SLOVENSKI STANDARD
SIST EN 15423:2008

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Prezraļevanje stavb - Protipoģarni varnostni ukrep za zraļne razdelilne sisteme v stavbah

Ventilation for buildings - Fire precautions for air distribution systems in buildings

Lüftung von Gebäuden - Brandschutz von Lüftungsanlagen in Gebäuden

Systemes de ventilation des bâtiments - Sécurité incendie pour les systemes de distribution d'air dans les bâtiments

Ta slovenski standard je istoveten z: **EN 15423:2008**

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13.220.20	Poģarna zaģļita	Fire protection
91.140.30	Prezraļevalni in klimatski sistemi	Ventilation and air-conditioning

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EUROPEAN STANDARD

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English Version

Ventilation for buildings - Fire precautions for air distribution systems in buildings

Systèmes de ventilation des bâtiments - Sécurité incendie pour les systèmes de distribution d'air dans les bâtiments

Lüftung von Gebäuden - Brandschutz von Lüftungsanlagen in Gebäuden

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

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Contents

Foreword

This document (EN 15423:2008) has been prepared by Technical Committee CEN/TC 156 “Ventilation for 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of an identical text or by endorsement, at the latest by November 2008, and conflicting national standards shall be withdrawn at the latest by November 2008.

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.

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1 Scope

This document gives guidance for system designers, installers, commissioners and maintenance teams on the incorporation of protective measures for air distribution systems including dual purpose systems for smoke and heat exhaust systems within buildings, to prevent the initiation and the spread of fire, smoke and other by-products of combustion.

This document intends to only support any national (building) regulations, which are the basis of any design of a building or parts of it. It is up to the designer to enquire about the suitability (in particular in legal terms) of a specific solution given in this document (e.g. although “dual purpose systems” are covered in this document, they may not be permitted in some Member States or only in certain types of buildings).

This document applies to all air distribution systems including dual purpose systems (except systems only dedicated to smoke exhaust systems, which are dealt in other European standards) including technical rooms or spaces for the installation of devices to assist in ventilation of a building (e.g. distance of storage of combustible materials to devices and not the fire resistance of the building structure), penetrations, and following components/products used in the system like:

— inlet/outlet louvres;

— fans not exposed / exposed to the smoke;

— air control dampers;

— ducts;

— fire control dampers;

— air terminal devices;

— anchors and supports;

— duct fittings;

— control panels;

— cables and connections;

— air handling units;

— air filters;

— sound attenuators;

— heat exchangers.

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.

EN 1364-2, *Fire resistance test for non loadbearing elements - Part 2: Ceilings*

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

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*

prEN 1366-10, *Fire resistance tests for service installations - Part 10: Smoke control dampers*

EN 1505, *Ventilation for buildings - Sheet metal air ducts and fittings with rectangular cross section - Dimensions*

EN 1506, *Ventilation for buildings - Sheet metal air ducts and fittings with circular cross section - Dimensions*

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

EN 12101-3, *Smoke and heat control systems - Part 3: Specification for powered smoke and heat exhaust ventilators*

prEN 12101-8, *Smoke and heat control systems - Part 8: Specification for smoke control dampers*

prEN 12101-9, *Smoke and heat control systems - Part 9: Control panels*

EN 12097, *Ventilation for buildings - Ductwork - Requirements for ductwork components to facilitate maintenance of ductwork systems*

EN 12792:2003, *Ventilation for buildings - Symbols, terminology and graphical symbols*

EN 13053, *Ventilation for buildings - Air handling units - Rating and performance for units, components and sections*

EN 13403, *Ventilation for buildings - Non-metallic ducts - Ductwork made from insulation ductboards*

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 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 13964, *Suspended ceilings - Requirements and tests methods*

EN 1886:2007 *Ventilation for buildings - Air handling units - Mechanical performance*

EN 13779, *Ventilation for non-residential buildings - Performance requirements for ventilation and room-conditioning systems*

EN 12237, *Ventilation for buildings - Ductworks - Strength and leakage of circular sheet metal ducts*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 12792:2003, together with the following apply.

3.1
shaft
space generally encased with building elements, where ventilation ducts and possibly other pipes and cables are located

3.2
support
device for a system component, e.g. fire damper, silencer, etc. to bear a load

3.3
inlet/outlet louvre
device, consisting of an assembly of parallel sloping vanes, intended to permit the passage of air, while providing a measure of protection against environmental influences

[EN 12792:2003, Table 1, number 242]

3.4
air control damper
element inserted into an air distribution system or element of an air distribution system permitting modification of the air resistance of the system, and consequently changing the air flow rate (dampers), or shutting off the air flow completely (valves), or controlling the air flow rate and in addition providing shut-off of the air flow (control valves)

[EN 12792:2003, Table 1, number 95]

3.5
fire damper
mobile closure within a duct, which is designed to prevent the passage of fire

[EN 1366-2]

3.6
smoke control damper
device automatically or manually activated which may be open or closed in its operational position, to control the flow of smoke and hot gases into, from or within a duct

[prEN 1366-10]

3.8
air terminal devices
component of a ventilation installation which is designed with the purpose of achieving the predetermined movement of air into or from a treated space

[EN 12792:2003, Table 1, number 31]

3.9
air transfer devices
air terminal device designed to allow the transfer of air from one space/room to another space/room

[EN 12792:2003, Table 1, number 36]

3.10
local requirement
legal requirement to comply with, from a regulation implemented in a country

NOTE Local requirement could deal with characteristics of products, installation, commissioning, maintenance… Most of the time, these requirements come from Fire Safety Regulations.

3.11
control equipment
any initiating device for a smoke and heat control system component e.g. control panel, basic control panel, mechanical control panel

3.12
control panel
multi-operation initiating device for a smoke and heat control system

4 Air distribution system

4.1 General requirements

Components in the air distribution system shall be made or installed in such a way that they will not increase the hazard of spreading fire and smoke gases in the case of fire. The materials used in buildings, air distribution systems and their components shall not contribute to the development of fire in accordance with any local requirement.

If there are local requirements on the reaction to fire of materials and/or resistance to fire, they shall be observed.

4.2 Design of air distribution systems

Air distribution systems shall be turned off in case of fire, unless local requirements allow for other procedures.

4.3 Installation

Use the manufacturer's instructions for all components.

The sealings through fire resistance enclosures (e.g. ceiling or walls), shall be in accordance with local requirements.

5 Requirements for components intended for fire precautions

5.1 General

The performance, which will be achieved by the product in end-use conditions, shall reflect the results of product fire resistance, fire reaction and smoke control testing, when required, and in accordance with the local regulations, if any. A product shall be tested as a complete assembly with all necessary components which affect fire resistance performance as described in the product standard.

Optional accessories can be available for a product.

Two types of accessories can be provided:

— fire tested accessory,

— non fire tested accessory; these need to be studied and calculated inside the complete design of the complete ventilation system.

When accessories, modifications, coatings etc. affect fire resistance performance, the product shall be tested both with and without these (for example: with and without painting) and conform to relevant standards.

NOTE When accessories do not affect fire resistance performance, they can be supplied and fitted on site.

Annex B presents relevant standards for each component and their characteristics.

5.2 Inlet/outlet louvres

5.2.1 Component

If the louvres are on the external wall of the building no special requirement is needed.

5.2.2 Installation

Location of inlet and outlet louvres shall be in accordance with EN 13779.

5.2.3 Commissioning

Conformity with the installation design shall be checked, in particular the minimum distance, defined according to 5.2.2, between the inlet and outlet louvres.

5.2.4 Maintenance – Routine

A visual check of the louvres shall be performed during ductwork maintenance operations. The air intake or discharge cross-section shall be free from foreign items such as rubbish, birds or insects etc.

5.3 Fans

5.3.1 Fans for ventilation only

5.3.1.1 Component

As a fire precaution the fan electric motor shall be equipped with internal or external thermal overload protection. Depending on the application, it may be used to switch off the motor or to warn of a thermal overload.

If necessary fans should be protected, and when they are not connected to a duct they should be protected with metal screens, grids or similar to prevent the entrance of paper, rubbish, and similar foreign material.

For fans in air handling units, see also 5.12.

5.3.1.2 Installation

Fans shall be located, arranged and installed to afford access for commissioning and maintenance.

Fans shall be installed in accordance with the relevant standards and the manufacturer's instructions.

In order to reduce the propagation of fire initiated by the fan, a free area (area that has no contact with any part of the fan) should be allowed around installed fans and motors. If there is no free area, all materials should be fire rated according to national regulations.

The fan shall be stopped in case of fire either manually or automatically depending on the system design.

5.3.1.3 Commissioning

See Clause 6.

Make sure, by turning on the fan, it is running properly.

Check that the rated intensity does not exceed the nominal value indicated on the product nameplate.

5.3.1.4 Maintenance – Routine

See Clause 6.

In addition, the free area shall be checked visually. The electrical motor shall be checked in accordance with the manufacturer's instructions and the alignment of the fan belt drives shall be controlled.

5.3.2 Fans for ventilation and air supply in smoke exhaust system

5.3.2.1 Component

As a fire precaution, the fan electric motor shall be equipped with internal or external thermal overload protection. Depending on the application, it may be used to switch off the motor or to warn of a thermal overload.

If necessary, fans should be protected and when they are not connected to a duct they should be protected with metal screens, grids or similar to prevent the entrance of paper, rubbish, and similar foreign material.

5.3.2.2 Installation

Fans shall be located, arranged and installed to afford access for commissioning and maintenance.

Fans shall be installed in accordance with the manufacturer's instructions.

In order to reduce the propagation of fire initiated by the fan, a free area (area with no contact with any part of the fan) should be provided around installed fans and motors. If there is no free area, all materials should be fire rated according to national regulations.

The air distribution system shall ensure that the fan operates in accordance with the specific requirements of the intended application and particularly the fan shall continue to run in case of smoke.

5.3.2.3 Commissioning

See Clause 6.

Make sure, by turning on the fan, it is running properly.

Check that the electrical intensity does not exceed the nominal value indicated on the product nameplate

5.3.2.4 Maintenance – Routine

See Clause 6.