accordance with 5.3.2, the flow resistance shall be declared. For fans with class G or As a deviation of 25 % is allowed on the coefficient of flow resistance values before and after the heatshock test.
- b) Capacity: When tested in accordance with 5.3.3, the product shall not lose its ability to create mechanical draught during the test if it shall fulfil the requirements for a G designation. The As criteria is also fulfilled, if the fan loses its ability to create mechanical draught.
- c) Gas tightness: Only for inline fans a pressure type shall be declared and a gas tightness test in accordance with 5.3.1 shall be performed.

4.5 Hygiene, health and the environment**4.5.1 Gas tightness**

The gas tightness shall be tested in accordance with 5.3.1. The leakage rate shall not be greater than those specified in Table 2. Table 2 is a modified version of EN 1443, Table 5. The test rig is the same as in Figure 6. The test is done in accordance with EN 1856-2:2009, A.2.

Table 2 — Leakage rates

Pressure type	Test pressure Pa	Leakage rate/Flue surface area $l \cdot s^{-1} \cdot m^{-2}$
N1	40	< 2,0
P1	200	< 0,006
P2	200	< 0,120
H1	200 and 5 000	< 0,006
H2	200 and 5 000	< 0,120

4.5.2 Condensate resistance

Condensate resistance is only applicable for inline fans. If an inline fan is designated for wet operation (W) in accordance with EN 1443, the inline fan which was exposed to thermal test in 5.2.6, shall be tested in accordance with EN 13216-1:2004, 5.5.

During the test period of 4 h there shall be no signs of coloured water outside the inline fan.

4.5.3 Durability against corrosion

4.5.3.1 General

The corrosion classes shall be declared in accordance with EN 1443:2003, Table 2.

The designation of the corrosion class shall be declared either on the basis of the results of the test method described in EN 1856-1 or shall be declared in accordance with 4.5.3.2 or 4.5.3.3.

4.5.3.2 Dry application

Chimney fans of a material as described in 4.1 a), d) or e) are considered to be designated 2 or if the impeller blade is of a material described in 4.1 g) are considered to be designated 3.

Chimney fans of a material as described in 4.1 b) are considered to be designated 3.

Chimney fans of a material as described in 4.1 c) and f) are considered to be designated 1.

4.5.3.3 Wet application

Chimney fans of a material as described in 4.1 b) are considered to be designated 2.

Chimney fans of a material as described in 4.1 c) or e) are considered to be designated 1.

4.5.4 Dangerous substances

National regulations on dangerous substances may require verification and declaration on release, and sometimes content, when construction products covered by this standard are placed on those markets.

In the absence of European harmonized test methods, verification and declaration on release/content should be done taking into account national provisions in the place of use.

NOTE An informative database covering European and national provisions on dangerous substances is available at the Construction website on EUROPA accessed through: http://ec.europa.eu/growth/tools-databases/cp-ds_en

EN 16475-2:2017 (E)**4.6 Additional criteria for chimney operation****4.6.1 Flow characteristic**

The flow characteristic of the inline or exhaust fan shall be determined in accordance with 5.3.3.

4.6.2 Resistance to ice formation

An icing test applies only for exhaust fans in wet application. Ice built-up may maximum cover 15 % of the free exhaust opening area of the fan. The fan shall be able to restart after being tested in accordance with 5.3.4.

4.6.3 Cleaning and maintenance**4.6.3.1 Cleaning of the fan**

It shall be possible to clean the fan of foreign objects or residues from the combustion after the fan has been installed.

If the access to the fan is restricted for safety reasons it shall be possible to gain access by the means of a common tool. The size of the cleaning opening shall be big enough to enable a sufficient cleaning.

4.6.3.2 Cleaning of the chimney

A chimney fan shall not hinder the sweeping of the chimney. Provisions to open or remove the exhaust fan top or the exhaust fan itself shall be taken. It might be necessary to use a tool to gain access to the chimney.

4.6.4 Maintenance of the fan

It shall be possible to dismantle and assemble the part that is meant to be serviced, for instance to mount a new motor. The product shall also be ready for cleaning, that means that all service openings shall be easily opened.

4.7 Safety**4.7.1 Mechanical safety**

NOTE The DIRECTIVE 2006/42/EC "Machinery, and amending Directive 95/16/EC (recast)" might be considered.

a) General principles

The manufacturer of machinery or his authorized representative shall ensure that a risk assessment is carried out in order to determine the health and safety requirements which apply to the machinery. The machinery shall then be designed and constructed taking into account the results of the risk assessment.

b) Principles of safety integration

Chimney fans shall be designed and constructed so that it is fit for its function, and can be operated, adjusted and maintained without putting persons at risk when these operations are carried out under the conditions foreseen but also taking into account any reasonably foreseeable misuse thereof.

The measures taken shall aim at eliminating any risk throughout the foreseeable lifetime of the machinery including the phases of transport, assembly, dismantling, disabling and scrapping.

4.7.2 Electrical safety

The safety is obtained by fulfilling the requirements of EN 60335-1 and EN 60335-2-80.

5 Testing, assessment and sampling methods

5.1 Mechanical resistance and stability

5.1.1 General

When tested in accordance with 5.1.2 the product shall remain mechanically stable and safe. After the heat stress test, the inline fans shall fulfil the demands of 5.3.1.

5.1.2 Wind load test

5.1.2.1 General

The projected area of the exhaust fan is defined as the largest cross section. All different installation methods shall be tested. During the test, the fan shall remain attached to the chimney adapter.

5.1.2.2 Preparation of test specimen

The test shall be carried out with the exhaust fan installed on a chimney able to withstand the wind load of $1,5 \text{ KN/m}^2$ on the exhaust fan.

The exhaust fan consisting of the manufacturer declared components (e.g. inner liner guide, mounting plate and insulation) shall be installed as specified by the manufacturer.

Carry out the tests on the thermal tested sample (see Figure 1). The chimney fixed to the wall shall be so stable that it does not deform during testing. A wall thickness of 2 mm is recommended.

5.1.2.3 Test procedure horizontal wind load

Flush with top point of exhaust fan attach a 4 mm to 6 mm steel wire (by drilling a hole, welding or other suitable method). Through the steel wire apply a horizontal load on the exhaust fan, increase the load up to $1,5 \text{ KN/m}^2 \pm 2,5\%$.

Record that the fan maintains its safe attachment to the chimney. Small movements are allowed during the test.