

Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware —

Part 3: Smoke control test for door and shutter assemblies

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National foreword

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A list of organizations represented on FSH/22/5 can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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This European Standard was approved by CEN on 15 July 2004.

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Foreword

This document (EN 1634-3:2004) 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of an identical text or by endorsement, at the latest by April 2005, and conflicting national standards shall be withdrawn at the latest by April 2005.

This document has been prepared under mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of the Construction Products Directive.

This document supersedes EN 1634-3:2001.

EN 1634 ‘*Fire resistance tests for door and shutter assemblies*’ consists of the following:

Part 1: *Fire doors and shutters*,

Part 2: *Fire door hardware - Building hardware for fire resisting doorsets and openable windows (in course of preparation)*,

Part 3: *Smoke control doors and shutters*.

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

Caution

The attention of all persons concerned with managing and carrying out this test is drawn to the following. Mechanical and operation hazards may 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 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 EN 1634 specifies a method for determining the leakage of cold and warm smoke from one side of a door assembly to the other under the specified test conditions. The test can be applied to door and shutter assemblies of different types intended for purposes of controlling the passage of smoke in case of fire. This test can also be applied to lift landing doors and conveyor system doors and shutters. The principle of the test is explained briefly in annex A.

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 1363-1:1999, *Fire resistance tests — Part 1: General requirements*

EN 1634-1:2000, *Fire resistance tests for door and shutter assemblies — Part 1: Fire doors and shutters*

EN 13501-2:2003, *Fire classification of construction products and building elements — Part 2: Classification using data from fire resistance tests, excluding ventilation services*

prEN 14600, *Fire resisting and/or smoke control doorsets and operable windows - Requirements and classification*

EN ISO 13943:2000, *Fire safety — Vocabulary (ISO 13943:2000)*

3 Definitions, symbols and designations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1363-1:1999, EN 1634-1:2000 and EN ISO 13943:2000, together with the following, apply:

3.1.1

smoke control door

door assembly which has the function of restricting the passage of smoke, when in a closed position, to prescribed limits

3.1.2

ambient temperature

for the purpose of this standard ambient temperature is an air temperature of $(20 \pm 10) ^\circ\text{C}$

3.1.3

medium temperature

for the purpose of this standard medium temperature is an air temperature of $(200 \pm 20) ^\circ\text{C}$

3.1.4

smoke leakage Sa

ambient temperature smoke leakage classification as defined in 7.5.6.3.1 of EN 13501-2:2003

3.1.5**smoke leakage S_m**

ambient plus medium temperature (200 °C) smoke leakage classification as defined in 7.5.6.3.1 of EN 13501-2:2003

3.1.6**test specimen**

door or shutter assembly on which leakage measurements are to be made. It includes all the components necessary for the use of the door when installed in a building e.g. side panels and over panels

3.1.7**associated construction**

specific form of construction in which the test specimen is mounted which is identical to that into which the door or shutter assembly is designed to be installed in practice. The method of sealing the joint between the test specimen and the associated construction is specific to that construction and forms part of the construction being evaluated by the test

3.1.8**supporting construction**

form of construction with adequate strength and stiffness which is used to support the test specimen and to fill up the difference between the size of the test specimen and the opening in the test frame in an impermeable manner. The seal between the test specimen and the supporting construction should be impermeable and withstand the test temperature and is part of the test. The test frame may be considered to be part of the supporting construction

3.1.9**test specimen leakage rate Q_{spec}**

leakage through the test specimen (3.1.6) and seal between that and the test frame or any supporting/associated construction used

3.1.10**test specimen linear leakage rate Q_l**

leakage rate through the test specimen (3.1.6) and seal between and the test frame or any supporting/associated construction used, excluding any leakage at the threshold, expressed in terms of loss per linear metre of the perimeter bounded by the door frame when excluding the length of the threshold

3.1.11**aspect ratio**

fixed relationship of width divided by height of a four sided constructional component

3.2 Symbols and designation

The symbols and designation listed below define those used in this standard.

Symbol	Unit	Designation
Q	m^3/h	leakage rate
Q_{app}	m^3/h	apparatus leakage rate
$Q_{sup/assoc}$	m^3/h	supporting/associated construction leakage rate
Q_{spec}	m^3/h	test specimen leakage rate
Q_t	m^3/h	total leakage rate
Q_l	$m^3/h/m$	linear leakage rate