

DIN EN 54-20:2006-09 (E)

Fire detection and fire alarm systems - Part 20: Aspirating smoke detectors

Contents		Page
Foreword		4
1	Scope	6
2	Normative references	6
3	Terms and definitions	7
4	Symbols and abbreviations	7
5	Requirements	8
5.1	Compliance	8
5.2	Individual visual alarm indication	8
5.3	Connection of ancillary devices	8
5.4	Manufacturer's adjustments	8
5.5	On site adjustment of response behaviour	8
5.6	Response to slowly developing fires	9
5.7	Mechanical strength of the pipework	9
5.8	Hardware components and additional sensing elements in the sampling device	10
5.9	Airflow monitoring	10
5.10	Power supply	11
5.11	Data	11
5.12	Additional requirements for software controlled detectors	12
6	Tests	13
6.1	General	13
6.2	Repeatability	16
6.3	Reproducibility	17
6.4	Variation in supply parameters	17
6.5	Dry heat (operational)	18
6.6	Cold (operational)	19
6.7	Damp heat, steady state (operational)	20
6.8	Damp heat, steady state (endurance)	21
6.9	Sulfur dioxide (SO₂) corrosion (endurance)	22
6.10	Shock (operational)	23
6.11	Impact (operational)	24
6.12	Vibration, sinusoidal (operational)	25
6.13	Vibration, sinusoidal (endurance)	26
6.14	Electromagnetic compatibility (EMC) immunity tests	27
6.15	Fire sensitivity	28
7	Classification and designation	31
8	Marking	32
Annex A (informative) Apparatus for Response Threshold Value (RTV) measurements		33
Annex B (normative) Smouldering (pyrolysis) wood fire (TF2)		41
B.1	Fuel	41
B.2	Hotplate	41
B.3	Arrangement	41

B.4	Heating rate	42
B.5	End of test condition	42
B.6	Test validity criteria	42
Annex C (normative) Reduced smouldering pyrolysis wood fires (TF2A and TF2B)		44
C.1	Fuel	44
C.2	Hotplate	44
C.3	Arrangement	44
C.4	Heating rate	45
C.5	End of test condition	45
C.6	Test validity criteria	45
Annex D (normative) Glowing smouldering cotton fire (TF3)		47
D.1	Fuel	47
D.2	Arrangement	47
D.3	Ignition	48
D.4	End of test condition	48
D.5	Test validity criteria	48
Annex E (normative) Reduced glowing smouldering cotton fire (TF3A and TF3B)		50
E.1	Fuel	50
E.2	Arrangement	50
E.3	Ignition	51
E.4	End of test condition	51
E.5	Test validity criteria	52
Annex F (normative) Flaming plastics (polyurethane) fire (TF4)		53
F.1	Fuel	53
F.2	Arrangement	53
F.3	Ignition	53
F.4	End of test condition	53
F.5	Test validity criteria	53
Annex G (normative) Flaming liquid (n-heptane) fire (TF5)		55
G.1	Fuel	55
G.2	Arrangement	55
G.3	Ignition	55
G.4	End of test condition	55
G.5	Test validity criteria	55
Annex H (normative) Reduced flaming liquid (n-heptane) fire (TF5A and TF5B)		57
H.1	Fuel	57
H.2	Arrangement	57
H.3	Ignition	57
H.4	End of test condition	58
H.5	Test validity criteria	58
Annex I (normative) Fire test room and ventilation system		60
I.1	Fire test room	60
I.2	Ventilation system	62
Annex J (informative) Information concerning the requirements for the response to slowly developing fires		64
Annex K (informative) Apparatus for air flow monitoring test		68

K.1	General	68
K.2	Airflow measuring with worst-case sampling device	68
K.3	Airflow monitoring test with test pipe network	69
Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU Construction Products Directive		71
ZA.1 Scope and relevant clauses		71
ZA.2 Procedures for the attestation of conformity of aspirating smoke detectors covered by this standard		72
ZA.3 CE Marking and labelling and accompanying documentation		77
ZA.4 EC certificate and declaration of conformity		78
Bibliography		80