

Fire resistance tests for service installations - Part 10:
Smoke control dampers

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 1366-10:2022 sisaldab Euroopa standardi EN 1366-10:2022 ingliskeelset teksti.	This Estonian standard EVS-EN 1366-10:2022 consists of the English text of the European standard EN 1366-10:2022.
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English Version

Fire resistance tests for service installations - Part 10: Smoke control dampers

Essais de résistance au feu des installations techniques
- Partie 10 : Volets de désenfumage

Feuerwiderstandsprüfungen für Installationen - Teil
10: Entrauchungsklappen

This European Standard was approved by CEN on 24 July 2022.

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Contents	Page
European foreword	7
Introduction	8
1 Scope.....	9
2 Normative references.....	9
3 Terms and definitions	9
4 Test equipment.....	12
4.1 General.....	12
4.2 Test duct for surface mounted SCDs	12
4.3 Connecting duct for compartment boundary mounted SCDs	13
4.3.1 Compartmentation test.....	13
4.3.2 Maintenance of opening test.....	13
4.4 Cycling equipment.....	13
4.5 Condensing unit.....	13
4.6 Gas temperature measuring devices	13
4.7 Exhaust fan system.....	13
4.8 Perforated plate	14
4.9 Volume and flow measurement for duct mounted SCDs	14
4.10 Volume flow measurement for compartment boundary mounted SCDs.....	14
4.10.1 Compartmentation test.....	14
4.10.2 Maintenance of opening test.....	14
4.11 Ambient leakage measurement equipment.....	15
4.12 Pressure sensors for differential pressure control.....	15
4.12.1 Duct mounted smoke control dampers	15
4.12.2 Compartment boundary mounted smoke control dampers	15
4.13 Welded connecting tube	15
4.14 Extract fan connecting duct.....	15
4.15 Extraction fan	15
4.16 Thermocouples.....	15
4.17 Oxygen measuring equipment	15
4.18 Observation windows.....	16
5 Test specimens	16
5.1 Cross-section	16
5.2 Design.....	16
5.2.1 General.....	16
5.2.2 Supporting constructions	16
5.2.3 Inclusion of grilles	17
6 Test methods	17
6.1 General.....	17
6.2 Test sequence.....	17
6.3 Ambient leakage.....	19
6.3.1 Units of the largest size.....	19
6.3.2 Units of smallest size	19
6.4 Cycling requirements	19
6.4.1 General.....	19

6.4.2	Smoke control damper to be used in dedicated smoke control systems, operated only in the case of emergency	19
6.4.3	Smoke control damper to be used as part of a general HVAC system as well as a smoke control system, or as part of a smoke control systems that is cycled every day to check operation	19
6.4.4	Smoke control damper to be used as part of a general HVAC system as well as a smoke control system, that uses a modulating actuator	20
6.5	Selection of elevated temperature and fire resistance tests	20
6.6	Fire resistance tests and elevated temperature tests	21
6.6.1	Duct mounted smoke control dampers	21
6.6.2	Compartment boundary mounted smoke control dampers	22
6.6.3	Additional test information	25
6.7	Initiation regime	26
6.7.1	Smoke control dampers for systems with automatic activation (AA)	26
6.7.2	Smoke control damper for systems with manual activation (MA)	27
6.8	HOT400/30 extension test	29
6.9	Special constructions	29
7	Test procedure	29
7.1	Fire resistance or elevated temperature and maintenance of opening test for duct mounted smoke control dampers	29
7.1.1	General	29
7.1.2	Pre-test calibration	29
7.1.3	Ignition of furnace	31
7.1.4	Operate the damper	31
7.1.5	Furnace conditions	31
7.1.6	Thermocouples for insulation (I)	31
7.1.7	Oxygen measurements	32
7.1.8	General observations	32
7.1.9	Reduction of cross-section/maintenance of opening	32
7.1.10	Leakage calculations	32
7.1.11	Termination of test	32
7.2	Fire resistance tests for smoke control dampers mounted in a compartment boundary	33
7.2.1	General	33
7.2.2	Pre-test calibration	33
7.2.3	Ignition of furnace	33
7.2.4	Operate the damper	33
7.2.5	Furnace conditions	33
7.2.6	Thermocouples for insulation (I)	33
7.2.7	General observations	34
7.2.8	Leakage calculations	34
7.2.9	Termination of test	34
7.3	Maintenance of opening test for compartment boundary mounted smoke control dampers	34
7.3.1	General	34
7.3.2	Pre-test calibration	34
7.3.3	Ignition of furnace	35
7.3.4	Operate a damper	35
7.3.5	Furnace conditions	35
7.3.6	Thermocouples for insulation (I)	35
7.3.7	General observations	35
7.3.8	Reduction of cross-section/maintenance of opening	36
7.3.9	Termination of test	36

8	Performance criteria	36
8.1	Integrity.....	36
8.1.1	General.....	36
8.1.2	Integrity at perimeter	36
8.2	Insulation.....	40
8.2.1	General.....	40
8.2.2	Thermocouples at the compartment boundary outside of the furnace.....	40
8.3	Reduced leakage	40
8.4	Times and observations	41
8.5	Other.....	41
9	Test report.....	41
9.1	General.....	41
9.2	Duct mounted single and multi-compartment tests	42
9.3	Compartment boundary compartmentation test.....	43
9.4	Compartment boundary maintenance of opening test	43
10	Direct field of application of test results (DIAP)	44
10.1	Compartment boundary mounted smoke control dampers	44
10.2	Smoke control damper sizes.....	44
10.3	Duct mounted smoke control damper mounting positions	44
10.4	Distance between mounting positions in compartment boundary applications	44
10.5	Blade pivot axis.....	44
10.6	Pressure difference	45
10.7	Elevated temperatures	45
10.8	Cycling tests	45
10.8.1	Smoke control dampers meeting the cycling requirements for modulating applications.....	45
10.8.2	Smoke control dampers meeting the cycling requirements for use with combined smoke control and general HVAC applications and for smoke control systems that are cycle checked every day	45
10.8.3	Smoke control dampers meeting the cycling requirements for smoke control dampers that are operated only in the case of emergency.....	45
10.8.4	Load application.....	45
10.9	Initiation method	45
10.10	Duct mounted smoke control dampers – application to ducts other than that tested	46
10.10.1	Single compartment smoke control dampers.....	46
10.10.2	Multi compartment smoke control dampers	46
10.11	Compartment mounted smoke control dampers – application to shafts, walls and constructions other than that tested	47
10.11.1	Single compartment smoke control dampers.....	47
10.11.2	Multi compartment smoke control dampers	47
10.12	Standard damper open or closed position.....	47
Annex A (normative)	Cycling test.....	74
A.1	General.....	74
A.2	Purpose of the test.....	74
A.3	Method of Application for loading	74
A.3.1	General.....	74
A.3.2	Smoke control damper with single blade	74
A.3.3	Smoke control damper with multi blades of smaller area.....	75

A.3.4	Circular smoke control dampers load calculation	75
A.3.5	Test arrangement for dampers with horizontal blade pivot axis	76
A.3.6	Test arrangement for dampers with vertical blade pivot axis	77
A.3.7	Report	80
A.4	Background for the torque value (informative)	80
A.4.1	Threshold rates of the working condition of the system	80
A.4.2	Previous experience	80
Annex B	(informative) Leakage calculation from oxygen measurement	82
B.1	General	82
B.2	Supporting information on leakage flowrate calculations	83
B.2.1	Components in mixed fluids (mass and volume ratios)	83
B.2.2	Application to oxygen in air	84
B.2.3	Volume ratios and conservation of the mass during the smoke exhaust test	84
B.2.4	Assumptions and reworking	86
Annex C	(normative) Maintenance of opening calculation	88
C.1	Calculation of the theoretical total mass M_{\max} of hot gases during the fire test	88
C.1.1	Basis	88
C.1.2	Method	88
C.1.3	Summary	89
C.2	Calculation of the actual total mass M_{actual} of hot gases during the fire test	90
C.2.1	Basis	90
C.2.2	Method	91
C.2.3	Summary	92
C.2.4	Graphical representation of typical integral calculation from data	92
Annex D	(normative) Optional High Operating Test HOT 400/30 classification	94
D.1	General	94
D.2	Tests	94
D.2.1	General	94
D.2.2	Equipment	94
D.2.3	Ambient leakage test	95
D.2.4	Cycling test	95
D.2.5	Ambient leakage test	95
D.2.6	Standby temperature test	95
D.2.7	HOT 400/30 Test	95
D.2.8	Performance criteria	96

Annex E (informative) Leakage and pressure classification..... 99

Bibliography 100

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European foreword

This document (EN 1366-10:2022) has been prepared by Technical Committee CEN/TC 127 “Fire safety in buildings”, the secretariat of which is held by BSI.

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 March 2023, and conflicting national standards shall be withdrawn at the latest by March 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1366-10:2011+A1:2017.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

EN 1366, Fire resistance tests for service installations consists of the following:

- Part 1: Ventilation ducts
- Part 2: Fire dampers
- Part 3: Penetration seals
- Part 4: Linear joint seals
- Part 5: Service ducts and shafts
- Part 6: Raised access and hollow core floors
- Part 7: Conveyor systems and their closures
- Part 8: Smoke extraction ducts
- Part 9: Single compartment smoke extraction ducts
- Part 10: Smoke control dampers
- Part 11: Fire protective systems for cable systems and associated components
- Part 12: Non-mechanical fire barrier for ventilation ductwork
- Part 13: Chimneys

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Introduction

When smoke and heat exhaust ventilation is being considered, it becomes apparent that a clear path between the area where heat and smoke is being generated (source of the fire) and the outside of the building is needed.

To create this path ducts and an uninterrupted smoke extract path are needed. This means that smoke control dampers at the fire and along the path are open and will remain open. Smoke control dampers at branches, or on the surface of the duct, along the path are closed and will remain closed. In fact, if the duct crosses a compartment boundary it becomes part of the fire compartment in which the fire started.

The purpose of this document is to define test methods to evaluate the abilities of smoke control dampers to:

- a) be applicable to single compartment and/or multi compartment fire resisting applications;
- b) be applicable to automatic systems or systems with manual activation;
- c) change state from closed to open at elevated temperatures, (and vice versa);
- d) once opened maintain a defined cross-sectional area at elevated temperature or under fire conditions following the standard time/temperature curve; and
- e) maintain a satisfactory leakage performance when subjected to negative pressure at elevated temperatures or under fire conditions following the standard time/temperature curve.

The units are mounted for the tests in a manner representative of practice.

Temperature and integrity measurements are carried out on various parts of the test construction during the test. The required leakage measurements are measured by direct flow measurement at the prescribed pressure differentials. Ambient leakage of the units is also recorded.

The satisfactory passing of some, or all, of these tests will allow products to be assessed in accordance with EN 12101-8 and be classified to EN 13501-4. The required temperatures, pressure differentials etc. are stated in EN 12101-8. EN 13501-4 requires a classification report.

CAUTION:

The attention of all persons concerned with managing and carrying out this furnace testing is drawn to the fact that fire testing can be hazardous and that there is a possibility that toxic and/or harmful smoke and gases can be evolved during the test. Mechanical and operational hazards can also arise during the construction of the test elements or structures, their testing and disposal of test residues.

An assessment of all potential hazards and risks to health should be made and safety precautions should be identified and provided. Written safety instructions should be issued. Appropriate training should be given to relevant personnel. Laboratory personnel should ensure that they follow written safety instructions at all times.

1 Scope

This document specifies test methods for smoke control dampers to assess their performance under elevated temperature or fire conditions, as well as at ambient temperatures.

Smoke control damper tests are used to confirm that the furnace testing requirements of EN 12101-8 are met and EN 12101-8 is for consideration before carrying out these tests.

Smoke control dampers tested to this document are expected to be classified using EN 13501-4 and this document is expected to be considered before carrying out these tests.

NOTE Some smoke control dampers to be tested might require testing following the information given in EN 1366-2 and this needs consideration before carrying out testing.

This document is expected to be read in conjunction with EN 12101-8, EN 13501-4, EN 1366-2 and EN 1363-1, the latter giving further details for fire resistance testing.

For installation details, the requirements for smoke extraction ducts are for consideration and these are defined in EN 1366-8 and EN 1366-9.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1363-1, *Fire resistance tests — Part 1: General requirements*

EN 1366-2, *Fire resistance tests for service installations — Part 2: Fire dampers*

EN 1366-8, *Fire resistance tests for service installations — Part 8: Smoke extraction ducts*

EN 1366-9, *Fire resistance tests for service installations — Part 9: Single compartment smoke extraction ducts*

EN 1751, *Ventilation for buildings — Air terminal devices — Aerodynamic testing of damper and valves*

EN 10095, *Heat resisting steels and nickel alloys*

EN 13501-4, *Fire classification of construction products and building elements — Part 4: Classification using data from fire resistance tests on components of smoke control systems*

EN ISO 5167-1, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full — Part 1: General principles and requirements (ISO 5167-1)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>