



SLOVENSKI STANDARD

SIST EN 1856-1:2009

01-oktober-2009

BUXca Yý U

SIST EN 1856-1:2003

SIST EN 1856-1:2003/A1:2006

Dimniki - Zahteve za kovinske dimnike - 1. del: Proizvodi za systemske dimnike

Chimneys - Requirements for metal chimneys - Part 1: System chimney products

Abgasanlagen - Anforderungen an Metall-Abgasanlagen - Teil 1: Bauteile für System-Abgasanlagen

Conduits de fumée - Prescriptions pour les conduits de fumée métalliques - Partie 1:
Composants de systèmes de conduits de fumée

SIST EN 1856-1:2009
<https://standards.iteh.ai/catalog/standards/sist/1280e530-03eb-4934-991c-534eace75e00/sist-en-1856-1-2009>

Ta slovenski standard je istoveten z: EN 1856-1:2009

ICS:

91.060.40 Dimniki, jaški, kanali Chimneys, shafts, ducts

SIST EN 1856-1:2009

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 1856-1:2009

<https://standards.iteh.ai/catalog/standards/sist/1280e530-03eb-4934-991c-534eace75e00/sist-en-1856-1-2009>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1856-1

June 2009

ICS 91.060.40

Supersedes EN 1856-1:2003

English Version

Chimneys - Requirements for metal chimneys - Part 1: System chimney products

Conduits de fumée - Prescriptions pour les conduits de fumée métalliques - Partie 1: Composants de systèmes de conduits de fumée

Abgasanlagen - Anforderungen an Metall-Abgasanlagen - Teil 1: Bauteile für System-Abgasanlagen

This European Standard was approved by CEN on 7 May 2009.

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.

[SIST EN 1856-1:2009](https://standards.iteh.ai/catalog/standards/sist/1280e530-03eb-4934-991c-534eace75e00/sist-en-1856-1-2009)

<https://standards.iteh.ai/catalog/standards/sist/1280e530-03eb-4934-991c-534eace75e00/sist-en-1856-1-2009>



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	5
Introduction	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	7
4 Manufacturer's declaration for type test	13
5 Dimensions and tolerances	14
6 Performance requirements	14
6.1 General.....	14
6.2 Mechanical resistance and stability.....	14
6.2.1 Compressive strength.....	14
6.2.2 Tensile strength	15
6.2.3 Lateral strength.....	15
6.3 Resistance to fire (internal to external)	15
6.4 Sootfire resistance.....	15
6.5 Hygiene, health and environment, gas tightness.....	15
6.6 Safety in use.....	16
6.6.1 Thermal performance at normal operating conditions.....	16
6.6.2 Accidental human contact.....	16
6.6.3 Thermal resistance	17
6.6.4 Water vapour diffusion resistance.....	18
6.6.5 Condensate penetration resistance.....	18
6.6.6 Rainwater penetration resistance	18
6.6.7 Flow resistance	18
6.6.8 Other requirements for terminals.....	18
6.7 Durability	19
6.7.1 Durability of the flue liner against corrosion	19
6.7.2 Flue liner material specification	19
6.7.3 Freeze-thaw resistance	20
6.7.4 Flue liner seals.....	20
7 Product information.....	21
7.1 Manufacturer's instructions.....	21
7.2 Minimum information to be included in the manufacturer's documentation and instructions	21
8 Marking	22
8.1 General.....	22
8.2 Chimney sections, fittings or terminals	22
8.3 Chimney plate	22
8.4 Packaging	23
9 Product designation	23
10 Evaluation of conformity.....	23
10.1 General.....	23
10.2 Type testing.....	24
10.2.1 Initial type testing	24
10.2.2 Further type testing	24
10.2.3 Sampling for type testing.....	24

10.3	Factory production control (FPC).....	24
10.3.1	General	24
10.3.2	Equipment	25
10.3.3	Raw materials and components	26
10.3.4	Product testing and evaluation.....	26
10.3.5	Non conforming products	26
Annex A	(normative) Corrosion tests.....	27
A.1	Corrosion test method for products designated V1	27
A.1.1	General	27
A.1.2	Pass/Fail criteria	27
A.1.3	Sampling.....	27
A.1.4	Test methods	27
A.1.5	Evaluation.....	31
A.1.6	Test report.....	32
A.2	Corrosion test method for products designated V2	35
A.2.1	General	35
A.2.2	Pass/Fail criteria	35
A.2.3	Sampling.....	35
A.2.4	Test methods	35
A.2.5	Evaluation.....	37
A.2.6	Test report.....	38
A.3	Corrosion test method for products designated V3	39
A.3.1	General	39
A.3.2	Pass/Fail criteria	39
A.3.3	Sampling.....	40
A.3.4	Test methods	40
A.3.5	Evaluation.....	43
A.3.6	Test report.....	43
Annex B	(normative) Choice of size for type test and sampling.....	46
Annex C	(normative) Sampling for factory production control	47
C.1	Incoming material.....	47
C.1.1	Sampling plans	47
C.1.2	Acceptable quality level (AQL).....	47
C.1.3	Normal, tightened or reduced inspection	47
C.1.4	Single, double, multiple or sequential sampling.....	47
C.1.5	Batch quantity.....	47
C.1.6	The inspection level	47
C.2	In-process inspection	48
C.2.1	All dimensional aspects.....	48
C.2.2	Joint leakage tests	48
C.2.3	Insulation weight checks	48
C.2.4	Volume and density checks	48
C.2.5	Finished goods checks.....	48
Annex D	(normative) Factory production control	49
D.1	General	49
D.2	Insulation material.....	49
D.3	Metals, including coatings.....	49
D.4	Supports	49
D.5	Seals and sealants	49
D.6	Manufacturing checks.....	50
D.6.1	Dimensions	50
D.6.2	Other checks	50
Annex ZA	(informative) Clauses of this European Standard addressing the provisions of the EU Construction Products Directive	51
ZA.1	Scope and relevant characteristics	51
ZA.2	Procedure(s) for attestation of conformity of metal system chimneys	53
ZA.2.1	System(s) of attestation of conformity.....	53

EN 1856-1:2009 (E)

ZA.2.2 EC Declaration of conformity	54
ZA.3 CE marking and labelling.....	55
Bibliography	61

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

[SIST EN 1856-1:2009](https://standards.iteh.ai/catalog/standards/sist/1280e530-03eb-4934-991c-534eace75e00/sist-en-1856-1-2009)

<https://standards.iteh.ai/catalog/standards/sist/1280e530-03eb-4934-991c-534eace75e00/sist-en-1856-1-2009>

Foreword

This document (EN 1856-1:2009) has been prepared by Technical Committee CEN/TC 166 "Chimneys", the secretariat of which is held by UNI.

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 December 2009, and conflicting national standards shall be withdrawn at the latest by March 2011.

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

This document supersedes EN 1856-1:2003.

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 EC Directive 89/106/EEC.

For relationship with EC Directive 89/106/EEC, see informative Annex ZA, which is an integral part of this document.

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 the United Kingdom.

[SIST EN 1856-1:2009](https://standards.iteh.ai/catalog/standards/sist/1280e530-03eb-4934-991c-534eace75e00/sist-en-1856-1-2009)

<https://standards.iteh.ai/catalog/standards/sist/1280e530-03eb-4934-991c-534eace75e00/sist-en-1856-1-2009>

EN 1856-1:2009 (E)**Introduction**

This European Standard has been prepared to be a harmonised standard to provide means of conforming to the essential requirements of the Construction Products Directive and associated EFTA regulations.

The generic word "chimney", when used in this European Standard, refers to systems with metallic liner used to convey the products of combustion from any appliance to the outside atmosphere, and thus includes all other terms of common use in the trade, such as vents, flues, shafts, exhaust systems, ducts, etc.

This European Standard addresses the durability against corrosion by the use of a minimum material specification for the flue liner as well as an interim solution for testing products for durability against corrosion. Three corrosion resistance tests and their requirements have been adopted from existing corrosion testing being undertaken in various member states (see Annex A).

This European Standard describes chimney components, from which system chimneys can be assembled as illustrated in Figure 1.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 1856-1:2009](https://standards.iteh.ai/catalog/standards/sist/1280e530-03eb-4934-991c-534eace75e00/sist-en-1856-1-2009)

<https://standards.iteh.ai/catalog/standards/sist/1280e530-03eb-4934-991c-534eace75e00/sist-en-1856-1-2009>

1 Scope

This European Standard specifies the performance requirements for single and multi-wall system chimney products with rigid metallic liners (chimney sections, chimney fittings and terminals, including supports) with nominal diameter up to and including 1200 mm, used to convey the products of combustion from appliances to the outside atmosphere. It also specifies the requirements for marking, manufacturer's instructions, product information and evaluation of conformity. Metal liners and metal connecting flue pipes not covered here are included in EN 1856-2:2009.

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

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 573-3, *Aluminium and aluminium alloys – Chemical composition and form of wrought products – Part 3: Chemical composition and form of products*

EN 1443:2003, *Chimneys – General requirements*

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

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

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

EN 14241-1, *Chimneys - Elastomeric seals and elastomeric sealants . Material requirements and test methods - Part 1: Seals in flue liners*

EN 15287 (all parts), *Chimneys – Design, installation and commissioning of chimneys*

EN ISO 3651-2, *Determination of resistance to intergranular corrosion of stainless steels. Part 2: Ferritic, austenitic and ferritic-austenitic (duplex) stainless steels. Corrosion test in media containing sulfuric acid (ISO 3651-2:1998)*

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 following terms and definitions apply.

3.1

appliance outlet

position where the products of combustion exit from the appliance (see Figure 1)

3.2

chimney

structure consisting of a wall or walls enclosing a flue or flues

[EN 1443:2003]

EN 1856-1:2009 (E)**3.2.1****chimney accessory**

chimney component not conveying products of combustion

[EN 1443:2003]

3.2.2**chimney component**

any part of a chimney

[EN 1443:2003]

3.3**chimney designation**

shortened description of a specific chimney type, which clearly distinguishes it from any other types

3.4**chimney fitting**

chimney component conveying products of combustion except a chimney section (see Figure 1)

[EN 1443:2003]

3.5**chimney section**

straight chimney component conveying products of combustion (see Figure 1)

[EN 1443:2003]

3.6**cladding**

additional non-structural outer wall around a chimney for protection against heat transfer or weathering, or for decorative purposes (see Figure 1)

[EN 1443:2003]

3.7**connecting flue pipe**

component or components connecting the heating appliance outlet and the chimney (see Figure 1)

[EN 1443:2003]

3.8**corrosion load**

combination of condensate and corrosion resistance classes necessary for the different operating conditions and types of fuel

3.9**custom built chimney**

chimney that is installed or built on-site using a combination of compatible chimney components that may be from one or different sources

[EN 1443:2003]

3.10**design load (DL)**

load which a chimney or its components are designed to be subjected to, under normal operating conditions, when installed as per manufacturer's installation instruction

3.11**dry operating condition**

condition when a chimney is designed to operate normally with the temperature of the inner surface of the flue liner above the water dew point

[EN 1443:2003]

3.12**enclosure**

barrier that, when built around a chimney, will give additional safety in case of fire and can provide additional heat transfer resistance (see Figure 1)

[EN 1443:2003]

3.13**external installation**

part of a chimney, which is located outside the building

3.14**firestops**

barrier to prevent the spread of fire

3.15**flexible pipe**

metal liner, or metal connecting flue pipe having a single or double skin construction, designed to bend in any direction without permanent deformation

3.16**flue**

passage for conveying the products of combustion to the outside atmosphere (see Figure 1)

[EN 1443:2003]

<https://standards.iteh.ai/catalog/standards/sist/1280e530-03eb-4934-991c-534eace75e00/sist-en-1856-1-2009>

3.17**flue gas**

gaseous portion of the products of combustion conveyed in a flue

[EN 1443:2003]

3.18**flue liner**

wall of a chimney consisting of components the surface of which is in contact with products of combustion (see Figure 1)

[EN 1443:2003]

3.19**heating appliances**

unit generating products of combustion which need to be conveyed to the outside atmosphere (see Figure 1)

[EN 1443:2003]

3.20**insulation**

material or air gap between the flue liner and the outer wall, designed to increase thermal resistance of the chimney (see Figure 1)

EN 1856-1:2009 (E)**3.21****internal installation**

part of a chimney which is located inside a building

3.22**joint**

connection between two components (see Figure 1)

[EN 1443:2003]

3.23**manufacturer instructions**

product written information which is provided for use by the buyer or installer

3.24**metal chimney**

chimney with its flue liner made of metal, which may have additional surrounding structural elements and accessories, as well as insulation

3.25**metal liner**

rigid or flexible flue liner made of metal

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

[SIST EN 1856-1:2009](https://standards.iteh.ai/catalog/standards/sist/1280e530-03eb-4934-991c-534eace75e00/sist-en-1856-1-2009)

<https://standards.iteh.ai/catalog/standards/sist/1280e530-03eb-4934-991c-534eace75e00/sist-en-1856-1-2009>

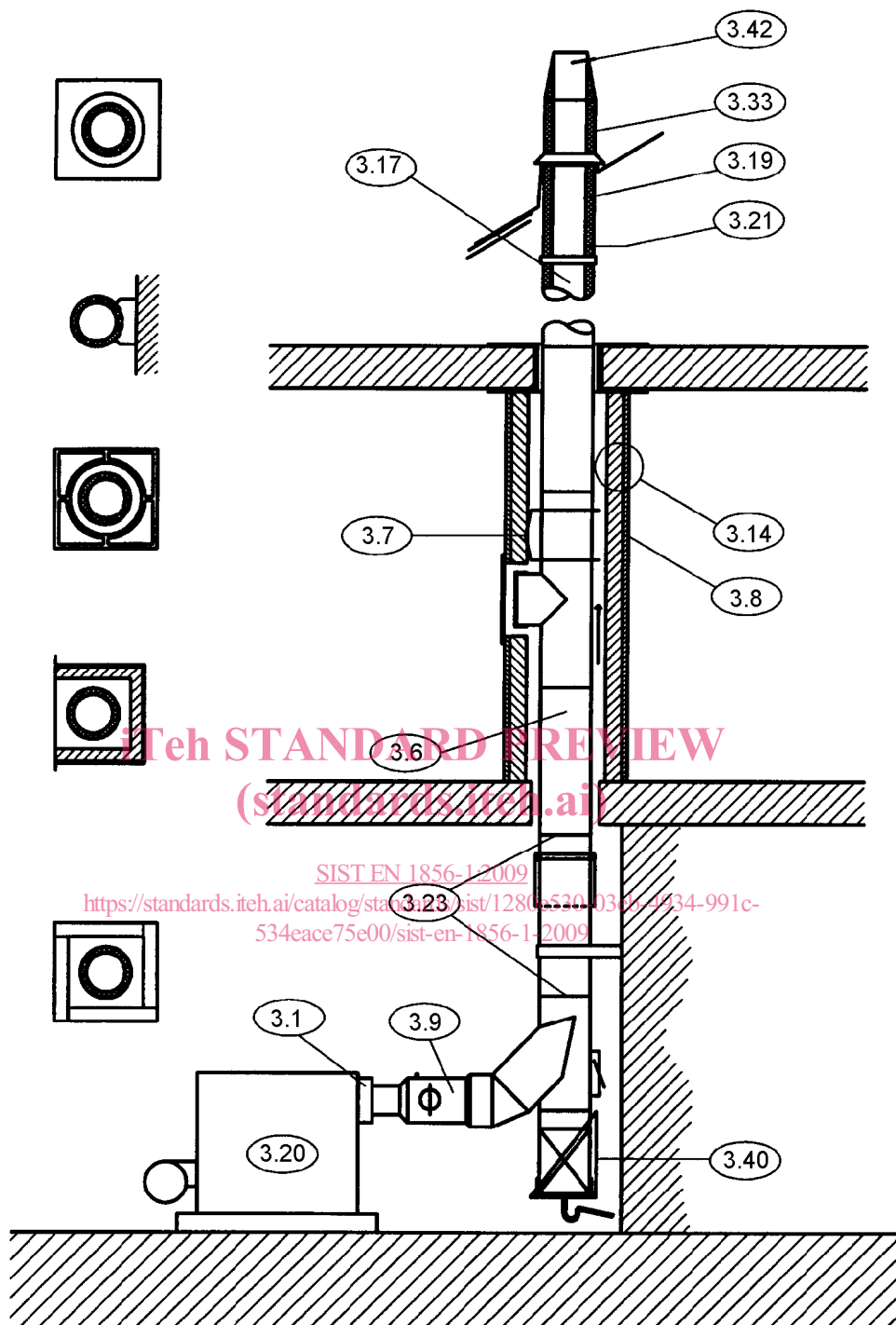


Figure 1 — Terminology - chimney components and chimney accessories

3.26

minimum declared wall thickness

value for the minimum thickness of the liner wall as stated by the manufacturer for the type test

3.27

multi-wall chimney

chimney consisting of a flue liner and at least one additional wall

[EN 1443:2003]

EN 1856-1:2009 (E)**3.28****multi-wall metal chimney**

chimney of two walls or more, all made of metal

3.29**negative pressure chimney**

chimney designed to operate with the pressure inside the flue less than the pressure outside the flue

[EN 1443:2003]

3.30**nominal size**

whole number representing the value of the internal diameter of the flue liner, expressed in millimetres

3.31**non enclosed chimney**

chimney which is installed without any enclosure or cladding

3.32**outer wall**

external wall of a chimney, the surface of which comes in contact with ambient or the external environment, or is within cladding or enclosure (see Figure 1)

[EN 1443:2003]

3.33**positive pressure chimney**

chimney designed to operate with the pressure inside the flue greater than the pressure outside the flue

[EN 1443:2003]

3.34**relining**

process of restoring or replacing the flue liner of a chimney

[EN 1443:2003]

3.35**resistance to fire**

ability of a chimney to prevent ignition of adjacent combustible material, and to prevent the spread of fire to adjacent areas

3.36**single-wall chimney**

chimney where the flue liner is the chimney

[EN 1443:2003]

3.37**sootfire**

combustion of the flammable residue deposited on the flue liner

[EN 1443:2003]

3.38**structurally independent chimney**

chimney which is not attached to buildings, masts or other support structure

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 1856-1:2009](https://standards.iteh.ai/catalog/standards/sist/1280e530-03eb-4934-991c-534eace75e00/sist-en-1856-1-2009)

<https://standards.iteh.ai/catalog/standards/sist/1280e530-03eb-4934-991c-534eace75e00/sist-en-1856-1-2009>

3.39**support**

chimney accessory used to fix, or transfer the load of, chimney components to structural elements (building, mast, etc.) (see Figure 1)

3.40**system chimney**

chimney that is installed using a combination of compatible chimney components, obtained or specified from one manufacturing source with product responsibility for the whole chimney

[EN 1443:2003]

3.41**terminal**

fitting installed at the outlet of a chimney (see Figure 1)

[EN 1443:2003]

3.42**test assembly**

complete assembly of all parts necessary to enable the specific performance criteria to be assessed, comprising test chimney, test structures, and measuring equipment (as specified in the test method)

3.43**test chimney**

assembly of the chimney components (as specified in the test method), necessary to the assessment of a specific performance criteria of a metal system chimney product

3.44**test structure**

assembly of the additional materials (non-chimney components) to enable the test chimney to be assessed for the specific performance criteria

3.45**thermal resistance of a chimney**

resistance to heat transfer through the wall or walls of the chimney

[EN 1443:2003]

3.46**wet operating condition**

condition when the chimney is designed to operate normally with the temperature of the inner surface of the flue liner at or below the water dew point

[EN 1443:2003]

4 Manufacturer's declaration for type test

The manufacturer shall provide the relevant information from 7.2 and, in addition, shall declare:

- a) the type of metals from which the chimney fittings or sections are made, according to EN 10088-1 and EN 573-3, and the nominal and minimum wall thickness;
- b) the internal diameter of the chimney fittings or sections and the nominal product size;
- c) the minimum wall thickness after manufacture, the installed length, liner external circumference, total mass and design loads of the fitting or section and, if appropriate, the insulation density or mass.