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Chimneys - Accessories - Part 6: Access components - Requirements and test methods

Abgasanlagen - Zubehörteile - Teil 6: Zugangsbauteile - Anforderungen und Prüfverfahren

Conduits de cheminée - Accessoires - Partie 6 : Éléments d'accès - Exigences et méthodes d'essai

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EUROPEAN STANDARD
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**Chimneys - Accessories - Part 6: Access components -
Requirements and test methods**

Conduits de cheminée - Accessoires - Partie 6 :
Éléments d'accès - Exigences et méthodes d'essai

Abgasanlagen - Zubehörteile - Teil 6: Zugangsbauteile -
Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 25 December 2019.

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

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EN 16475-6:2020 (E)**European foreword**

This document (EN 16475-6:2020) 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of an identical text or by endorsement, at the latest by October 2020, and conflicting national standards shall be withdrawn at the latest by January 2022.

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 is a part of the EN 16475 standards series, *Chimneys – Accessories*:

- *Part 1: Chimney silencers - Requirements and test methods* [FprEN 16475-1];
- *Part 2: Chimney fans - Requirements and test methods*;
- *Part 3: Draught regulators, standstill opening devices and combined secondary air devices - Requirements and test methods*;
- *Part 4: Flue dampers - Requirements and test methods* [prEN 16475-4];
- *Part 6: Access components - Requirements and test methods* (this document);
- *Part 7: Rain caps - Requirements and test methods*.

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

Introduction

The main purpose of access components is to provide access to the flue of dry, negative pressure chimneys, e.g. to be inspected or cleaned.

1 Scope

This document specifies the requirements and test methods for access components comprising a frame and a door or doors which provide access to the flue of a chimney for the purpose of inspection or cleaning.

Access components for higher nominal working temperature than 450 °C, positive pressure and wet applications are not covered by this standard.

The document is limited to access components with door opening dimensions with a maximum width of 450 mm and a maximum height of 600 mm.

Products not freely ventilated are excluded from this document.

This document also specifies the requirements for marking, manufacturers' instruction, product information and information on the AVCP (Assessment and Verification of Constancy of Performance).

Access components already tested together with system chimney products or other chimney components, e.g. flue liners, are not covered by this document.

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.

EN 1443, *Chimneys - General requirements*

EN 1561, *Founding - Grey cast irons*

EN 1563, *Founding - Spheroidal graphite cast irons*

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

EN 1857, *Chimneys - Components - Concrete flue liners*

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

EN 10131, *Cold rolled uncoated and zinc or zinc-nickel electrolytically coated low carbon and high yield strength steel flat products for cold forming - Tolerances on dimensions and shape*

EN 13063-1, *Chimneys - System chimneys with clay/ceramic flue liners - Part 1: Requirements and test methods for sootfire resistance*

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

EN 13501-1, *Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests*

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

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ISO 2859-1, *Sampling procedures for inspection by attributes - Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1443, EN 1856-1 and EN 1857, and the following apply.

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

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

3.1 access component
component comprising a frame and a door or doors installed in the chimney to provide access to the flue for the purpose of inspection or cleaning

3.2 nominal dimension
dimension of the opening of the access component

4 Product characteristics**4.1 General**

The access component shall fulfil the following requirements.

4.2 Mechanical resistance and stability
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4.2.1 Freedom of movement of the door

When tested according to 5.2.1 the access component shall be able to move freely when opened and closed 100 times before and 10 times after the thermal performance tests, and meet the requirement of 4.4.1.

4.2.2 Impact resistance of the door

When tested according to 5.2.2 the access component shall also be able to be opened and closed freely before and after the thermal tests.

4.2.3 Inner door security

An access component with a separate inner door shall have means for preventing the inner door from falling into the chimney. This criteria is fulfilled if the inner door is secured, e.g. to the access component frame by a steel rope, or a bar.

4.3 Thermal performance**4.3.1 Reaction to fire**

The reaction to fire for the access component shall be determined in accordance with EN 13501-1.

4.3.2 Resistance to fire (internal to external)

4.3.2.1 General

The minimum distance to combustible shall be declared from the front face of the access component (distance xx in Figure 2) and to the side of an access component (distance yy in Figure 2) either measured according to 5.3 or for freely ventilated access components as:

- $xx \geq 400$ mm and $yy \geq 200$ mm for chimneys designated “G”; or
- $xx \geq 200$ mm and $yy \geq 100$ mm for chimneys designated “O”; or
- $xx \geq 50$ mm and $yy \geq 50$ mm for chimneys designated ‘O’ and maximum T160.

The minimum distance to combustible material may be reduced to 50 % of the above values if a radiation shield creating an air gap, made from non-combustible material, is installed between the access component and the adjacent combustible materials.

NOTE The minimum distance to combustible materials only takes into account the fire protection and not e.g. operational requirements.

Freely ventilated means that ventilation of the space around the access component is not enclosed by, e.g. fitting it in a cupboard.

If tested according to 5.3 the temperature on the combustible material shall not exceed 85 °C during the heat stress test and shall not exceed 100 °C during the sootfire test.

A multiple layer access component may only be designated G if the outer surface temperature does not change by more than 10 % when the heat stress test is repeated after the sootfire test.

4.3.2.2 Heat stress

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The access component shall be tested to the designated nominal working temperature in accordance with 5.3.3.2 and the requirements of 4.2 and 4.4 shall be met.

4.3.2.3 Sootfire

The access component designated sootfire resistant shall be tested in accordance with 5.3.3.3 and the requirements of 4.2 and 4.4 shall be met.

4.4 Hygiene, health and environment

4.4.1 Gas tightness

When an access component is tested according to the test method described in 5.4 both before and after the thermal performance tests, the leakage rate shall not be greater than $1,5 \text{ l}\cdot\text{s}^{-1}\cdot\text{m}^{-1}$ of joint length at a test pressure of 40 Pa and shall be measured on the largest door size in a manufacturer’s range suitable for a chimney of 200 mm diameter or equivalent area.

NOTE The parameter N1 or N2 of the chimney is not changed by the installation of such an access component.

4.4.2 Condensate resistance

Access components to this standard shall be designated ‘Dry’.

4.4.3 Corrosion resistance

Access components having materials to this standard (see 4.6.1) shall be designated with the corrosion class 3 in accordance with EN 1443.

EN 16475-6:2020 (E)**4.4.4 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/enterprise/construction/cpd-ds/>.

4.5 Thermal resistance

The outer door of the access component shall have a minimum thermal resistance of $0,05 \text{ m}^2 \cdot \text{K}/\text{W}$. This is deemed to be fulfilled for concrete with a wall thickness of 60 mm and for metal with insulation (of maximum thermal conductivity of $0,1 \text{ W}/(\text{mK})$ of at least 10 mm thickness.

The thermal resistance of an access component may be calculated using the method in Annex E.

4.6 Materials**4.6.1 Access components in contact with combustion products**

The part of the access component, multi-layer or not, in contact with the products of combustion shall have a minimum material specification of one of the following:

- a) cast iron to EN 1561 or EN 1563: minimum thickness 4 mm;
- b) zinc coated mild steels to EN 10131: minimum thickness 1,25 mm;
- c) stainless steel: minimum material number according to EN 10088-1 of 1.4301 or higher number¹, minimum thickness 0,6 mm;
- d) concrete: minimum density $1\,700 \text{ kg}/\text{m}^3$, thickness shall be selected to correspond to a maximum overall weight of 6,5 kg;
- e) clay as specified in EN 13063-1.

4.6.2 Additional information on other materials of construction

Other materials used in access components shall not show any deformation, permanent or temporary, when the relevant material of the access component is tested in accordance with 5.3 that will affect the performance of the access component.

4.6.3 Freeze/thaw resistance

Access components of metal construction are deemed to be freeze/thaw resistant.

Access components of concrete material are deemed to be freeze/thaw resistant when they satisfied the requirements in accordance with EN 14297.

¹ A stainless material type of a higher number means any steel according to the material list of EN 1856-2.

4.7 Operational requirements

4.7.1 Handling

An access component shall have a facility to handle the openable part.

The access component shall have no sharp edges that can cause injury when handled, or damage cleaning or inspection tools.

4.7.2 Angle of opening

A hinged door shall open at least to an angle of 140°, or be removable.

4.7.3 Closing mechanism

A door shall have the operating part of the closing mechanism consisting of either:

- a square spigot of $(7 \pm 0,1)$ mm x $(7 \pm 0,1)$ mm cross-section, with a length of at least 6,5 mm operating a latch mechanism;
- in a 18 mm diameter circular recess, at least 6,5 mm deep;
- a lever operating a latch mechanism;
- close under its own weight e.g. for concrete access doors, by fitting into a recess.

4.7.4 Space for additional information

If it is required, the door of the access component shall have a space of 80 mm x 170 mm for additional information to be added in particular where an access component needs additional information, e.g. in terms of which chimney it serves in a property in a multiple apartment block.

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5 Testing, assessment and sampling methods

5.1 Manufacturer's declaration for type test

The manufacturer shall provide the relevant information in Clause 8 and, in addition, shall declare, for the access component:

- a) drawings including declared nominal dimensions,
- b) Material types for the component parts, and their minimum thicknesses,
- c) weight of product,
- d) method of fixing.

5.2 Mechanical resistance and stability

5.2.1 Free movement test

5.2.1.1 Test assembly

Mount the access component on the test assembly of 5.2.2.1 according to the manufacturer's instructions.

EN 16475-6:2020 (E)**5.2.1.2 Test procedure**

Check if a hinged door opens to a minimum angle of 140°.

Subject the access component to the gas tightness test of 5.4.

Open and close the access component door 100 times.

Record whether the door opens and closes freely and record whether the hinged door opens to a minimum angle of 140°. Subject the access component to the thermal test of 5.3 appropriate to the access component designation.

Open and close the access component door 10 times.

Record whether the door opens and closes freely and record whether the hinged door opens to a minimum angle of 140°.

Subject the access component to the gas tightness test of 5.4.

5.2.1.3 Test Results

Record whether the access component door opens and closes freely, and the leakage from the gas tightness test.

5.2.2 Swing ball test**5.2.2.1 Test assembly**

Construct a test assembly according to Figure 1 with the access component installed according to the manufacturer's instructions, using gypsum for easy dismantling.

Construct a pendulum with a steel ball of $(14,85 \pm 0,05)$ kg attached to a 1,7 m long rope and the pivot point 200 mm from the access component, all with a tolerance of $_{+5}^{-0}$ %.

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