

Fire resistance tests for service installations - Part 4:
Linear joint seals

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EUROPEAN STANDARD

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English Version

Fire resistance tests for service installations - Part 4: Linear joint seals

Essais de résistance au feu des installations techniques
- Partie 4 : Calfeutrements de joints linéaires

Feuerwiderstandsprüfungen für Installationen - Teil 4:
Abdichtungssysteme für Bauteilfugen

This European Standard was approved by CEN on 27 December 2020.

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.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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

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European foreword

This European Standard (EN 1366-4:2021) 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of an identical text or by endorsement, at the latest by August 2021, and conflicting national standards shall be withdrawn at the latest by August 2021.

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

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

This document supersedes EN 1366-4:2006+A1:2010.

The following changes have been made in comparison to EN 1366-4:2006+A1:2010:

- mechanically induced movement described only prior to fire exposure;
- clear definition of movement capability;
- detailed definition of Sealing types:
 - 7.2.1 Seals made of fabrics;
 - 7.2.2 Seals made of foams (foamed in situ);
 - 7.2.3 Membrane forming seals;
 - 7.2.4 Seals made of mineral wool (faced/coated or not faced/coated);
 - 7.2.5 Linear joint seal made of mortar/plaster;
 - 7.2.6 Linear joint seal made of sealants
 - 7.2.7 Linear joint seal made of pre-formed compressible strips;
 - 7.2.8 Linear joint seals made of pre-formed compressible composite strips;
 - 7.2.9 Linear joint seal made of pre-formed compressible ropes;
 - 7.2.10 Linear joint seal made of pre-formed strips;
- missing applications added or detailed testing procedure described:
 - top of wall Joint for walls abutting concrete slabs with profiled metal sheet;
 - flexible wall constructions;
 - top of wall Joint for flexible walls;

- timber elements;
- missing distances on Thermocouples defined;
- thermocouples on Joint Seals < 12mm defined;
- chapter for direct field of application added on each sealing type.

EN 1366 'Fire resistance tests for service installations' consists of the following parts:

- *Part 1: Ventilation ducts*
- *Part 2: Fire dampers*
- *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*
- *Part 12: Non-mechanical fire barrier for ventilation ductwork*
- *Part 13: Chimneys (in course of preparation)*

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

Introduction

Linear joint seals are positioned in joints, voids, gaps or other discontinuities within one or between two or more construction elements.

Normally such openings are denoted as linear because their length is greater than their width - defined by a typical ratio of at least 10:1 in practice.

Joints are present in buildings due to the following:

- a) acceptable dimensional tolerances between two or more building elements, e.g. between non-load bearing walls and floors;
- b) by design to accommodate various movements induced by thermal differentials, seismicity and movement induced by wind loads;
- c) as a result of inadequate design, inaccurate assembly, repairs or damage to the building.

The purpose of the tests in this document is to assess:

- d) the effect of a linear joint seal on the integrity and insulation of the construction;
- e) the integrity and insulation performance of the linear joint seal;
- f) the effect of movement within the supporting construction on the fire resistance performance of linear joint seals (see Annex B).

The results of these tests are one factor in assessing the fire resistance performance of joint seals.

Annex A describes the principles of standard conditions for linear joint seals where no mechanically induced relative movement occurs between the joint faces.

Annex B provides standard conditions for joints with mechanically induced movement of opposing joint faces.

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, during their testing and during the 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 part of the EN 1366 series specifies a method for determining the fire resistance of linear joint seals based on their intended end use. Perimeter seals of curtain walling are excluded from this part of the EN 1366 series.

This document is intended to be used in conjunction with EN 1363-1.

The following tests are included in this document:

- no mechanically induced movement;
- mechanically induced movement.

Tests in accordance with this part of the EN 1366 series are not intended to provide quantitative information on the rate of leakage of smoke and/or hot gases, or on the transmission or generation of fumes. Such phenomena are only noted in the test report in describing the general behaviour of test specimens during the test.

The load-bearing capacity of a linear joint seal is not addressed in this part of the EN 1366 series. No information can be implied by the test concerning the influence of the inclusion of linear joint seals on the loadbearing capacity of the separating element.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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, *Fire resistance tests — Part 1: General Requirements*

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

EN 1994-1-1, *Eurocode 4: Design of composite steel and concrete structures — Part 1-1: General rules and rules for buildings*

EN 1994-1-2, *Eurocode 4 — Design of composite steel and concrete structures — Part 1-2: General rules - Structural fire design*

EN 13501-2, *Fire classification of construction products and building elements — Part 2: Classification using data from fire resistance tests, excluding ventilation services*

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

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.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>