SLOVENSKI STANDARD
SIST EN 1443:2019

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SIST EN 1443:2003

Dimovodne naprave - Splošne zahteve

Chimneys - General requirements

Abgasanlagen - Allgemeine Anforderungen

Conduits de fumée - Exigences générales

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Chimneys - General requirements

Conduits de fumée - Exigences générales

Abgasanlagen - Allgemeine Anforderungen

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 1443:2019) has been prepared by Technical Committee CEN/TC 166 “Chimneys”, the secretariat of which is held by ASI.

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of an identical text or by endorsement, at the latest by October 2019, and conflicting national standards shall be withdrawn at the latest by October 2019.

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 supersedes EN 1443:2003.

The main changes with respect to the previous edition are:

a) updated normative references;

b) revised terms and definitions;

c) adaption of the changes made in the revision of EN 13216-1 – incorporation of a table with types of test structure;

d) tables for corrosion resistance classes and pressure classes revised;

e) new table “Hot gas velocity as a function of test temperature *T* and diameter of the test chimney”;

f) incorporation of examples of DoPs and CE-marking for different chimney components.

A list of standards and draft standards drafted by CEN/TC 166, as well as relevant standards of associated Technical Committees is given in the “Bibliography”.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this document: 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

The development of combustion appliances which has progressed in the recent years due to the need of saving energy and protecting the environment was paralleled by technical development of chimneys. Therefore, new additional requirements for chimneys are necessary, e.g. operation with positive pressure, operation with the formation of condensate.

Chimneys consist of different components which can be assembled, e.g. either:

— as system chimneys, that are installed using a combination of compatible chimney components, obtained or specified as a kit from one manufacturing source with product responsibility for the whole chimney, or

— as custom-built chimneys, that are installed or built on-site in accordance with a design document or local building regulations, using a combination of compatible chimney components that can be from one or more sources.

This document covers both cases. Annex A lists the relevant performance requirements for system chimneys and custom-built chimneys.

This document specifies a designation scheme for chimneys which considers combinations between combustion appliance and chimney. This scheme takes into account, for example, different climatic conditions, different fuels, and different building parameters.

The ability of a chimney to prevent ignition of adjacent combustible materials and to prevent the spread of fire to adjacent areas within a building is included.

The first edition of this document was dated June 1999. In the meantime the Mandate under the Construction Product Directive (CPD) for chimneys (M/105) was published and some European Standards concerning the test of fire spread were published. Therefore the document has been revised in accordance with the Construction Products Regulation (CPR), and the changes in this version cover the requirements of the new regulation.

1 Scope

This document specifies requirements and the basic performance criteria for chimneys, flue liners, connecting flue pipes, components and accessories used to convey the products of combustion from combustion appliances to the outside atmosphere. This document is to be used as a reference for all product standards of CEN/TC 166.

This document specifies sootfire resistant chimneys, flue liners, connecting flue pipes, fittings and accessories for combustion appliances burning solid, liquid and gaseous fuels and non-sootfire resistant chimneys, flue liners, connecting flue pipes, components and accessories for combustion appliances burning liquid and gaseous fuels only. It also specifies sootfire safe accessories for combustion appliances burning solid, liquid and gaseous fuels.

NOTE 1 This means that chimneys, flue liners, connecting flue pipes and components which are non-sootfire resistant and accessories which are non-sootfire resistant or non-sootfire safe are not suitable for combustion appliances burning solid fuel.

This document also identifies minimum requirements for marking, instructions, product information and provides guidance for the assessment and verification of constancy of performance (AVCP).

This document does not apply to structurally independent chimneys and custom-built chimneys consisting of non-CE-marked components.

NOTE 2 This document can be used as a basis for the specifications of products covered by a European Technical Assessment.

NOTE 3 All product standards drafted by Technical Committee CEN/TC 166 are based on the Mandate M/105.

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 1366-13:—1, *Fire resistance tests for service installations — Part 13: Chimneys*

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

EN 13384-1:2015, *Chimneys — Thermal and fluid dynamic calculation methods — Part 1: Chimneys serving one heating appliance*

EN ISO 17225-1:2014, *Solid biofuels - Fuel specifications and classes — Part 1: General requirements (ISO 17225-1:2014)*

EN ISO 17225-2:2014, *Solid biofuels — Fuel specifications and classes — Part 2: Graded wood pellets (ISO 17225-2:2014)*

EN ISO 17225-3:2014, *Solid biofuels — Fuel specifications and classes — Part 3: Graded wood briquettes (ISO 17225-3:2014)*

EN ISO 17225-4:2014, *Solid biofuels — Fuel specifications and classes — Part 4: Graded wood chips (ISO 17225-4:2014)*

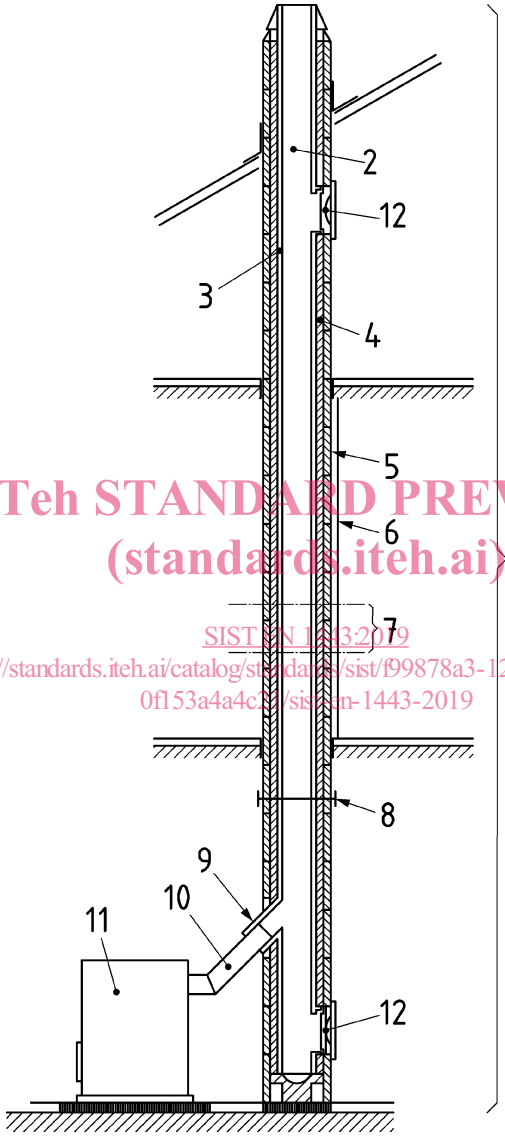
EN ISO 17225-5:2014, *Solid biofuels - Fuel specifications and classes - Part 5: Graded firewood (ISO 17225-5:2014)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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



Key

1	chimney	7	chimney section
2	flue	8	multi-wall chimney
3	flue liner	9	chimney fitting
4	thermal insulation	10	connecting flue pipe
5	outer wall	11	combustion appliance
6	enclosure	12	accessory

Figure 1 — Chimney components and chimney accessories

3.1
combustion appliance
unit generating products of combustion which need to be conveyed to the outside atmosphere

Note 1 to entry: E.g. heating appliances, cooking appliances, motors, CHPs (en: combined heat power).

3.2
flue
passage for conveying the products of combustion to the outside atmosphere

3.3
flue gas
gaseous portion of the products of combustion conveyed in a flue

3.4
products of combustion
products resulting from the combustion of fuel (gaseous, liquid and solid constituents)

3.5
chimney
structure consisting of a wall or walls enclosing a flue or flues conveying the products of combustion into the outside atmosphere

Note 1 to entry: The generic word "chimney", when used in this document, refers to chimneys used to convey the products of combustion from any combustion appliance to the outside atmosphere, and thus includes all other terms of common use, such as: vents, flues, shafts, exhaust systems, flue ducts, etc.

3.6
flue liner

rigid or flexible inner wall of a chimney consisting of components the surface of which is in contact with products of combustion

3.7
flue liner kit
flue liner that is installed using a combination of compatible flue liner components, obtained or specified as a kit from one manufacturing source with product responsibility for the whole flue liner including all its components

Note 1 to entry: A flue liner kit is not considered a system chimney.

3.8
connecting flue pipe
component or components connecting the combustion appliance outlet and the chimney

3.9
component
any part of a chimney, of a flue liner or of a connecting flue pipe

3.10
section
straight chimney component of a flue liner or of a connecting flue pipe, conveying products of combustion

3.11
fitting
component of a chimney, of a flue liner or of a connecting flue pipe conveying products of combustion except a section

3.12
accessory
additional flue gas carrying component added to a chimney or a connecting flue pipe to perform a particular function

3.13
support
component of a chimney, a flue liner or a connecting flue pipe used to fix, or transfer the load of components to structural elements

Note 1 to entry: Structural elements can be a building, a mast, etc.

3.14
terminal
component installed at the outlet of a chimney or a flue liner

Note 1 to entry: There are terminals only for decorative purposes or terminals intended for specified performances.

3.15
joint
connection between two components

3.16
balanced flue chimney
chimney comprising separate ducts for air supply and flue gas in concentric or parallel arrangement where the inlet of the air supply duct is adjacent to the outlet of the flue and the inlet and outlet being so positioned that wind effects are substantially balanced

3.17
single-wall chimney
chimney with only one wall

3.18
multi-wall chimney
chimney consisting of a flue liner and at least one additional wall

3.19
system chimney
chimney that is installed using a combination of compatible chimney components, obtained or specified as a kit from one manufacturing source with product responsibility for the whole chimney

3.20
custom-built chimney
chimney that is installed or built on-site using a combination of compatible components that may be from one or different sources

3.21
relining
process of renovating or replacing the flue liner of a chimney

3.22
outer wall
external wall of a chimney from the surface of which the distance to combustible is measured

3.23
enclosure
additional structure, combustible or non-combustible, built around a chimney

Note 1 to entry: An enclosure which is specified as a part of the chimney is considered an “outer wall” of the chimney.

Note 2 to entry: Enclosures can for example give additional safety in case of fire, provide additional heat transfer resistance, prevent accidental human contact, prevent impact damage and can be used for decorative purposes.

3.24
flue block
factory-made single- or multi-wall chimney component with one or more flues

3.25
nominal working temperature
flue gas temperature under normal operating conditions of the combustion appliance at maximum heat input as specified in the appliance product standards

3.26
negative pressure chimney
chimney designed to operate with the pressure inside the flue equal or less than the pressure outside the flue

Note 1 to entry: The class for negative pressure is "N".

3.27
positive pressure chimney
chimney designed to operate with the pressure inside the flue greater than the pressure outside the flue

Note 1 to entry: Classes for positive pressure are e.g. "P", "M", "H"

3.28
condensate
liquid products formed when the flue gas is below the water dew point

3.29
dry operating condition
condition when the chimney is designed to operate normally with the temperature of the inner surface of the flue liner at or above the water dew point

Note 1 to entry: Dry operating condition is designated "D".

3.30
wet operating condition
condition when the chimney is designed to operate normally with the temperature of the inner surface of the flue liner below the water dew point

Note 1 to entry: Wet operating condition is designated "W".

Note 2 to entry: The characteristic "W" is not related to rainwater ingress.

3.31
sootfire
combustion of the flammable residue deposited on the flue liner or connecting flue pipe

3.32
sootfire resistant chimney
chimney that is resistant to sootfire and is reusable after

Note 1 to entry: Sootfire resistant chimneys are designated "G".

3.33
sootfire safe accessory
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: Sootfire safe accessories are designated "As".

Note 2 to entry: “As” is used only for accessories and not for chimneys, flue liners and connecting flue pipes.

Note 3 to entry: Sootfire safe accessories are considered as replaceable without dismantling the chimney.

Note 4 to entry: Measures to be taken after the event of a sootfire are to be found in the relevant product standard.

3.34
distance to combustible material
minimum distance of the outer wall of the chimney to combustible material

Note 1 to entry: The distance to combustible is designated with "xx".

3.35
fire resistance external to external
ability of the chimney to prevent the spread of fire from one compartment to another

Note 1 to entry: Fire resistance external to external is designated "EI".

3.36
thermal resistance of a chimney
resistance to heat transfer through the wall or walls of the chimney

Note 1 to entry: The thermal resistance of a chimney is given as "$(1/\Lambda)$".

3.37
flow resistance
pressure loss in a flue or in a combustion air supply duct opposed to the flow of the flue gas or combustion air in motion at a given temperature and velocity

3.38
coefficient of flow resistance
ratio between the flow resistance of a fitting and the dynamic pressure of the medium due to a directional and/or cross sectional change in the fitting

3.39
freeze-thaw resistant chimney
chimney that is capable of withstanding freeze-thaw exposure

3.40
rainwater ingress
rainwater which enters the flue duct or the air supply duct

[SOURCE: EN 14471:2013+A1:2015, 3.46, modified by substituting “water” with “rainwater”]

3.41
thermal shock resistance
integrity after the thermal performance test, taking into account the rate of rise of the flue gas temperature to reach the designated test temperature under normal operating conditions and also where designated “G” the rate of rise of the flue gas temperature to reach the designated test temperature under sootfire resistance test

4 Product characteristics

4.1 General

The characteristics listed apply to system chimneys, flue liners, connecting flue pipes, components and accessories, and components for custom-built chimneys.

Informative Annex A gives the link between the product characteristics and the essential mandated characteristics as given in the relevant approved answer to the mandates.

NOTE Annex A can be useful for the drafting of the Annex ZA required in harmonized product standards.

In order to identify the characteristics of the chimney the product shall be designated.

The designation shall include information on the temperature class, the pressure class, the condensate resistance class, the corrosion resistance class and the sootfire resistance class and where appropriate the distance to combustible material and the type of test structure.