DIN EN 1457-2:2012-04 (E)

Chimneys - Clay/ceramic flue liners - Part 2: Flue liners operating under wet conditions - Requirements and test methods

Contents

Page

Foreword 5

1 Scope 6

2 Normative references 6

3 Terms and definitions 6

4 Flue liners and openings 8
4.1 Flue liner cross-sections 8
4.2 Inspection openings and chimney junctions 9

5 Types of flue liner 10

6 Materials 10

7 Tolerances on dimensions 11
7.1 Transverse dimension 11
7.2 Height 11
7.3 Angle of curvature 11
7.4 Straightness 11
7.5 Squareness of ends 11
7.6 Deviation from shape of cross section 11
7.7 Geometry of joints 11

8 Proof load 11
8.1 Straight flue liners 11
8.2 Curved flue liners 11
8.3 Minimum load for inspection opening sections 12

9 Gas tightness/leakage, thermal shock resistance and soot fire resistance for straight flue liners 12
9.1 Initial test 12
9.2 Final gas tightness after testing 13
9.2.1 General 13
9.2.2 Final gas tightness after sootfire testing 13
9.2.3 Final gas tightness after thermal shock testing 13

10 Durability 14
10.1 Corrosion resistance 14
10.2 Freeze/Thaw resistance 14

11 Water absorption and bulk density 14
11.1 General 14
11.2 Water absorption 14
11.3 Bulk density 14

12 Abrasion resistance 14

13 Condensate resistance and flow resistance 14
13.1 Condensate resistance 14

13.2 Flow resistance 15

14 Thermal resistance 15

15 Evaluation of conformity 15
15.1 General 15
15.2 Initial type testing 15
15.3 Further type tests 15
15.4 Factory production control 16

16 Test methods 16
16.1 Size 16
16.2 Height 16
16.3 Angle of curvature 17
16.4 Straightness 17
16.5 Squareness of ends 17
16.6 Deviation from shape of cross-section 18
16.7 Proof load 20
16.7.1 Test specimen 20
16.7.2 Testing equipment 20
16.7.3 Test procedure 20
16.8 Thermal testing 21
16.8.1 Test flue 21
16.8.2 Test equipment 21
16.8.3 Assembly of test flue 23
16.8.4 Thermal conditioning 23
16.8.5 Measurement of leakage rate 24
16.8.6 Expression of results 24
16.9 Corrosion resistance 24
16.9.1 Test specimens 24
16.9.2 Test equipment 25
16.9.3 Test procedure 25
16.9.4 Expression of results 26
16.10 Water absorption 26
16.10.1 Test specimen 26
16.10.2 Test equipment 26
16.10.3 Test procedure 26
16.10.4 Expression of results 26
16.11 Bulk density 26
16.11.1 Test specimen 26
16.11.2 Test equipment 27
16.11.3 Test procedure 27
16.11.4 Expression of results 27
16.12 Abrasion resistance 27
16.12.1 Test flue 27
16.12.2 Test equipment 27
16.12.3 Test procedure 28
16.12.4 Expression of results 28
16.13 Test method for the determination of water and vapour flow (indirect method) 29
16.13.1 Test installation 29
16.13.2 Test sample 30
16.13.3 Position of measuring points and records 30
16.13.4 Test procedure 31
16.13.5 Results 32
16.13.6 Measuring equipment -- Composition, measuring range, uncertainty 32
16.13.7 Test rig 33

17 Designation 34

18 Marking 35

Annex A (normative) Sampling procedures for an AQL of 10 % and inspection level S2 36

A.1 Acceptability determination 36
A.2 Normal inspection 36
A.3 Normal to reduced inspection 37
A.4 Reduced to normal inspection 38
A.5 Tightened inspection 38
A.6 Tightened to normal inspection 38
A.7 Discontinuation of inspection 39

Annex B (normative) Thermal resistance 40

B.1 Method 1: simplified calculation for flue liners without cavities 40
B.2 Method 2: thermal resistance of flue liners with or without cavities 40
B.3 Method Approximate thermal resistance values 45

Annex C (normative) Measurement of the coefficient of friction of chimneys 47

Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU Construction Products Directive 49

ZA.1 Scope and relevant characteristics 49

ZA.2 Procedure of attestation of conformity of clay/ceramic flue liners and fittings 50

ZA.3 CE Marking and labelling 52

Bibliography 55