

DIN EN 12101-2:2017-08 (E)

Smoke and heat control systems - Part 2: Natural smoke and heat exhaust ventilators

Contents		Page
	European foreword	5
	Introduction	6
1	Scope	7
2	Normative references	7
3	Terms, definitions, symbols and abbreviations	7
3.1	Terms and definitions	7
3.2	Symbols and abbreviations	11
4	Requirements	13
4.1	Nominal activation conditions/sensitivity	13
4.1.1	Initiation device	13
4.1.2	Opening mechanism	14
4.1.3	Inputs and outputs	14
4.2	Response delay (response time)	14
4.2.1	Reliability	14
4.2.2	Opening under (snow/wind) load	14
4.2.3	Low ambient temperature	15
4.2.4	Opening under heat	15
4.3	Operational reliability	15
4.4	Effectiveness of smoke/hot gas extraction (aerodynamic free area)	15
4.5	Performance parameters under fire conditions	15
4.5.1	Resistance to heat	15
4.5.2	Mechanical stability	16
4.5.3	Reaction to fire	16
4.6	Performance under environmental conditions	16
4.6.1	Opening under load	16
4.6.2	Low ambient temperature	16
4.6.3	Stability under wind load	16
4.6.4	Resistance to wind-induced vibration	16
4.6.5	Resistance to heat	16
4.7	Durability	17
4.7.1	Response delay (response time)	17
4.7.2	Operational reliability	17
4.7.3	Performance parameters under fire conditions	17
5	Testing, assessment and sampling methods	17
6	Assessment and verification of constancy of performance - AVCP	19
6.1	General	19
6.2	Type Testing	19
6.2.1	General	19
6.2.2	Test samples, testing and compliance criteria	20
6.2.3	Test sequence	21
6.2.4	Test reports	22
6.2.5	Cascading determination of the product type results	22
6.3	Factory production control	23
6.3.1	General	23
6.3.2	Requirements	23

6.3.3	NSHEV specific requirements	25
6.3.4	Initial inspection of factory and FPC	26
6.3.5	Continuous surveillance of FPC	26
6.3.6	Procedure for modifications	27
6.3.7	Pre-production prototypes	27
7	Marking, labelling and packaging	28
Annex A (normative) Classification		29
A.1	Nominal activation condition/sensitivity	29
A.2	Response delay	29
A.3	Operational Reliability	29
A.4	Effectiveness of smoke/hot gas extraction (aerodynamic free area)	29
A.5	Performance parameters under fire conditions	29
A.6	Performance under environmental conditions	30
A.7	Durability	31
A.7.1	Response delay (response time)	31
A.7.2	Operational reliability	31
A.7.3	Performance parameters under fire conditions	31
Annex B (normative) Effectiveness of smoke/hot gas extraction (aerodynamic free area)		32
B.1	Determination of the aerodynamic free area	32
B.2	Simple assessment procedure	32
B.2.1	General	32
B.2.2	Roof mounted NSHEV	32
B.2.3	Wall mounted NSHEV	32
B.3	Experimental procedure	33
B.3.1	General	33
B.3.2	Test apparatus	33
B.3.3	Test specimen	34
B.3.4	Test procedure	35
B.3.5	Evaluation of test results	36
B.3.6	Calculation of the coefficient of discharge for a family of NSHEV	37
B.4	Test to check the aerodynamic test installations	38
B.4.1	General	38
B.4.2	Reference test without side wind	39
B.4.3	Reference tests with side wind	39
B.4.4	Evaluation of test results	39
Annex C (normative) Test method for operational reliability and response time		54
C.1	Objective of test	54
C.2	Test conditions	54
C.3	Test apparatus	54
C.4	Test specimen	54
C.5	Test procedure	54
Annex D (normative) Test method for opening under load		56
D.1	Objective of test	56
D.2	Test conditions	56
D.3	Test apparatus	56
D.4	Test specimen	57
D.5	Test procedure	57
Annex E (normative) Test method for low ambient temperature		58
E.1	Objective of test	58
E.2	Test apparatus	58
E.3	Test specimen	58

E.4	Test procedure	58
Annex F (normative) Test method for stability under wind load		59
F.1	Objective of test	59
F.2	Test conditions	59
F.3	Test apparatus	59
F.4	Test specimen	59
F.5	Test procedure	60
F.5.1	Wind load	60
F.5.2	Vibration	60
Annex G (normative) Test method for resistance to heat		61
G.1	Objective of the test	61
G.2	Test apparatus	61
G.2.1	Test furnace	61
G.2.2	Temperature measurement	61
G.2.3	NSHEV mount	61
G.3	Test specimen	62
G.3.1	General	62
G.3.2	NSHEV mounted to a glazed partition construction	62
G.3.3	Roof mounted NSHEV as part of a continuous rooflight	62
G.3.4	Wall mounted NSHEV	63
G.3.5	Roof mounted NSHEV	63
G.4	Test procedure	64
Annex H (normative) Mounting and fixing conditions for the SBI or small flame tests		72
H.1	General	72
H.2	Class E	73
H.2.1	General	73
H.2.2	Small flame test in accordance to EN ISO 11925-2	73
H.3	Class A2 to class D	73
H.3.1	General	73
H.3.2	Single Burning Item test (SBI)	74
H.4	Heat of combustion test	74
Annex I (normative) Handling changes affecting declared performances for NSHEV		75
I.1	General	75
I.2	Effectiveness of smoke/hot gas extraction	75
I.3	Reliability	75
I.4	Opening under load	76
I.5	Opening at low ambient temperatures	76
I.6	Wind load	77
I.7	Resistance to heat	77
Annex J (informative) Installation and maintenance information		78
J.1	Installation information	78
J.2	Maintenance information	78
Bibliography		88