SLOVENSKI STANDARD
SIST EN 1457:1999/A1:2003

01-januar-2003

Dimniki - Keramiļ ne tuljave - Zahteve in preskusne metode

Chimneys - Clay/ceramic flue liners - Requirements and test methods

Abgasanlagen - Keramik-Innenrohre - Anforderungen und Prüfungen

Conduits de fumée - Conduits intérieurs en terre cuite/céramique - Exigences et méthodes d'essai

Ta slovenski standard je istoveten z: **EN 1457:1999/A1:2002**

ICS:

91.060.40 Dimniki, jaški, kanali Chimneys, shafts, ducts

SIST EN 1457:1999/A1:2003 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

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ICS 91.060.40

English version

Chimneys - Clay/ceramic flue liners - Requirements and test methods

Conduits de fumée - Conduits intérieurs en terre cuite/ceramique - Exigences et méthodes d'essai

Abgasanlagen - Keramik-Innenrohre - Anforderungen und Prüfungen

This amendment A1 modifies the European Standard EN 1457:1999; it was approved by CEN on 26 August 2002.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This amendment 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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Ref. No. EN 1457:1999/A1:2002 E

Foreword

This document EN 1457:1999/A1:2002 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of an identical text or by endorsement, at the latest by April 2003, and conflicting national standards shall be withdrawn at the latest by April 2003.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 EU Directive(s).

For relationship with EU Directive(s), 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Foreword Delete the third paragraph and insert the following paragraphs:

"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 the relationship with the EU Directives, see informative annex ZA, which is an integral part of this document."

Contents *5 delete "*Classes" *insert "*Types*".*

7 delete "Dimensions" *insert* "Tolerances on dimensions''.

9 delete "Gastightness (leakage test) after thermal testing for straight flue liners", *insert* "Gastightness and thermal shock resistance for straight flue liners".

12 delete "Sweeping resistance" *insert* "abrasion resistance".

13 delete "Water and vapour flow resistance" *insert* "Water vapour permeability and flow resistance".

Change status of annex B from "informative" to "normative".

Insert annex C (normative) Flow resistance test.

Insert annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU Construction Products Directive.

1 *In the first sentence*, *after* "in the construction of" *insert* "multiwall".

2 *Replace prEN 1443 with EN 1443.*

Delete reference to EN ISO 9002.

Delete reference to EN 45012.

3.1 *a) Add* "or square" *after* "circular".

4 *Add the following definition* '**4.4 Resistance to fire of flue liners** Ability of the flue liners and fittings to be resistant to soot fire'.

5 *Change the title to* 'Types of flue liners'. *Delete the first paragraph and notes 1, 2 and 3, and insert the following text and note:* 'There are four main types of clay/ceramic flue liner dependent on working temperature, with sub-types dependent on whether the flue liners are to be used in chimneys designed to work under negative or positive pressure, or are to have soot fire resistance. The types, working temperatures, test pressures and maximum air permeability rates are given in Table 1. The suitability of each type of flue liner to be used in chimneys designed to operate under negative or positive pressure and wet or dry conditions is also given.

NOTE A flue liner can be designated in one or more types provided that it complies with the appropriate requirements for each type."

Table 1 *In heading delete* 'classes' *insert* 'types' *and in column 1 delete* 'class' *insert* 'type'. *In the column for sootfire resistance, insert "*(G)*" after every "Yes", and "*(O)*" after every "No".*

7 *Delete heading, insert* "**Tolerances on dimensions**".

7.1 *Delete heading, insert* "**Transverse dimension**".

9 *Delete heading, insert* "**Gastightness, thermal shock resistance and resistance to fire for straight flue liners"**.

9.2 *Delete 9.2 and insert a new sub-clause 9.2*
*'***9.2 Final gas tightness after thermal shock testing**
When tested in accordance with 16.8 flue liners A1, B1 and D1 shall have a leakage rate after thermal shock testing not greater than the values given in Table 3 for the appropriate type of flue liner, test temperature and differential pressure.".

9.3 *Insert the following sub-clause*
*'*9.3 **Final gas tightness after thermal shock testing**
When tested in accordance with 16.8 flue liners not included in 9.2 shall have a leakage rate after thermal testing not greater than the values given in Table 3 for the appropriate type of flue liner, test temperature and differential pressure.".

Table 3 *In column 1 delete* 'class' *insert* 'type'.

Table 4 *In column 1 delete* 'class' *insert* type'.

11.1.1 *In line 4 delete* 'for five samples taken…….type test.', *insert* 'from the last type test.'

11.1.2 *In line 3 delete* 'for five samples taken…….type test.', *insert* 'from the last type test.'

12 *Delete heading, insert* "**Abrasion resistance**".

13 *Delete heading and text, and insert the following:*

13. Water vapour permeability and flow resistance

13.1 Water vapour permeability

When tested in accordance with 16.13, Type A2 P1, Type B2, Type C2, Type D2 and Type D3 straight flue liners for wet conditions shall not allow more than 2,0 g of water h^{-1} m^{-2} of flue liner internal surface to pass through the wall of the flue liners.

13.2 Flow resistance

Where required, determine the mean roughness of flue liners according to annex C.

14. *After "*a flue temperature of 200°C" *delete "*or*" and replace with "*and".

15 *Delete clause 15 and insert the following.*

15.Evaluation of conformity

15.1 Initial type testing

Type tests relating to material composition shall be performed initially together with factory production control tests as given in Table 5. One test shall be carried for each requirement.

The thermal testing shall be carried out on one size of flue liner for each geometrical configuration e.g. circular, square, rectangular. For circular flue liners the size to be tested shall be 200 mm ± 50 mm internal diameter. For other geometrical configurations the flue liner shall have an equivalent cross-sectional area range.

15.2 Further type tests

Type tests shall be performed when a change is made either in material composition, processing technique or to the design or method of manufacture of the flue liner, but they may be performed more frequently by incorporation into a plan for monitoring the consistency of manufacture (see Table 5).

Table 5 - Factory production control and type tests

Item	Relevant requirement clauses	
	Factory production control 15.3 (1)	Type tests 15.1 and 15.2
Straight flue liners	7.1, 7.2, 7.4, 7.5, 7.6, 11	8.1, 9.1, 9.2, 10, 12, and 13
Flue liner bends	7.1, 7.3, 11	8.2, 10
(1) The tests carried out during FPC are intended to verify that the performance requirements assessed through the initial type testing are maintained.		

15.3 Factory production control

To achieve compliance with this standard the manufacturer shall establish and maintain an effective documented quality system.

Factory production control tests are carried out following manufacture to monitor the quality of product (see Table 5).

Sampling and testing of any batch shall be completed prior to removal from the works and shall be in accordance with ISO 2859-1 at an AQL of 10 % and inspection level S2. Isolated batches of units shall be assessed in accordance with tightened inspection procedures, with a maximum batch size of 1 200 (see annex A).

Batches rejected under the factory production control procedure may be resubmitted once, after removal of units with previously undetected visible defects, under the tightened inspection procedures, in respect only of the defect that caused initial rejection.

NOTE A quality system assessed by a certification body which complies with the requirements of EN 45012 can be applied to ensure that the requirements of ISO EN 9002 and clause 15 are complied with."

Table 6 *In column 1 delete* ‘class’ *and insert* ‘ type’.

16.8 *Under the heading insert the following*:

“NOTE The thermal testing to 1000 ºC is a method to assess the flue liner for its ability to resist sootfire.”

16.8.2 *In last paragraph last line delete* ‘class’ *insert* ‘type’.

16.8.3 *In paragraph 2 line 5 delete* ‘class’ *insert* ‘type’.

16.8.4 *In paragraph 1 line 4 delete* ‘class’ *insert* ‘type’.

16.8.5 *In paragraph 1 line 4 delete* ‘class’ *insert* ‘type’.

16.9.3 *In paragraph 1 line 5 add at end of first sentence* “at 24 h intervals”.

17 *In line 6 delete* ‘class or classes *insert* ‘type or types’.

In example delete ‘class’ *insert* ‘type’.

Table 7 *Delete Table 7.*

18 *In line 5 delete* ‘class number or classes numbers’ *insert* ‘type number or type numbers’.

Add a note ‘for CE marking and labelling, clause ZA.3 in annex ZA applies’.

Annex B *Change status from “informative” to “normative”.*

*After “*Method I” *insert “*Thermal resistance for solid wall flue liners”.

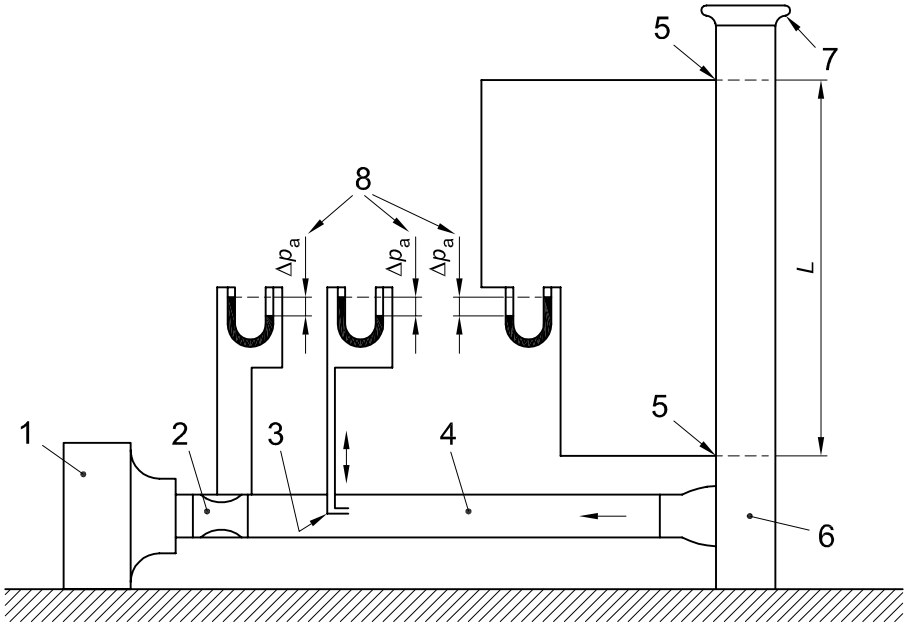
*After “*Method II” *delete sub-title and insert “*Thermal resistance for multiwall flue liners”.

Annex C *Insert the following annex*:

Annex C
(normative)

Measurement of the coefficient of friction of chimneys

Measurement of the coefficient of jointed flue liners shall be done using the measuring set up shown in Figure C.1.



Key

1 Fan

2 Measuring devise

3 Pressure manometer

4 Static pressure manometer

5 Test tube

6 Test chimney

7 Intake guide

Figure C.1 - Roughness measuring rig

Measuring Procedure:

Air is drawn in by a fan through the test length into a measuring pipe fixed at its end. The static pressure loss over a stated length is measured with an accuracy of 1 Pa. The air velocity in the test length can be measured by a measuring nozzle in terms of volume with an accuracy of ± 2,5 %.

The friction coefficient is calculated following the equation:

$$\psi = \frac{2 \times D_h \times \Delta p}{\rho \times w \times L}$$

where

ψ coefficient of friction -

D_h hydraulic diameter in m

Δp pressure loss in Pa

ρ density of air in kg/m^3