



**SLOVENSKI STANDARD**  
**oSIST prEN 15650:2017**  
**01-junij-2017**

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**Prezračevanje stavb - Požarne lopute**

Ventilation for buildings - Fire dampers

Lüftung von Gebäuden - Brandschutzklappen

Ventilation dans les bâtiments - Clapets coupe-feu

**Ta slovenski standard je istoveten z: prEN 15650**

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**ICS:**

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## Ventilation for buildings - Fire dampers

Ventilation dans les bâtiments - Clapets coupe-feu

Lüftung von Gebäuden - Brandschutzklappen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 156.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

<b>Contents</b>	<b>Page</b>
European foreword.....	4
Introduction .....	5
1 Scope .....	6
2 Normative references .....	6
3 Terms and definitions .....	7
4 Requirements .....	8
4.1 Nominal activation conditions/sensitivity .....	8
4.1.1 General.....	8
4.1.2 Sensitivity .....	9
4.1.3 Actuating mechanisms .....	9
4.1.4 Actuators .....	9
4.1.5 General application .....	10
4.2 Response delay (closure time) .....	10
4.3 Operational reliability.....	10
4.3.1 General.....	10
4.3.2 Application categories.....	10
4.4 Resistance to fire .....	11
4.4.1 General.....	11
4.4.2 Integrity .....	11
4.4.3 Insulation .....	11
4.4.4 Smoke leakage.....	11
4.4.5 Mechanical stability .....	11
4.4.6 Maintenance of cross section .....	11
4.5 Durability .....	11
4.5.1 Durability of response delay .....	11
4.5.2 Durability of operational reliability.....	11
4.6 Position indication.....	11
4.7 Protection against corrosion .....	11
4.8 Aerodynamics performances.....	12
4.9 Reaction to fire (RTF) performance .....	12
5 Test methods .....	12
5.1 Ambient leakage test .....	12
5.2 Fire resistance test .....	12
5.2.1 General.....	12
5.2.2 Integrity and insulation .....	13
5.2.3 Smoke leakage.....	13
5.2.4 Response delay .....	13
5.2.5 Sensing element.....	13
5.3 Salt spray exposure test.....	13
5.4 Fire damper aerodynamic performance .....	14
6 Assessment and verification of constancy of performance - AVCP .....	14
6.1 General.....	14
6.2 Type testing.....	15
6.2.1 General.....	15

6.2.2	Test samples, testing and compliance criteria.....	15
6.2.3	Test report .....	16
6.2.4	Test samples .....	16
6.3	Factory Production Control (FPC) .....	16
6.3.1	General .....	16
6.3.2	Requirements.....	17
6.3.3	Product specific requirements .....	19
6.3.4	Initial inspection of factory and of FPC.....	20
6.3.5	Continuous surveillance of FPC .....	20
6.3.6	Procedure for modifications.....	20
6.3.7	One-off products, pre-production products (e.g. prototypes) and products produced in very low quantity .....	20
7	Marking, labelling and packaging.....	21
Annex A (informative)	Typical fire damper descriptions.....	23
A.1	General .....	23
A.2	Folding curtain fire dampers.....	23
A.3	Single blade fire dampers .....	23
A.4	Multi-blade fire dampers .....	23
A.5	Cone valve fire dampers.....	23
Annex B (normative)	Salt spray exposure test.....	26
B.1	General .....	26
B.2	Revised parameters.....	26
Annex C (normative)	Cycling Tests.....	27
C.1	General .....	27
C.2	Equipment.....	28
C.3	Cycles required.....	28
Annex D (informative)	Example of inspection and maintenance procedure.....	29
Annex E (normative)	Factory Production Control – Test plan .....	30
Annex F (informative)	Product, installation and maintenance information (documentation) ....	31
F.1	Product specification.....	31
F.2	Installation information.....	31
F.3	Maintenance information .....	31
Annex G (informative)	Example of Declaration of Performance (DoP) .....	32
Annex ZA (informative)	Relationship of this European Standard with Regulation (EU) No 305/2011 .....	35
Bibliography	.....	38

**prEN 15650:2017 (E)****European foreword**

This document (prEN 15650:2017) has been prepared by Technical Committee CEN/TC 156 “Ventilation for buildings”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15650:2010.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 89/106/EEC.

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

In addition to a number of editorial revisions, the following main changes have been made with respect to EN 15650:2010:

- addition of more accurate definitions of fire dampers in Clause 3;
- addition of additional requirements and methodology to assess fire reaction of components of fire dampers as an optional performance;
- modification of the drafting of Clause 6 and Annex ZA in accordance with the required format related to the Regulation (EU) No 305/2011;
- addition of an example of Declaration of Performance (DoP) in accordance with requirements from Commission Delegated Regulation (EU) No 574/2014.

## Introduction

This document contains the basic performance and requirements for fire dampers.

A fire damper is used to prevent fire and reduce smoke spreading from one fire compartment to another through the air ductwork system which may penetrate fire separating walls and floors. Annex A gives descriptions of typical fire dampers.

Where the words “separating element” are used in this document, they should be taken to mean e.g. a wall, a floor, a ceiling or any other barrier that is designed to maintain compartmentation. This covers any type of construction (e.g. block and mortar, concrete, board or mineral wool).

In the case of fire or elevated temperatures, the fire dampers should close automatically by means contained within their own construction (e.g. a thermal activation element). As an addition, fire dampers may be closed by an external signal.

All fire dampers close automatically in response to raised temperatures indicating fire.

Fire dampers can be closed or reset externally, internally or remotely for maintenance purposes.

Particular reference should be made to EN 1366-2, which defines the furnace testing associated with fire dampers and EN 13501-3, which provides details on fire resistance classification of fire dampers. Consideration of any caution notices within any fire testing standards (e.g. health and safety) should be considered before undertaking any fire testing.

In addition, the aerodynamic performance of fire dampers should be tested in accordance with EN 1751, if such information is to be presented by a manufacturer.

The areas for which products supplied to this document are considered applicable include, but are not limited to, the following:

- a) commercial premises; [oSIST prEN 15650:2017  
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- b) shopping and retail centres;
- c) hospitals;
- d) multi-residential buildings.

Example of inspection and maintenance procedure is given in Annex D.

## 1 Scope

This document applies to fire dampers used in conjunction with fire separating elements to maintain fire compartments. This document specifies requirements and gives reference to test methods defined for fire dampers, which are installed in Heating, Ventilating and Air Conditioning (HVAC) installations in buildings. Details are given for the provision of evaluation of conformity and marking of fire dampers.

To avoid duplication, reference is made to a variety of other standards. To this end, it is advised to read this document in conjunction with EN 1366-2 for details of the fire resistance testing and EN 13501-3 for classification.

Fire dampers meeting the requirements of this document may be considered suitable for both ducted and unducted applications.

This document does not consider in detail the detrimental and/or corrosive effects that can be caused by chemical processes present in the atmosphere, which are drawn through the system intentionally or inadvertently and therefore does not apply to fire dampers used in such applications. An indication of salt spray corrosion can be determined using the method described in Annex B.

This document is not applicable to non-mechanical fire barriers nor to air transfer grilles.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

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

EN 12792, *Ventilation for buildings - Symbols, terminology and graphical symbols*

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 13501-3, *Fire classification of construction products and building elements — Part 3: Classification using data from fire resistance tests on products and elements used in building service installations: fire resisting ducts and fire dampers*

EN 60068-2-52, *Environmental testing - Part 2: Tests - Test Kb: Salt mist, cyclic (sodium chloride solution) (IEC 60068-2-52)*

EN 60529, *Degrees of protection provided by enclosures (IP Code) (IEC 60529)*

EN ISO 5135, *Acoustics - Determination of sound power levels of noise from air-terminal devices, air-terminal units, dampers and valves by measurement in a reverberation room (ISO 5135)*

EN ISO 13943, *Fire safety - Vocabulary (ISO 13943)*

ISO 10294-4, *Fire resistance tests — Fire dampers for air distribution systems — Part 4: Test of thermal release mechanism*



### 3 Terms and definitions

For the purpose of this document, the terms and definitions given in EN 12792, EN ISO 13943 and the following apply.

#### 3.1

##### **fire damper**

device for use in Heating, Ventilation and Air Conditioning (HVAC) systems at fire boundaries to maintain compartmentation and protect means of escape in case of fire

#### 3.2

##### **insulated fire damper**

fire damper of any type that shows integrity and insulation characteristics when tested

#### 3.3

##### **leakage rated fire damper**

fire damper of any type that shows integrity and smoke leakage characteristics when tested

#### 3.4

##### **multiple section assembly (of fire damper)**

fire damper of any type constructed from smaller fire damper units

#### 3.5

##### **manual fire damper**

fire damper with a thermal release mechanism, where the actuating mechanism has no external signals, operating with no external influences except temperature and that is reset by hand

#### 3.6

##### **fire damper, remote triggering, manual reset**

fire damper with a thermal release mechanism, where the actuating mechanism contains a device that takes an external signal to give closure, but which is reset by hand

#### 3.7

##### **fire damper, remote triggering, actuator reset, local hold open**

fire damper with a thermal release mechanism, where the actuating mechanism contains a device that takes an external signal to give closure, which may be reset by either a device that moves the fire damper from the closed to the open position without holding functionality, which becomes disconnected when the fire damper is reset, or by hand

#### 3.8

##### **fire damper, remote triggering, actuator reset, actuator hold open**

fire damper with a thermal release mechanism, where the actuating mechanism contains an actuator that takes an external signal to give closure, which is reset by external signalling of the actuator, which in turn also holds the fire damper open

#### 3.9

##### **horizontal mounting**

position of the fire damper mounted horizontally when installed in relation to a floor or a ceiling

#### 3.10

##### **vertical mounting**

position of the fire damper mounted vertically when installed in relation to a wall

**prEN 15650:2017 (E)****3.11****actuating mechanism**

mechanism, integral or directly associated with the fire damper which, when initiated by the fire damper release device, causes the movable component of the fire damper to change from the “open” to the “closed” position

**3.12****actuator**

device that moves the fire damper from the closed to open position and/or from the open to the closed position, or allows the fire damper to modulate between open and closed positions and may provide holding functionality at either/both the open or closed position

**3.13****thermal release mechanism**

mechanism, containing/linked to the sensing element, that causes the open fire damper to release and close in response to elevated temperature

**3.14****sensing element**

device that senses temperature, that causes the thermal release mechanism to activate at a defined elevated temperature

**3.15****cycle**

fire damper moving from the open position to the closed position and back to the open position or between the upper position to the lower position and back to the upper position for modulating fire dampers

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<https://standards.iteh.ai/catalog/standards/sist/be36a151-c952-453b-9ed1-728b4f8d6f82/osist-pren-15650-2017>**4 Requirements**

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**4.1 Nominal activation conditions/sensitivity****4.1.1 General**

Fire dampers shall have one safety position, fully closed. This is required to maintain compartmentation. The reset position is when the fire damper is open to allow air flow.

Fire dampers may be open as part of a heating and ventilating system and shall close only on the receipt of:

- an elevated temperature; or
- an additional input signal.

Consequently, fire dampers shall:

- a) move to and maintain their closed position;
- b) have known leakage characteristics;
- c) include a thermal release mechanism that causes the fire damper to close (this may be function of their design), where the thermal release mechanism uses a sensing element which shall be tested in accordance with 5.2.5;
- d) be fire resistant to maintain compartmentation in closed position.

NOTE A facility for manual override to open and close the fire damper for inspection purposes can be useful and can be included in the product design. This would be of use during commissioning even if no power is available on site.

## 4.1.2 Sensitivity

### 4.1.2.1 Sensing element response temperature

The thermal release mechanism shall be equipped with a sensing element with response temperature in accordance with test method referred to in 5.2.5.

### 4.1.2.2 Sensing element load bearing capacity

The thermal release mechanism shall be equipped with a sensing element with load bearing capacity in accordance with test method referred to in 5.2.5.

## 4.1.3 Actuating mechanisms

Actuating mechanisms shall be constructed and assembled to have the strength and rigidity necessary to perform the design operations to which they may be subjected, without the loosening or displacement of parts, or other serious defects when subjected to the tests referred to in Annex C.

Actuating mechanism construction shall be such that it does not cause a fire damper to fail the test by flaming outside of the furnace and outside the duct.

As smoke is seen as being as, if not more, dangerous than fire, closing actuating mechanisms may be used that close the unit early as the result of, for instance, a fire alarm.

The actuating mechanism shall form a part of the tested fire damper assembly.

The actuating mechanism shall be assessed by an IP42 test as a minimum in accordance with EN 60529.

### 4.1.4 Actuators

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Actuators may be designed as an integral part of the actuating mechanism, or replace it all together. If the actuator as itself is the actuating mechanism then it shall be assessed by an IP42 test as a minimum in accordance with EN 60529. They may be manufactured by the fire damper manufacturer or supplied by a third party.

NOTE Actuators are generally powered in some way, for example electrically or pneumatically.

Actuators shall be constructed and assembled to have the strength and rigidity necessary to perform the design operations to which they may be subjected, without the loosening or displacement of parts, or other serious defects when subjected to the tests referred to in Annex C.

Actuator construction shall be such that it does not cause a fire damper to fail the test by flaming outside of the furnace and outside the duct or collapsing and causing other issues that might cause the fire damper to fail the fire test.

Where modulating actuators allowing fire dampers to give variable volume control are to be supplied, these shall be subjected to more extensive cycle testing according to Annex C.

As smoke is seen as being as, if not more, dangerous than fire, actuators may be used that close the unit early as the result of, for instance, a fire alarm.

The actuator shall form a part of the tested construction. Any actuator associated with a fire damper for everyday use shall be tested at the same time as the fire damper to ensure that it does not cause the fire damper to fail in any way that may have not been foreseen.

**prEN 15650:2017 (E)****4.1.5 General application**

Where the manufacturer intends to provide information regarding aerodynamic characteristics, this shall be done in accordance with EN 1751.

**4.2 Response delay (closure time)**

Any temperature may be used; provided that the fire dampers' response delay (closure time) is less than 2 min in accordance with test method referred to in 5.2.4.

**4.3 Operational reliability****4.3.1 General**

Operational reliability of a fire damper shall be demonstrated by verification against application categories.

**4.3.2 Application categories****4.3.2.1 Fire dampers for emergency use only**

Fire dampers for emergency use only shall only be expected to be tested / operated once or twice in a year.

They shall not form part of a controlled HVAC system and shall not be used on a daily or weekly basis for thermal insulation or for testing purposes but shall remain open at all times except for maintenance. However, they may be connected to an emergency system so they close when needed. This application category includes the following types of fire damper:

- manual;
- remote triggering, manual reset;
- remote triggering, actuator reset, local hold open.

Fire dampers for emergency use only shall be cycle tested following the details given in Annex C, Table C.1.

**4.3.2.2 Fire dampers for use in HVAC systems that are operated regularly for testing and thermal insulation purposes**

Fire dampers for use in HVAC systems that are operated regularly for testing and thermal insulation purposes shall be expected to be operated regularly for testing and thermal insulation purposes.

This application category includes the following types of fire damper:

- remote triggering, actuator reset, local hold open;
- remote triggering, actuator reset, actuator hold open.

Fire dampers for use in HVAC systems that are operated regularly for testing and thermal insulation purposes shall be cycle tested following the details given in Annex C, Table C.1.

**4.3.2.3 Fire dampers for use in HVAC systems that are operated regularly for testing and thermal insulation and air modulation purposes**

Fire dampers for use in HVAC systems that are operated regularly for testing and thermal insulation purposes and air modulation shall be expected to be operated regularly for testing, thermal insulation purposes and air modulation.

This application category includes the following types of fire damper:

— remote triggering, actuator reset, actuator hold open.

Fire dampers for use in HVAC systems that are operated regularly for testing and thermal insulation purposes and air modulation shall be cycle tested following the details given in Annex C, Table C.1.

## **4.4 Resistance to fire**

### **4.4.1 General**

Individual fire damper and multiple section assembly shall be fire resistant and shall be classified in accordance with EN 13501-3. The performances given in 4.4.2 to 4.4.6 shall be demonstrated.

### **4.4.2 Integrity**

Integrity shall be tested in accordance with test method in 5.2.2.

### **4.4.3 Insulation**

Insulation shall be tested in accordance with test method in 5.2.2.

### **4.4.4 Smoke leakage**

Smoke leakage shall be tested in accordance with test method in 5.2.3.

### **4.4.5 Mechanical stability**

Mechanical stability shall be demonstrated by achieving integrity in accordance with 5.2.2 (see 4.4.2).

### **4.4.6 Maintenance of cross section**

Maintenance of cross section shall be demonstrated by achieving integrity in accordance with 5.2.2 (see 4.4.2).

## **4.5 Durability**

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### **4.5.1 Durability of response delay**

Durability of response delay shall be demonstrated by testing the sensing element for response temperature and load bearing capacity in accordance with 5.2.5.

### **4.5.2 Durability of operational reliability**

Durability of operational reliability shall be demonstrated by application categories in accordance with 4.3.2.

## **4.6 Position indication**

When fire dampers incorporate blade positioning signalling devices, such devices shall be demonstrated to provide information (at ambient temperature) which is indicative of the actual blade position (open and closed) in accordance with Annex C, C.1.

## **4.7 Protection against corrosion**

Where a manufacturer intends to demonstrate an enhanced salt spray corrosion resistant performance of a fire damper to give a guide on its durability, the test detailed in Annex B shall be performed and the result of the test declared (i.e. pass/fail). Alternatively, this performance may be made by using of known-corrosion-resistance products, components and treatments and this shall be declared.

NOTE Except for products used in a corrosive/contaminated environment, there are no corrosion resistance requirements on products for other uses.