SLOVENSKI STANDARD
oSIST prEN 15871:2009

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Prezraļevanje stavb - Poģarno odporni profili kanalov

Ventilation for buildings - Fire resisting duct sections

Lüftung von Gebäuden - Feuerwiderstandsfähige Leitungen

Ventilation des bâtiments - Tronçons de conduits résistants au feu

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Ta slovenski standard je istoveten z: **prEN 15871**

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ICS:

13.220.99	Drugi standardi v zvezi z varstvom pred požarom	Other standards related to protection against fire
91.140.30	Prezraļevalni in klimatski sistemi	Ventilation and air-conditioning

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2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD

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English Version

Ventilation for buildings - Fire resisting duct sections

Ventilation des bâtiments - Tronçons de conduits résistants au feu

Ventilation in Gebäuden - Feuerwiderstandsfähige Leitungen

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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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (prEN 15871:2008) 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 has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of 89/106/EEC.

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

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1 Scope

This European Standard applies to fire resisting duct sections, placed on the market and intended to operate as part of a pressure differential system or HVAC system. This standard specifies requirements and gives reference to the test methods defined for fire resisting duct sections and their associated components, which are intended to be installed in HVAC systems in buildings. It also provides the evaluation of conformity of the products to the requirements of this standard. Furthermore, marking and information on installation and maintenance of these products are also given in this European Standard

To avoid duplication, reference is made to a variety of other standards. To this end this standard is to be read in conjunction as well as with EN 13501-3 for classification and EN 1366-1 and EN 15080-10 for details of the fire resistance testing.

This European Standard also governs associated components used together with fire resisting duct sections such as turning vanes and silencers, and access panels, which are covered by separate standards.

Duct sections for use other than in fire resisting HVAC systems are not covered by this standard.

2 Normative references

The following referenced documents are indispensable for the application 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.

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

EN 1366-1, *Fire resistance tests for service installations – Part 1: Ducts*

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

EN 1507, *Ventilation for buildings – Sheet metal air ducts with rectangular section – Requirements for strength and leakage*

EN 12237, *Ventilation for buildings – Ductwork – Strength and leakage of circular sheet metal ducts*

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 15080-10, *Extended application of results from fire resistance tests – Part 10: Fire resisting ducts*

EN ISO 13943, *Fire safety – Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1363-1 and EN ISO 13943 and the following apply.

3.1
fire compartment
an enclosed space, comprising one or more separate spaces, bounded by elements of construction having a specified fire resistance and intended to prevent the spread of fire (in either direction) for a given period of time

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NOTE Fire compartment often has regulatory connotations. The term should not be confused with "room of origin" or "fire cell".

3.2
fire resisting duct section
section of fire resisting duct confirmed by factory production control (FPC) to reflect initial type testing (ITT) and placed on the market

3.3
suspension devices
components used for suspending and fixing a duct section from a floor or supporting a duct section from a wall

3.4
supporting construction
wall, partition or floor which the duct section passes through in the fire test

3.5
compensator
device that is used to prevent damage from the forces generated by expansion

3.6
penetration seal
product used between the fire resisting duct section and the fire compartment boundary structure to maintain the fire resistance, when tested and having met the requirements of EN 1366-1 and EN 15080-10, at the position where a fire resisting duct section passes through the element

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3.7
structural supports
means of retaining the fire resisting duct section to the building structure

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3.8
HVAC system
complete airflow installation in a building, used for heating and/or cooling, in order to maintain the indoor air quality and provide thermal comfort

3.9
access panel
permanent device of a duct section allowing an access to check and clean inside

4 Fire resisting duct section requirements

4.1 Specific fire resisting duct section types

4.1.1 Fire resisting duct sections

A fire resisting duct section is used in fire resisting duct systems for the transfer of air from one or more compartments of a building and is tested according to EN 1366-1. The following types of ducts sections exist:

4.1.2 Duct A

Horizontal and/or vertical duct section, which is able to resist the fire from outside as fully described in EN 1366-1 and EN 15080-10.

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4.1.3 Duct B

Horizontal and/or vertical duct section, which is able to resist the fire from inside and outside as fully described in EN 1366-1 and EN 15080-10.

4.2 Construction and components of fire resisting duct sections

4.2.1 General requirements

a) Integrity: the manufacturer shall test and declare the integrity classification (E) in accordance with EN 13501-3;

b) Insulation: the manufacturer shall test and declare the insulation classification (I) in accordance with EN 13501-3;

c) Leakage: as an option the manufacturer shall test and declare the leakage classification (S) in accordance with EN 13501-3;

d) Mechanical stability: the manufacturer shall prove mechanical stability in accordance with EN 13501-3;

e) Maintenance of cross section: the manufacturer shall prove maintenance of cross section in accordance with EN 13501-3.

4.2.2 Performance criteria

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The assessment of performance is made on the basis of:

a) leakage through the duct;

b) the ability of the duct to maintain its cross sectional area when subjected to the fire resistance test;

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c) maintenance of mechanical stability;

NOTE a), b) and c) are measured to evaluate integrity E.

d) the suitability of the use of the duct at an underpressure, measured at ambient.

An optional (more restricted) smoke leakage (S) performance is available.

4.2.3 Classification

From performing the tests in 4.2.4, the fire resisting duct section shall be classified using the details in EN 13501-3.

4.2.4 Structural supports used for fire resisting duct sections

Structural supports used for fire resisting duct sections shall be as tested in EN 1366-1 and EN 15080-10 and covered by the direct field of application within those standards.

4.2.5 Duct sealant materials used in fire resisting duct sections

4.2.5.1 General

Sealants are often used to reduce the air/gas leakage from ventilation systems.

Sealants used for fire resisting duct sections shall be as tested with the proposed duct section in accordance with EN 1366-1 and/or EN 15080-10 and covered by the direct field of application within those standards.

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4.2.5.2 Requirements

a) The sealants shall be suitable for the environment to which it is to be subjected.

b) The sealants shall be durable for the proposed life of the fire resisting duct section.

c) The sealants shall be resistant to mechanical damage during the installation of the fire resisting duct section.

d) Any deterioration of the sealant shall not affect the fire resisting classification of the duct section.

4.2.6 Penetration seals (between fire compartments)

4.2.6.1 General

Penetration seals are required to reduce the air/gas leakage between compartments.

Penetration seals shall maintain the integrity and insulation criteria of the duct section. The gap dimension between the inside edge of the supporting construction and the perimeter of the fire resisting duct section, and hence the seal 'thickness', shall remain as tested when the fire resisting duct section is installed within a building.

4.2.6.2 Other components

Fire resisting duct sections often contain other components. These shall not cause failure of the ventilation system in the building and shall be tested to meet the same requirements as the duct section into which they are installed.

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Among these items of equipment are:

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— access panels;

— silencers or attenuators to limit noise;

— compensators;

— turning vanes;

— air flow/volume indication transponders;

— grilles to control the direction of air movement at the terminals of the system.

Items shall be tested according to EN 1366-1 and if required to EN 15080-10 to prove that they do not reduce the performance of the fire resisting duct section already tested and classified, and they shall be installed in accordance with the manufacturer's instructions.

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5 Test methods

5.1 Fire resisting duct sections

5.1.1 General

The duct section shall be installed in a furnace and subjected to the fire resistance test as described in EN 1366-1 and if required as described in EN 15080-10.

5.1.2 Fire resistance, pressure and leakage test

The test method and equipment are described in EN 1366-1.

5.1.3 Structural supports used for fire resisting duct sections

Observations shall be made as to the satisfactory performance of the structural supports as described in EN 1366-1 and if required as described in EN 15080-10. The structural support method and relevant material names and references shall be recorded.

5.1.4 Duct sealant materials used in fire resisting duct sections

Observations shall be made as to the satisfactory performance of the duct sealant as described in EN 1366-1. The duct sealant name and reference shall be recorded.

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5.1.5 Penetration seals (between fire compartments)

Observations shall be made as to the satisfactory performance of the penetration seals as described in EN 1366-1. The penetration seal method and relevant material names and references shall be recorded.

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5.1.6 Maintenance of cross section

Observations shall be made as to the satisfactory maintenance of the cross sectional area of the duct section as required by EN 1366-1.

5.2 Other components

Each item shall be tested in accordance with EN 1366-1 for fire resistant duct sections in addition to the fire tests performed without any components.

6 Product, installation and maintenance information (documentation)

6.1 Product specification

The manufacturer shall provide, and retain a detailed description of the product including all the relevant components. This shall include a description of the materials used in the construction of the duct section. It shall also include details of the supporting construction, the method of installation, including the sealing and fixing details, the hanger details and any penetration or linear gap seals used to seal the gap between the duct section and the supporting construction.

The tolerances used for the manufacture of any fire resisting duct section, as applied to whatever materials are used, shall be recorded. These details shall take the form of drawings with tolerances shown as per ISO 8015 and ISO 1101.

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This shall include, but need not be limited to:

a) As tested material thickness, nominal material thickness, declared tolerance on nominal material thickness;

b) As tested material length and width, nominal material length and width, declared tolerance on nominal material length and width;

c) As tested material squareness of cut, nominal material squareness of cut, declared tolerance on nominal squareness of cut – to be recorded for differing directions in materials where tolerances may vary with direction of cut;

d) As tested material parallelism, nominal material parallelism, declared tolerance on nominal material parallelism.

6.2 Installation information

The manufacturer shall provide appropriate installation information that shall include at least the following:

— fixing and installation information;

— information on the connection to external services and other components;

— health and safety information.

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6.3 Maintenance information

The manufacturer shall provide appropriate maintenance information for the duct section that shall include at least the following:

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— inspection and maintenance procedure;

— recommended frequency of cleaning/maintenance;

— recommended check for the effects of corrosion on degradable items.

NOTE Inspection should be undertaken by suitably qualified personnel at intervals not exceeding once per year. A comprehensive example of the above procedure is given in Annex A.

7 Marking

The fire resisting duct sections shall be marked as follows:

— the name or trade mark of the manufacturer;

— the type (if applicable) and mode;

— the number of this standard EN 15871 followed by the reference “Fire resisting duct section”;

— the fire resistance classification and other information from EN 13501-3.