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Fire resistance tests for service installations - Part 3: Penetration seals

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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Fire resistance tests for service installations - Part 3: Penetration seals

Essais de résistance au feu des installations techniques - Partie 3 : Calfeutrements de trémies

Feuerwiderstandsprüfungen für Installationen - Teil 3: Abschottungen

This European Standard was approved by CEN on 20 September 2021.

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European foreword

This document (EN 1366-3:2021) 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of an identical text or by endorsement, at the latest by June 2022, and conflicting national standards shall be withdrawn at the latest by June 2022.

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 document supersedes EN 1366-3:2009.

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

Annexes A to G are normative. Annex H is informative.

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

— *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 floors and hollow core floors*

— *Part 7: Closures for conveyors and track bound transportation systems*

— *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*

— *Part 14: Kitchen extraction ducts*

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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

This part of the EN 1366 series has been prepared to provide a method of test for assessing the contribution of a penetration seal to the fire resistance of separating elements when they have been penetrated by a service or services.

Caution

The attention of all persons concerned with managing and carrying out fire resistance testing is drawn to the fact that fire testing can be hazardous and that there is a possibility that toxic and/or harmful smoke and gases will be emitted during the test. Mechanical and operational hazards might 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 needs to be made and safety precautions need to be identified and provided. Written safety instructions will be given to relevant personnel. Appropriate training should be given to relevant personnel. Laboratory personnel will ensure that they follow written safety instructions at all times.

1 Scope

This part of the EN 1366 series specifies a method of test and criteria for the evaluation (including field of direct application rules) of the ability of a penetration seal to maintain the fire resistance of a separating element at the position at which it has been penetrated by a service or services. Penetration seals used to seal gaps around chimneys, air ventilation systems, fire rated ventilation ducts, fire rated service ducts, shafts and smoke extraction ducts as well as combined penetration seals are excluded from this part of the EN 1366 series.

NOTE EN 15882-5 [6] deals with penetration seals including ducts and dampers.

Supporting constructions are used in this part of the EN 1366 series to represent separating elements such as walls or floors. These simulate the interaction between the test specimen and the separating element into which the sealing system is to be installed in practice.

This part of the EN 1366 series is intended to be used in conjunction with EN 1363-1.

The purpose of a test described in this part of the EN 1366 series is to assess the integrity and insulation performance of the penetration seal, of the penetrating service or services and of the separating element in the surrounding area of the penetration seal.

No information can be implied by the test concerning the influence of the inclusion of such penetrations and penetration seals on the loadbearing capacity of the separating element.

It is assumed that in each case the lintel above a penetration seal in the wall is designed in hot and cold state in a way that it does not apply any additional vertical load on the penetration seal.

It is not the intention of this test 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.

Tests in accordance with this part of the EN 1366 series are not intended to supply any information on the ability of the penetration seal to withstand stress caused by movements or displacements of the penetrating services.

The risk of spread of fire downwards caused by burning material, which drips e.g. through a pipe downwards to floors below, is at present excluded from this document.

Tests in accordance with this part of the EN 1366 series do not address any risks associated with leakage of dangerous liquids or gases caused by failure of pipes in case of fire.

Tests in accordance with this part of the EN 1366 series of pipe penetration seals for pipes of pneumatic dispatch systems, pressurized air systems, etc. simulate a situation where the systems are shut off in case of fire.

Explanatory notes to this test method are given in Annex H.

All values given without tolerances in this document are nominal ones unless otherwise specified.

All pipe diameters are outside diameters unless otherwise specified.

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 338*, Structural timber – Strength classes*

EN 520, *Gypsum plasterboards – Definitions, requirements and test methods*

EN 1329-1, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure – Unplasticized poly(vinyl chloride) (PVC-U) – Part 1: Specifications for pipes, fittings and the system*

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

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

EN 1451-1, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure – Polypropylene (PP) – Part 1: Specifications for pipes, fittings and the system*

EN 1453-1, *Plastics piping systems with structured-wall pipes for soil and waste discharge (low and high temperature) inside buildings – Unplasticized poly(vinyl chloride) (PVC-U) – Part 1: Specifications for pipes and the system*

EN 1455-1, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure – Acrylonitrile-butadiene-styrene (ABS) – Part 1: Requirements for pipes, fittings and the system*

EN 1519-1, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure – Polyethylene (PE) – Part 1: Requirements for pipes, fittings and the system*

EN 1566-1, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure – Chlorinated poly(vinyl chloride) (PVC-C) – Part 1: Specifications for pipes, fittings and the system*

EN 1995-1-2, *Eurocode 5: Design of timber structures – Part 1-2: General – Structural fire design*

EN 10305-4, *Steel tubes for precision applications – Technical delivery conditions – Part 4: Seamless cold drawn tubes for hydraulic and pneumatic power systems*

EN 10305-6, *Steel tubes for precision applications – Technical delivery conditions – Part 6: Welded cold drawn tubes for hydraulic and pneumatic power systems*

EN 12201-1; *Plastics piping systems for water supply, and for drainage and sewerage under pressure – Polyethylene (PE) – Part 1: General*

EN 12201-2, *Plastics piping systems for water supply, and for drainage and sewerage under pressure – Polyethylene (PE) – Part 2: Pipes*

EN 12449, *Copper and copper alloys – Seamless, round tubes for general purposes*

EN 12666-1, *Plastics piping systems for non-pressure underground drainage and sewerage – Polyethylene (PE) – Part 1: Specifications for pipes, fittings and the system*

EN 13381-3, *Test methods for determining the contribution to the fire resistance of structural members – Part 3: Applied protection to concrete members*

EN 13501-1, *Fire classification of construction products and building elements – Part 1: Classification using test data from reaction to fire tests*

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

EN 13600, *Copper and copper alloys – Seamless copper tubes for electrical purposes*

EN 14195, *Metal framing components for gypsum board systems – Definitions, requirements and test methods*

EN 50525-2-31, *Electric cables – Low voltage energy cables of rated voltages up to and including 450/750 V (Uo/U) – Part 2-31: Cables for general applications – Single core non-sheathed cables with thermoplastic PVC insulation*

EN 61386-21, *Conduit systems for cable management – Part 21: Particular requirements – Rigid conduit systems (IEC 61386-21)*

EN ISO 1452-2, *Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure – Unplasticized poly(vinyl chloride) (PVC-U) – Part 2: Pipes (ISO 1452-2)*

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

EN ISO 15493, *Plastics piping systems for industrial applications – Acrylonitrile-butadiene-styrene (ABS), unplasticized poly(vinyl chloride) (PVC-U) and chlorinated poly(vinyl chloride) (PVC-C) – Specifications for components and the system – Metric series (ISO 15493)*

EN ISO 15494, *Plastics piping systems for industrial applications – Polybutene (PB), polyethylene (PE), polyethylene of raised temperature resistance (PE-RT), crosslinked polyethylene (PE-X), polypropylene (PP) – Metric series for specifications for components and the system (ISO 15494)*

EN ISO 15875-2, *Plastics piping systems for hot and cold water installations – Crosslinked polyethylene (PE-X)*

EN ISO 15877-2, *Plastics piping systems for hot and cold water installations – Chlorinated poly(vinyl chloride) (PVC-C)*

HD 603 S1, *Distribution cables of rated voltage 0,6/1 kV*

HD 604 S1, *0,6/1 kV and 1,9/3,3 kV power cables with special fire performance for use in power stations*

ISO 19220, *Plastics piping systems for soil and waste discharge (low and high temperature) inside buildings – Styrene copolymer blends (SAN + PVC)*