

TEHNOSEADMETE TULEPÜSIVUSE KATSED. OSA 2:  
TULETÕKKE KLAPID

Fire resistance tests for service installations - Part 2:  
Fire dampers

## EESTI STANDARDI EESSÕNA

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See Eesti standard EVS-EN 1366-2:2015 sisaldab Euroopa standardi EN 1366-2:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 1366-2:2015 consists of the English text of the European standard EN 1366-2:2015.
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English Version

## Fire resistance tests for service installations - Part 2: Fire dampers

Essais de résistance au feu des installations techniques -  
Partie 2 : Clapets résistant au feu

Feuerwiderstandsprüfungen für Installationen - Teil 2:  
Brandschutzklappen

This European Standard was approved by CEN on 3 April 2015.

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## Contents

Page

Foreword.....	4
Introduction .....	6
1 Scope .....	7
2 Normative references .....	7
3 Terms and definitions .....	7
4 Test equipment .....	8
4.1 General.....	8
4.2 Connecting duct.....	8
4.3 Volume flow measuring station.....	9
4.4 Condensing unit.....	9
4.5 Gas temperature measuring devices.....	9
4.6 Exhaust fan system .....	9
5 Test conditions .....	9
6 Test specimen .....	10
6.1 Size.....	10
6.2 Number of tests.....	10
6.2.1 General.....	10
6.2.2 Supporting construction .....	10
6.2.3 Method of installation in the supporting construction .....	10
6.2.4 Method of installation on to the supporting construction.....	11
6.2.5 Method of installation away from the supporting construction. ....	11
6.2.6 Blade pivot axis.....	11
6.2.7 Application with no ducting on one or both sides, where additional evidence of insulation in such applications is required .....	11
6.3 Design .....	11
6.3.1 General.....	11
6.3.2 Orientation to be tested .....	12
6.3.3 Fire dampers installed within a wall or floor opening.....	12
6.3.4 Fire dampers mounted on to the face of a wall or floor.....	12
6.3.5 Fire dampers mounted remote from a wall or floor .....	12
6.3.6 Application with no ducting on one or both sides, where additional evidence of insulation in such applications is required .....	12
6.3.7 Temperature sensing element.....	13
7 Installation of test specimen .....	13
7.1 General.....	13
7.2 Supporting construction .....	13
7.3 Minimum separation .....	14
8 Conditioning.....	14
8.1 General.....	14
8.2 Water-based sealing materials .....	14
9 Application of instrumentation.....	14
9.1 Thermocouples .....	14
9.1.1 Furnace thermocouples (plate thermometers) .....	14
9.1.2 Unexposed surface temperature.....	14
9.2 Furnace pressure.....	15

9.2.1	General.....	15
9.2.2	Pressure differential measurement, furnace and connecting duct.....	15
10	Test procedure.....	15
10.1	Determination of leakage of connecting duct and measuring station.....	15
10.2	Opening and closing test.....	15
10.3	Determination of leakage at ambient temperature.....	16
10.4	Fire test procedure.....	16
11	Performance criteria.....	17
12	Test report.....	18
13	Field of direct application of test results.....	19
13.1	Size of fire damper.....	19
13.2	Fire dampers installed within structural openings.....	19
13.3	Fire dampers installed onto the face of a wall or a floor.....	19
13.4	Fire dampers remote from a wall or floor.....	19
13.5	Fire from above.....	20
13.6	Separation between fire dampers and between fire dampers and construction elements.....	20
13.7	Supporting constructions.....	20
13.8	Blade pivot axis.....	20
	Bibliography.....	34

## Foreword

This document (EN 1366-2:2015) 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 December 2015, and conflicting national standards shall be withdrawn at the latest by December 2015.

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

This document supersedes EN 1366-2:1999.

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 parts:

- *Part 1: Ventilation ducts;*
- *Part 2: Fire dampers (the present document);*
- *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 (currently at Enquiry stage);*
- *Part 12: Non-mechanical fire barrier for ventilation ductwork.*

This standard underwent a formal review process during 2009-2011. Various comments were considered and these were only considered when they added clarity to the procedure. No changes have been made that make historical data redundant. This was deliberately avoided where it was thought to be occurring. If there are some issues with this, consideration should be given to the spirit of the original test combined with the better clarity now given.

The following technical changes were made in this new edition:

- Changes include the fact that symmetry as a concept has been removed. This does not negate original tests, but may now mean that some additional tests are needed.
- The figures have been clarified to show some more detail. Testing away from a wall or floor now has an equal distance between damper and the supporting construction. In this instance, historical data is not negated but any testing done after the publication of this standard needs to be done to the new dimensions.

- Further information is given on thermocouple placement and the concepts of  $T_3$ ,  $T_4$ , etc. have been added to make it clear which thermocouples should be considered and when. The description of details on additional thermocouples around discontinuities has been added for clarification.
- Additional information has been added to show the details for testing fire dampers to demonstrate insulation characteristics where a fire damper is to be used un-ducted, ducted on one side or ducted on both sides.

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

## Introduction

The purpose of the test is to evaluate the ability of a fire damper to prevent fire and smoke spreading from one fire compartment to another through the air ductwork system which may penetrate fire separating walls and floors.

The fire damper is attached (directly or remotely via a section of ducting), to a fire separating element in a manner representative of practice. Tests are performed starting with the fire damper in the open position to expose the temperature sensing element of the fire damper to furnace conditions.

Temperature and integrity measurements are carried out in various parts of the test construction during the test. The leakage of the fire damper system is measured (continuously during the test) by direct flow measurements whilst maintaining a constant pressure differential across the closed fire damper of 300 Pa. The leakage of the fire damper in the closed position is also measured at ambient temperature, when a reduced leakage classification needs to be achieved.

An additional test to prove insulation characteristics may be needed if the damper needs to be used un-ducted on one side or on both sides. This test is not needed where such evidence is not required, or if insulation is not a requirement of performance, in the specific application.

### Caution

The attention of all persons concerned with managing and carrying out this fire resistance test is drawn to the fact that fire testing may be hazardous and that there is a possibility that toxic and/or harmful smoke and gases may be evolved during the test. Mechanical and operational hazards may 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 European Standard specifies a method for determining the fire resistance of fire dampers installed in fire separating elements designed to withstand heat and the passage of fire, smoke and gases at high temperature. This European Standard is used in conjunction with EN 1363-1.

This standard is not suitable for testing fire dampers in suspended ceilings.

This standard is not suitable for testing non-mechanical fire dampers (see EN 1366-12).

## 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 1363-1:2012, *Fire resistance tests — Part 1: General Requirements*

EN 1363-2, *Fire resistance tests — Part 2: Alternative and additional procedures*

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 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)*

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

ISO 5221, *Air distribution and air diffusion — Rules to methods of measuring air flow rate in an air handling duct*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1363-1:2012 and 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

Note 1 to entry: It may have reduced smoke leakage characteristics.

### 3.2

#### **insulated fire damper**

fire damper which satisfies both the integrity and insulation criteria for the anticipated fire resistance period

### 3.3

#### **uninsulated fire damper**

fire damper which satisfies the integrity criteria for the anticipated fire resistance period, but which does not provide a long enough insulation period to gain an EI classification