

SVENSK STANDARD

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Utökad tillämpning av resultat från provning av brandmotstånd – Installationer i byggnader – Del 1: Ventilationskanaler

Extended application of results from fire resistance tests for service installations – Part 1: Ducts

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Denna standard ersätter SS-EN 15882-1:2011, utgåva 1.

The European Standard EN 15882-1:2011+A1:2017 has the status of a Swedish Standard. This document contains the official version of EN 15882-1:2011+A1:2017.

This standard supersedes the Swedish Standard SS-EN 15882-1:2011, edition 1.

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EUROPEAN STANDARD

EN 15882-1:2011+A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2017

ICS 13.220.50; 91.140.30

Supersedes EN 15882-1:2011

English Version

Extended application of results from fire resistance tests for service installations - Part 1: Ducts

Application étendue des résultats des essais de
résistance au feu des installations de service - Partie 1:
Conduits

Erweiterter Anwendungsbereich der Ergebnisse aus
Feuerwiderstandsprüfungen für Installationen - Teil 1:
Leitungen

This European Standard was approved by CEN on 22 October 2011 and includes Amendment 1 approved by CEN on 11 September 2017.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

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European foreword

This document (EN 15882-1:2011+A1:2017) has been prepared by Technical Committee CEN/TC 127 “Fire safety in buildings”, the secretariat of which is held by BSI.

This document includes Amendment 1 approved by CEN on 1 May 2017.

This document supersedes A1 EN 15882-1:2011 A1.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

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 May 2018, and conflicting national standards shall be withdrawn at the latest by May 2018.

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

This European Standard has the general title *Extended application of results from fire resistance tests for service installations* and consists of the following parts:

- *Part 1: Ducts;*
- *Part 2: Dampers;*
- *Part 3: Penetration seals;*
- *Part 4: Linear joint seals.*

The Enquiry phase of this project (00127162) took place under the reference prEN 15080-10.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Introduction

There are a number of practical limitations on the size and design of elements that can be tested by the standard methods of fire resistance test. When these elements are larger, or are of a modified design, there is a necessity to be able to confirm their performance, i.e. whether the classification(s) is (are) given in the classification report in relation to the relevant criteria identified in the Interpretative Document are maintained, without the ability of being able to test them. To achieve this, extended application documents for the various elements are under development.

It is not allowed to change any detail of the duct construction. If this is done outside the DiAP¹⁾ and EXAP²⁾, the duct has another design and cannot be classified in accordance with EN 13501-3 without further appropriate testing.

Before there can be any consideration for extended application the duct shall be tested in accordance with EN 1366-1 to achieve a test result which could generate a classification in accordance with EN 13501-3 at least equal to the classification subsequently required from extended application considerations.

The extended application report should be based on the evaluation of one or more fire resistance test reports on the same proprietary construction of duct.

A review of the duct construction parameters may indicate that one or more criteria (integrity, insulation, leakage) may be improved by a particular parameter variation. In the case of ducts, this should never lead to an increased classification period for any specific parameter beyond that achieved during any one test.

1) DiAP = Direct field of application.

2) EXAP = Extended field of application.

1 Scope

This European Standard identifies parameters that affect the fire resistance of ducts for ventilation purposes. It also identifies the factors that need to be considered when deciding whether, or by how much a parameter can be extended either positively or negatively when contemplating the fire resistance on an untested variation in the construction.

This European Standard, where applicable, gives guidance on additional tests that are needed to extend the field of application.

The European Standard gives the principles behind how a conclusion on the influence of specific parameters/constructional details relating to the relevant criteria (E, I, S) can be achieved.

This European Standard only applies to ducts tested to EN 1366-1. Duct sections for use other than in fire resisting heating, ventilation and air conditioning (HVAC) systems are not covered by this European Standard. It does not cover ducts used for smoke control which are tested in accordance with EN 1366-8 or EN 1366-9.

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 1363-1 ^[A1]:2012 ^[A1], *Fire resistance tests — Part 1: General requirements*

EN 1366-1:1999, *Fire resistance tests for service installations — Part 1: 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 ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specific property classes — Coarse thread and fine pitch thread (ISO 898-1:2009)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1363-1 and EN 1366-1 and the following apply.

3.1

self-supporting duct

duct constructed from fire protective boards to provide fire resistance without using a conventional steel duct

3.2

fire protected steel duct

steel duct with or without external insulation or coating to provide integrity or integrity and insulation in case of fire

3.3

duct system

complete system, consisting of the duct sections, duct joints, suspensions and penetration seals

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3.4

duct section

element of a fire resisting duct constructed to form part of a duct system which has to be fire resistant

3.5

structural supports

means of retaining the fire resisting duct section to the building structure

A1 3.6

duct system with one variable parameter

duct system where all essential components are the same, with the exception of one parameter in one component (e.g. density of the insulation, thickness of insulation)

Note 1 to entry: By changing the variable parameter, the individual duct system gets different classification times **A1**

4 Critical parameters and factors

4.1 General

The following parameters and factors are considered to affect the fire resistance performance of a duct system and shall be taken into account when determining the field of extended application. The parameters vary depending upon the nature of the element to be considered. The parameters for the common, identifiable forms of duct construction are given in 4.2, 4.3 and 4.4.

4.2 Common thermal and mechanical parameters and factors

Table 1 — Factors relating to thermal and mechanical parameters

| Line | Parameter and rule reference | Factor |
|-------------|--|---|
| a | Fire exposure | Outside or inside |
| b | Changes in pressure (positive or negative) | Lower or higher |
| c | Change in wall/floor type or thickness | Rigid or flexible constructions Greater or lower thickness |
| d | Forces at wall/floor penetrations | Value of force higher or lower |

4.3 Common constructional parameters and factors

Table 2 — Factors relating to Common constructional parameters

| Line | Parameter and rule reference | Factor |
|-------------|-------------------------------------|---------------------------------|
| a | Orientation | Vertical, horizontal or sloping |
| b | Change in shape | Rectangular to circular or oval |
| c | Change in height of cross-section | Greater or less than tested |
| d | Change in width of cross-section | Greater or less than tested |
| e | Change in diameter of cross-section | Greater or less than tested |
| f | Protection material | Change of material |