



SLOVENSKI STANDARD
SIST EN 13063-1:2006+A1:2007

01-september-2007

Dimnovodne naprave - Sistemski dimniki s keramičnimi tuljavami - 1. del: Zahteve za odpornost proti požaru saj in preskusne metode

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

Abgasanlagen - System-Abgasanlagen mit Keramik-Innenrohren - Teil 1: Anforderungen und Prüfungen für Rußbrandbeständigkeit

Conduits de fumées - Conduits-systèmes avec conduit intérieur en terre cuite/céramique - Partie 1: Exigences et méthodes d'essai relatives à la détermination de la résistance au feu de cheminée

ITEN STANDARD PREVIEW
(standards.iteh.ai)
[SIST EN 13063-1:2006+A1:2007](https://standards.iteh.ai/catalog/standards/sist/abcd102a-3c05-4bb7-a161-2ce28d88a6a5/sist-en-13063-1-2006a1-2007)
<https://standards.iteh.ai/catalog/standards/sist/abcd102a-3c05-4bb7-a161-2ce28d88a6a5/sist-en-13063-1-2006a1-2007>

Ta slovenski standard je istoveten z: EN 13063-1:2005+A1:2007

ICS:

91.060.40 Dimniki, jaški, kanali Chimneys, shafts, ducts

SIST EN 13063-1:2006+A1:2007 **en,fr,de**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 13063-1:2006+A1:2007](https://standards.iteh.ai/catalog/standards/sist/abcd102a-3c05-4bb7-a161-2ce28d88a6a5/sist-en-13063-1-2006a1-2007)

<https://standards.iteh.ai/catalog/standards/sist/abcd102a-3c05-4bb7-a161-2ce28d88a6a5/sist-en-13063-1-2006a1-2007>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 13063-1:2005+A1

July 2007

ICS 91.060.40

Supersedes EN 13063-1:2005

English Version

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

Conduits de fumées - Conduits-systèmes avec conduit
intérieur en terre cuite/céramique - Partie 1: Exigences et
méthodes d'essai relatives à la détermination de la
résistance au feu de cheminée

Abgasanlagen - System-Abgasanlagen mit Keramik-
Innenrohren - Teil 1: Anforderungen und Prüfungen für
Rußbrandbeständigkeit

This European Standard was approved by CEN on 2 September 2005 and includes Amendment 1 approved by CEN on 14 June 2007.

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 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 Management Centre has the same status as the official versions.

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

<https://standards.iteh.ai/catalog/standards/sist/abcd102a-3c05-4bb7-a161-2ce28d88a6a5/sist-en-13063-1-2006a1-2007>



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

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

Contents

	page
Foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	6
4 Shapes, dimensions and tolerances.....	8
4.1 Flue liners	8
4.2 Insulation	8
4.3 Outer wall elements	9
4.4 Cleaning and inspection doors	9
5 Material requirements	9
5.1 General requirements for components	9
5.2 Safety in use.....	11
5.3 Hygiene, health and environment	12
5.4 Cleaning and inspection doors	12
5.5 Freeze/thaw resistance	13
5.6 Temperature classes	13
5.7 Pressure classes.....	13
6 Replacement of single components of the system chimney	13
6.1 Change of flue liner	13
6.2 Change of opening sections.....	13
6.3 Change of insulation	14
6.4 Change of jointing materials for inner liners	14
6.5 Change of outer wall elements.....	14
6.6 Change of cleaning and inspection doors	14
7 Designation	14
8 Product information.....	15
9 Marking and labelling	16
10 Evaluation of conformity.....	16
10.1 General.....	16
10.2 Components	16
10.3 Initial type testing of soot fire resistant system chimneys	17
10.4 Exchange of components	17
10.5 Factory production control.....	18

Annex A (normative) Test methods	19
Annex B (normative) Stainless steel outer walls	25
Annex C (normative) Thermal resistance of the system chimney	26
Annex D (normative) Sampling procedures for an AQL of 10 % and inspection level S2	27
Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU Construction Product Directive	31
Bibliography	38

iTeh STANDARD PREVIEW **(standards.iteh.ai)**

[SIST EN 13063-1:2006+A1:2007](https://standards.iteh.ai/catalog/standards/sist/abcd102a-3c05-4bb7-a161-2ce28d88a6a5/sist-en-13063-1-2006a1-2007)

<https://standards.iteh.ai/catalog/standards/sist/abcd102a-3c05-4bb7-a161-2ce28d88a6a5/sist-en-13063-1-2006a1-2007>

EN 13063-1:2005+A1:2007 (E)**Foreword**

This document (EN 13063-1:2005+A1:2007) has been prepared by Technical Committee CEN/TC 166 "Chimneys", the secretariat of which is held by UNI.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2008 and conflicting national standards shall be withdrawn at the latest by April 2009.

This document includes Amendment 1 approved by CEN on 2007-06-14.

This document supersedes EN 13063-1:2005.

The start and finish of text introduced or altered by amendment is indicated in the text by tags $\boxed{A_1}$ $\boxed{A_1}$.

This European Standard 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 Directive(s).

For relationship with EU Directive(s), see informative Annex ZA which is an integral part of this document.

This standard is part 1 of a series of standards for system chimneys with clay/ceramic flue liners.

Part 2 is for system chimneys working under wet conditions and part 3 is for system air flue chimneys.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard specifies the requirements and test methods for multiwall soot fire resistant system chimneys, working under dry conditions, with corrosion resistance 3, with negative pressure (see EN 1443) in which the products of combustion are conveyed to the atmosphere through clay/ceramic flue liners. Marking and inspection are also covered by this standard.

This standard does not apply to structurally independent (free standing or self-supporting) system chimneys.

A soot fire resistant system chimney has the following items where appropriate:

- clay/ceramic flue liners;
- Insulation layer;
- outer walls;
- mortar for jointing flue liners;
- mortar for jointing outer walls;
- terminal;
- chimney base;
- cladding;
- opening section;
- cleaning and inspection door;
- distance piece;
- reinforcement.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 13063-1:2006+A1:2007](https://standards.iteh.ai/catalog/standards/sist/abcd102a-3c05-4bb7-a161-2ce28d88a6a5/sist-en-13063-1-2006a1-2007)

<https://standards.iteh.ai/catalog/standards/sist/abcd102a-3c05-4bb7-a161-2ce28d88a6a5/sist-en-13063-1-2006a1-2007>

The soot fire resistant chimney covers a combination of compatible chimney components, obtained or specified from one manufacturing source with product responsibility for the whole chimney.

2 Normative references

The following referenced documents are indispensable for the application 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 998-2:2003, *Specification for mortar for masonry – Part 2: Masonry mortar*

EN 1366-8, *Fire resistance tests for service installations – Part 8: Smoke extraction ducts*

EN 1443:2003, *Chimneys – General requirements*

EN 1457:1999, *Chimneys – Clay/ceramic flue liners – Requirements and test methods*

EN 1806:2006 ^{A1}, *Chimneys – Clay/ceramic flue blocks for single wall chimneys – Requirements and test methods*

EN 13063-1:2005+A1:2007 (E)

EN 1859, *Chimneys – Metal chimneys – Test methods*

EN 12446:2003, *Chimneys – Components – Concrete outer wall elements*

EN 13069:2005, *Chimneys – Clay/ceramic outer walls for system chimneys – Requirements and test methods*

EN 13162:2001, *Thermal insulation products for buildings – Factory made mineral wool (MW) products – Specification*

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

EN 13384-1, *Chimneys - Thermal and fluid dynamic calculation methods – Part 1: Chimneys serving one appliance*

A1 EN 13501-2, *Fire classification of construction products and building elements – Part 2: Classification using data from fire resistance tests, excluding ventilation services **A1***

EN 14297:2004, *Chimneys – Freeze-thaw resistance test method for chimney products*

EN ISO 1182, *Reaction to fire tests for building products – Non-combustibility test (ISO 1182:2002)*

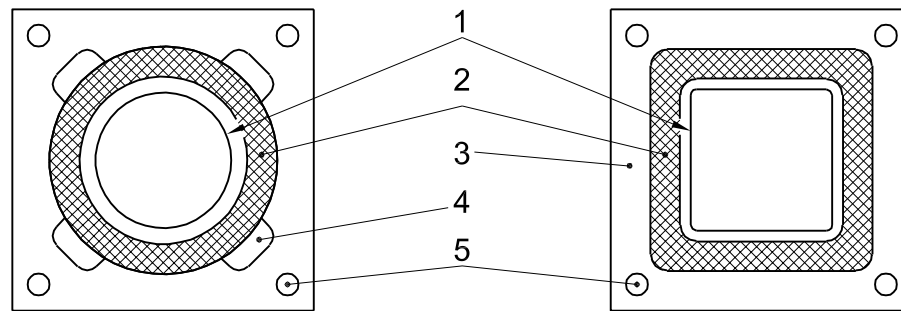
ISO 2859-1, *Sampling procedures for inspection by attributes – Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

iTeh STANDARD PREVIEW (standards.iteh.ai)

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 1443:2003 and EN 13216-1:2004 and the following apply. standards.iteh.ai/catalog/standards/sist/abcd102a-3c05-4bb7-a161-2ce28d88a6a5/sist-en-13063-1-2006a1-2007

3.1 soot fire resistant multiwall system chimney
multiwall construction, consisting mainly of an outer wall, an insulation layer and a sootfire resistant inner clay/ceramic flue liner. The combination of these components forms a sootfire resistant system chimney (see Figure 1)

**Key**



- 1 Inner liner
- 2  Insulation layer (insulation or air gap) 
- 3 Outer wall
- 4 Cavities for back ventilation
- 5 Cavities for structural reinforcement

Figure 1 – Construction of a soot fire resistant system chimney

3.2**chimney base**

section of the system chimney, situated at the bottom, which comprises an inspection opening with door

3.3**reinforced outer wall**

outer wall having reinforcement to assist handling (not for structural stability)

[SIST EN 13063-1:2006+A1:2007](https://standards.iteh.ai/catalog/standards/sist/abcd102a-3c05-4bb7-a161-2ce28d88a6a5/sist-en-13063-1-2006a1-2007)

3.4**structural reinforcement**

additional strengthening for structural stability (in the outer wall)

<https://standards.iteh.ai/catalog/standards/sist/abcd102a-3c05-4bb7-a161-2ce28d88a6a5/sist-en-13063-1-2006a1-2007>

3.5**freeze-thaw-resistance**

ability of the product to resist the effects of freezing and thawing

3.6**opening section**

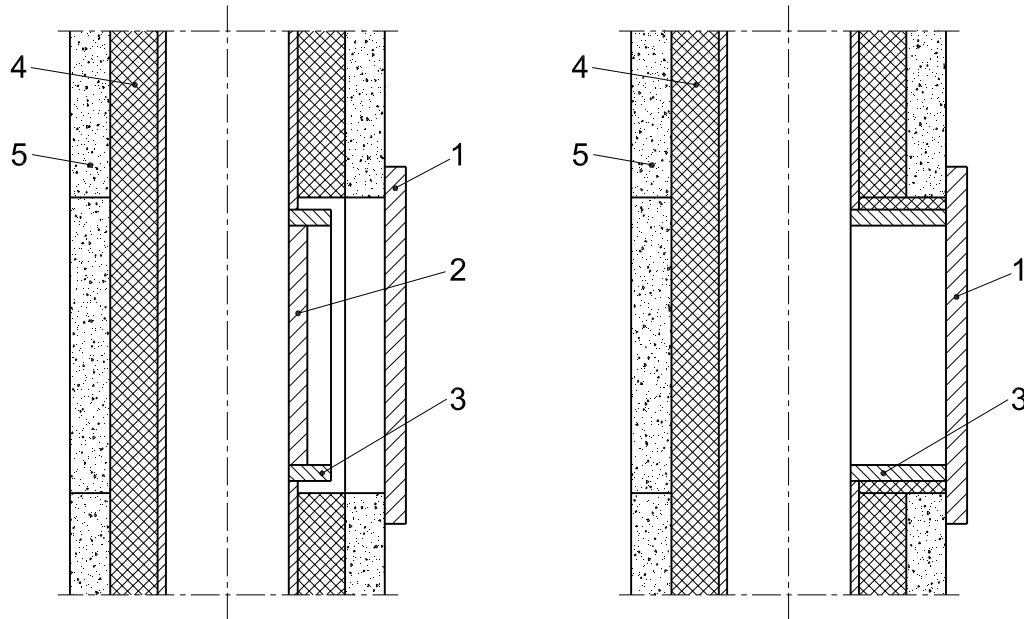
flue liner which has an opening for cleaning and inspection or connection for another flue (junction)

3.7**cleaning and inspection door**

door in outer wall element to allow cleaning and inspection of the chimney. There are two types of cleaning and inspection doors (see Figure 2):

- a cleaning and inspection door combined with an opening section with inner door
- a cleaning and inspection door combined with an opening section without inner door

EN 13063-1:2005+A1:2007 (E)

**Key**

- 1 Cleaning and inspection door
- 2 Inner door of the opening section
- 3 Opening section
- 4 Insulation layer
- 5 Outer wall

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Figure 2 - Examples of cleaning and inspection doors and the opening sections

SIST EN 13063-1:2006+A1:2007

3.8**distance piece**

spacer to keep distance between outer wall element and insulation or inner liner

<https://standards.iteh.ai/catalog/standards/sist/abcd102a-3c05-4bb7-a161-2ce28d88a6a5/sist-en-13063-1-2006a1-2007>

4 Shapes, dimensions and tolerances**4.1 Flue liners****4.1.1 General**

Flue liners shall meet the requirements on size and tolerance of dimensions given in 7.1, 7.2, 7.3, 7.4, 7.5, 7.6 and 7.7 of EN 1457:1999.

4.1.2 External dimensions of flue liner

When tested in accordance with A.2.6, the external dimensions of flue liners measured on any cross section shall not deviate more than $\pm 3\%$ of the manufacturer's stated nominal external dimensions.

4.2 Insulation

The insulation layer shall meet the requirements on tolerance of dimensions given in 4.2.2 (length and width) and 4.2.3 (thickness class T3) of EN 13162:2001.

4.3 Outer wall elements

Outer wall elements shall fulfil the requirements on shapes and tolerances on dimensions given in:

concrete outer wall elements:	EN 12446:2003, Clause 7
clay/ceramic outer walls:	EN 13069:2005, Clause 6
metal outer walls:	Annex B

4.4 Cleaning and inspection doors

Dimensions and tolerances shall be declared by the manufacturer.

5 Material requirements

5.1 General requirements for components

5.1.1 General

All components of soot fire resistant system chimneys shall be non combustible in accordance to EN ISO 1182.

5.1.2 Clay/ceramic flue liners

Flue liners shall meet the requirements of EN 1457 clauses:

- 8.1 Straight flue liners (proof load);
- 8.3 Minimum load for inspection opening sections (proof load);
- 9.1 Initial test (gas tightness, thermal shock resistance and resistance to fire for straight flue liners);
- 9.2 Final gas tightness after thermal shock testing;
- 10 Acid resistance;
- 11 Water absorption and bulk density;
- 12 Sweeping resistance.

5.1.3 Maximum compressive strength for opening sections

When tested as described in A.2.3, components shall withstand a load of at least five times the manufacturer's declared design load.

$$F = (\chi \times H \times G)/100 \quad (1)$$

where

F = minimum load (kN);

χ = safety factor = 5;

H = height of chimney (m);

EN 13063-1:2005+A1:2007 (E)

G = Weight per metre (kg/m).

NOTE The limiting factor of the maximum height of system chimneys is the compressive strength of the opening section.

5.1.4 Jointing material for flue liners**5.1.4.1 Density**

The density of jointing material shall not vary more than $\pm 10\%$ of the manufacturer declared value when tested in accordance to A.2.2.2.

5.1.4.2 Compressive strength

The compressive strength shall be at least 10 N/mm^2 when tested according to A.2.2.3.

5.1.5 Insulation**5.1.5.1 General**

The insulation shall be to the manufacturer's specifications and shall be prefabricated and have an independent permanent shape before and after being exposed to heat in operating conditions (e.g. blocks or bonded loose material).

5.1.5.2 Density

The manufacturer shall declare the density of the insulation and this shall not vary by more than $\pm 10\%$ of the declared value and shall be tested according to EN 1806:2006 A1, 17.15.

5.1.5.3 Durability under soot fire conditions

When tested in accordance to A.2.1 the change in the outside surface temperature of the test sample after the fourth cycle of heating shall not exceed 10% of the maximum outside surface temperature of the sample of the first cycle.

5.1.6 Outer wall elements

The outer wall elements shall fulfil EN 12446 for concrete outer wall elements, EN 13069 for clay/ceramic outer wall or Annex B for stainless steel metal outer walls.

5.1.7 Jointing material for outer wall elements

Jointing materials used for jointing outer walls, where supplied with the system chimney, shall comply with the system chimney manufacturer's declared specification and shall be at least M2,5 according to EN 998-2:2003, 5.3.1, Table 1.

5.1.8 Wind load

The free standing part of the chimney above the last lateral support of the soot fire resistant system chimney shall withstand a wind load of $1,5 \text{ kN/m}^2$. The maximum permissible height of a chimney outside the building of a soot fire resistant system chimney shall be calculated according to national calculation methods, taking into account the tilt momentum of the outer wall element. Alternatively the tilt momentum of the complete construction can be taken into account. A test method to evaluate the tilt momentum is given in A.2.4.

5.2 Safety in use

5.2.1 Distance to combustible materials

5.2.1.1 General

The distance to combustible materials shall be tested in accordance with EN 13216-1:2004, 5.6. The distance between the outer surface of the chimney and the adjacent combustible material shall be declared as G(xx), where xx is the minimum distance in mm.

5.2.1.2 Operating conditions

The soot fire resistant system chimney shall be tested in accordance to the heat stress test method described in ^{A1}EN 13216-1:2004, 5.7 ^{A1} for the required temperature types. The maximum surface temperature of combustible materials adjacent to the test chimney shall not be greater than 85 °C, when related to an ambient temperature of 20 °C.

5.2.1.3 Soot fire and thermal shock conditions

The soot fire resistant system chimney shall be tested in accordance to soot fire test method described in ^{A1}EN 13216-1:2004, 5.7 ^{A1}. The maximum surface temperature of combustible materials adjacent to the test chimney shall not be greater than 100 °C, when related to an ambient temperature of 20 °C.

The classification of the resistance to fire is given in EN 13501-2.

5.2.2 Relative movement between flue liner and outer wall

After thermal testing (operating conditions and soot fire conditions) in accordance with ^{A1}EN 13216-1:2004, 5.7 ^{A1}, the final position after cooling down to room temperature of the upper flue liner shall be ± 5 mm to the original position when tested according to ^{A1}EN 13216-1:2004, 5.3 ^{A1}.

5.2.3 Thermal resistance

The thermal resistance value of the system chimney declared by the manufacturer shall be verified by testing according to the test method of ^{A1}EN 13216-1:2004 (as the reference test method), 5.8 ^{A1}, or calculation in accordance with Annex C, both with inner surface temperature of the flue liner at 200 °C.

The designation of the thermal resistance shall be given as Ryy, where yy is the value in square metres Kelvin per Watt multiplied by 100, rounded to the nearest integer (e.g.: R22 is $R=0,22 \text{ m}^2\text{KW}$).

NOTE The thermal resistance value can be used for calculation according to EN 13384-1.

5.2.4 Resistance to fire external to external

^{A1} Until a European test method is available the resistance to fire, external to external, shall be evaluated and declared according to national regulations.

Examples of European classification are given in Table 1. ^{A1}