DIN EN 1859:2013-07 (E)

Chimneys - Metal chimneys - Test methods (includes Amendment A1:2013)

Contents

Page

Foreword 4

1 Scope 5

2 Normative references 5

3 Definitions 5

4 Test methods for metal chimney products 5
4.1 Compressive strength 5
4.1.1 Sections and Fittings 5
4.1.2 Chimney support 6
4.2 Tensile strength 6
4.2.1 Test assembly 6
4.2.2 Test procedure and results 6
4.3 Lateral strength 6
4.3.1 Fittings in non-vertical orientation 6
4.3.2 Wind load 7
4.4 Gas tightness 7
4.4.1 Test assembly 7
4.4.2 Procedure and results 7
4.5 Thermal performance test 7
4.5.1 Apparatus 7
4.5.2 Test environment and conditioning 10
4.5.3 Test procedure 10
4.5.4 Results 11
4.6 Thermal resistance 13
4.6.1 Test assembly 13
4.6.2 Test procedure 13
4.6.3 Results 13
4.7 Water vapour diffusion resistance 14
4.7.1 Conditioning 14
4.7.2 Test assembly 14
4.7.3 Test procedure 14
4.7.4 Results 14
4.8 Condensate resistance test 14
4.8.1 Test apparatus 14
4.8.2 Test sample 14
4.8.3 Measuring parameters 14
4.8.4 Test procedure 14
4.8.5 Test results 15
4.9 Rainwater resistance 15
4.9.1 Chimney sections 15
4.9.2 Rainwater terminal 15
4.10 Terminal flow resistance 16
4.10.1 Conditioning 16
4.10.2 Test assembly 16
4.10.3 Procedure 16
4.10.4 Results 17
4.11 Aerodynamic behaviour of terminal under wind conditions 17
4.11.1 Conditioning 17
4.11.2 Test assembly 17

4.11.3 Procedure 17
4.11.4 Results 17
4.12 Flow resistance of fittings 17
4.12.1 Determination of flow conditions 17
4.12.2 Test assembly 18
4.12.3 Execution of the measurements 18
4.12.4 Calculation of the friction value 19

5 Test report 19

Annex A (normative) Method for measuring ambient temperature 34

Annex B (normative) Method for hot gas temperature measurements 35

Annex C (informative) Method for metal surface temperature measurements 36

Annex D (normative) Method for combustible wood surface temperature measurements 37

Annex E (normative) Locations of thermocouples for surface temperature measurements 38

E.1 Test structure, surface temperatures 38
E.2 Test chimney, surface temperatures 38
E.2.1 General 38
E.2.2 Test chimney, freestanding 38
E.2.3 Test chimney, corner installation 38
E.2.4 Test chimney, corner installation, enclosed 39

Annex F (normative) Simplified calculation of thermal resistance for circular flues 43

Annex G (informative) Method for applying an evenly distributed load (horizontal) 45

Annex H (informative) Possible test sequence 46

Annex I (informative) Techniques for flue gas volume flow measurements 47

Bibliography 48