BS EN 16034:2014

Incorporating corrigendum October 2014

BSI Standards Publication

Pedestrian doorsets, industrial, commercial, garage doors and openable windows — Product standard, performance characteristics — Fire resisting and/or smoke control characteristics

National foreword

This British Standard is the UK implementation of EN 16034:2014.

Users' attention is drawn to the fact that fabric curtains tested in this standard only apply to the fire door sets fire text. This standard does not cover their operation deployment speeds, initiation devices or warning devices, etc. and as such should comply with BS 8524-1 and BS 8524-2.

The UK participation in its preparation was entrusted to Technical Committee B/538, Doors, windows, shutters, hardware and curtain walling.

A list of organizations represented on this committee 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.

Published by BSI Standards Limited 2014

ISBN 978 0 580 88320 0

ICS 13.220.50; 91.060.50

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 October 2014.

Amendments/corrigenda issued since publication

Date	Text affected
31 October 2014	Additional National Foreword text inserted on National Foreword page

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16034

October 2014

ICS 13.220.50; 91.060.50

English Version

Pedestrian doorsets, industrial, commercial, garage doors and openable windows - Product standard, performance characteristics - Fire resisting and/or smoke control characteristics

Blocs-portes pour piétons, portes et fenêtres industrielles, commerciales et de garage - Norme de produit, caractéristiques de performance - Caractéristiques de résistance au feu et/ou d'étanchéité aux fumées

Türen, Tore und Fenster - Produktnorm, Leistungseigenschaften - Feuer- und/oder Rauchschutzeigenschaften

This European Standard was approved by CEN on 7 August 2014.

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

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Foreword

This document (EN 16034:2014) has been prepared by Technical Committee CEN/TC 33 “Doors, windows, shutters, building hardware and curtain walling”, the secretariat of which is held by AFNOR.

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 2015 and conflicting national standards shall be withdrawn at the latest by October 2019.

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, and supports basic work requirements of Regulation (EU) 305/2011.

For relationship with Regulation (EU) 305/2011, see informative Annex ZA which is an integral part of this document.

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

Introduction

This European Standard is one of a series of standards covering windows and pedestrian doorsets, industrial, commercial and garage doors and gates.

This European Standard covers only fire resisting and/or smoke control characteristics including the ability to release and self-closing, further product characteristics are covered in the relevant harmonized European Product Standards EN 14351-1, prEN 14351-2, EN 13241-1 and EN 16361.

Figure 1 explains the relation between the standards, where the grey lines show the relationship of other harmonized product standards to EN 16034 (requirements additional to fire resistance and smoke control characteristics) and the black lines explain the relationship to fire resistance and smoke control test, classification and extended application of test results standards.

For the purposes of this European Standard the term ‘doorset’ and ‘openable window’ is used as a general term unless clearly stated.

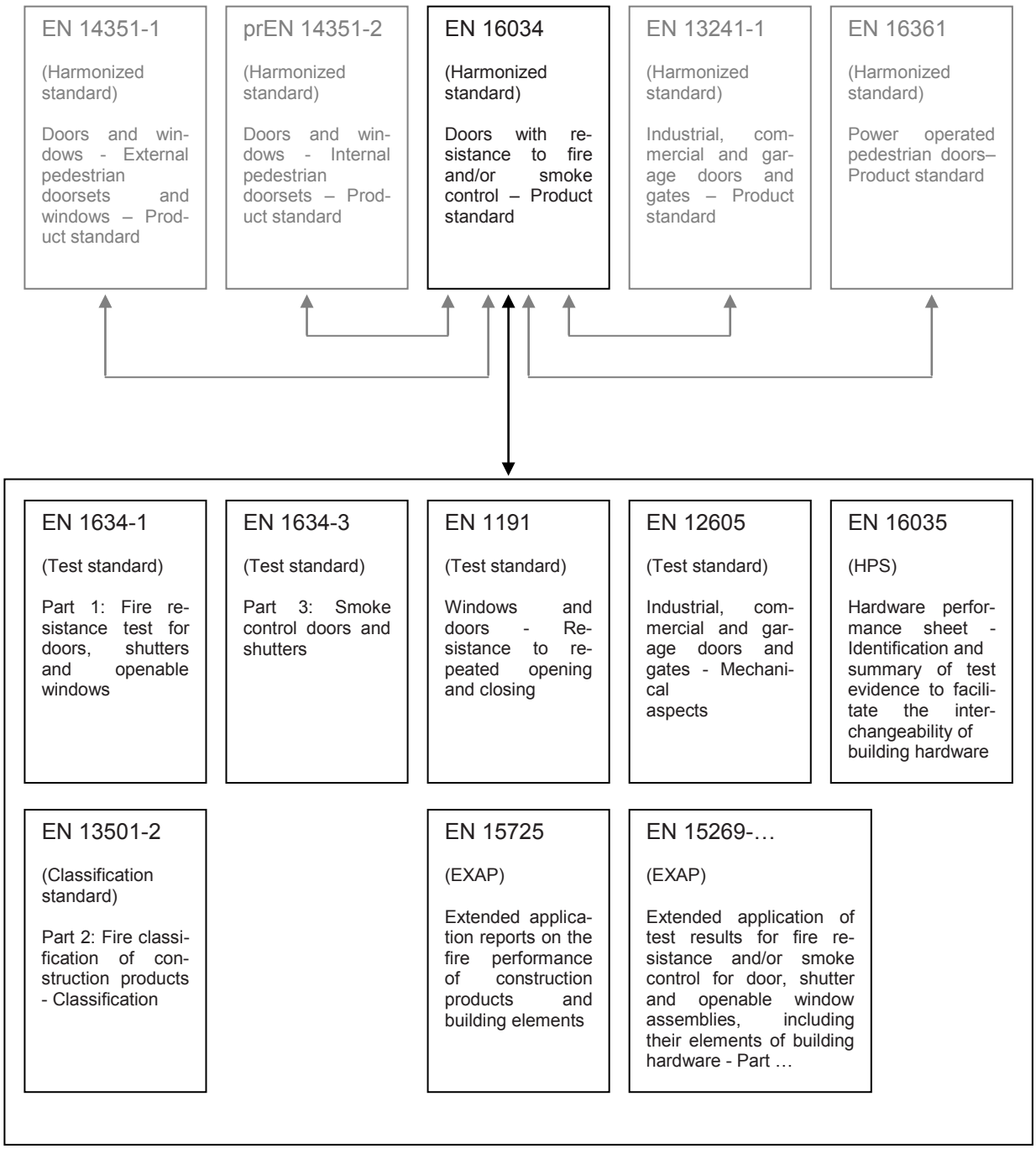

Figure 1 — Relationship between various standards

1 Scope

1.1 General

This European Standard identifies material independent, safety and performance requirements applicable to all fire resisting and/or smoke control products intended to be used in fire and/or smoke compartmentation and/or escape routes, which are either:

— industrial, commercial and/or garage doorsets, rolling shutters or operable fabric curtains intended for the installation in areas in the reach of persons and for which the main intended uses are giving safe access for goods and vehicles accompanied or driven by persons, or

— rolling shutters or operable fabric curtains used in retail premises which are mainly provided for the access of persons rather than vehicles or goods, or

— pedestrian doorsets and/or openable windows and/or inspection hatches which are hinged or sliding, intended for the installation in areas in the reach of persons, and for which the main intended uses are giving safe access for persons

and which are manually or power operated and:

— opening and self closing as a normal mode of operation, or

— normally held open but self closing in case of fire or smoke, or

— normally maintained locked in the closed position (e. g. service access/inspection doorsets),

and completed:

— with building hardware,

— with or without any side panel(s), flush over panel(s) and/or transom panel(s) (with or without glazing) and contained within a single perimeter frame for inclusion in a single aperture,

— with or without any vision panel(s) in the door leaf or leave(s),

— with or without any seals (e.g. for smoke control, fire resistance, draught, acoustic or weather characteristics).

Product characteristics covered in EN 13241-1, EN 14351-1, prEN 14351-2 or EN 16361 will not compromise the fire resistance and/or smoke control characteristics of a fire resisting and/or smoke control product.

NOTE 1 Requirements included in EN 14351-1, prEN 14351-2, EN 13241-1 or EN 16361 might be relevant for the products covered by this standard.

This standard also provides indications on the product modifications not affecting the performances of the concerned products.

NOTE 2 The requirements and rules for variations (regarding the direct and extended field of applications) of fire resistance and/or smoke control doorsets are given in the EN 15269 series and EN 1634-1 and EN 1634-3, supported by, e.g. EN 16035.

1.2 Exclusions

This European Standard does not cover:

— fixed windows, glazed side panels and/or overpanels, which are not an integral part of a doorset and/or openable window;

— door assemblies produced with components from several sources where there is no single identified manufacturer or legal entity who will take responsibility for them;

— operation in environments where the electromagnetic disturbances are outside the range of those specified in EN 61000-6-3;

— radio operating devices fitted to doorsets and/or openable windows; where such items are fitted, the relevant ETSI standards should be applied in addition.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 179:2008, *Building hardware — Emergency exit devices operated by a lever handle or push pad, for use on escape routes — Requirements and test methods*

EN 1125:2008, *Building hardware — Panic exit devices operated by a horizontal bar, for use on escape routes — Requirements and test methods*

EN 1154:1996[1)], *Building hardware — Controlled door closing devices — Requirements and test methods*

EN 1155:1997[2], *Building hardware — Electrically powered hold-open devices for swing doors — Requirements and test methods*[)]

EN 1158:1997[3)], *Building hardware — Door coordinator devices — Requirements and test methods*

EN 1191, *Windows and doors — Resistance to repeated opening and closing — Test method*

EN 1634–1:2014, *Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware — Part 1: Fire resistance test for door and shutter assemblies and openable windows*

EN 1634-3:2004, *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*

EN 1670, *Building hardware — Corrosion resistance — Requirements and test methods*

EN 1935:2002, *Building hardware — Single-axis hinges — Requirements and test methods*

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1) This document is impacted by the stand-alone amendment EN 1154:1996/A1:2002.

2) This document is impacted by the stand-alone amendment EN 1155:1997/A1:2002.

3) This document is impacted by the stand-alone amendment EN 1158:1997/A1:2002.

EN 12209:2003, *Building hardware — Locks and latches — Mechanically operated locks, latches and locking plates — Requirements and test methods*

EN 12605, *Industrial, commercial and garage doors and gates — Mechanical aspects — Test methods*

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

EN 13637, *Building hardware — Electrically controlled exit systems for use on escape routes — Requirements and test methods*[4)]

EN 14637, *Building hardware — Electrically controlled hold-open systems for fire/smoke door assemblies — Requirements, test methods, application and maintenance*

EN 14846:2008, *Building hardware — Locks and latches — Electromechanically operated locks and striking plates — Requirements and test methods*

EN 15685, *Building hardware — Requirements and test methods — Multipoint locks, latches and locking plates*[4)]

EN 15887, *Building hardware — Uncontrolled Door Closing Devices for single action doors — Requirements and test methods*[4)]

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
doorset
pedestrian doorset, industrial, commercial and/or garage doorset, rolling shutter and/or operable fabric curtains including any frame or guide, door leaf or leaves, rolling or folding curtain, etc., which is provided to give a fire resisting and/or smoke control capability when used for the closing of permanent openings in fire resisting separating elements, including any side panel(s), vision panel(s), flush over panel(s), transom panel(s) and/or glazing together with the building hardware and any seals (whether provided for the purpose of fire resistance or smoke control) which form the assembly and fulfilling the provisions of this European Standard

3.2
openable window
window with one or more moveable elements including any fixed or removable side or overpanel(s), perimeter frame and relevant elements of building hardware

3.3
operable fabric curtain
doorset with a leaf constructed from woven material combined with other materials in one or more sections including any frames and/or guides which functions as a rolling shutter

3.4
self-closing
ability of an open doorset and/or openable window to close fully into its frame and engage any latching device that may be fitted, without human intervention, by stored energy, or by mains power backed up by stored energy in case of power failure

4) To be published.

3.5
ability to release
release of the hold-open device of a doorset and/or openable window to ensure reliable closing of the doorset and/or openable window from a defined position

3.6
friable material
any material which could crumble, slump, drop or shake down during the normal life of a doorset as, e.g. loose infill mineral fibre, loose materials filled in or blown in the door leaf and gypsum boards

Note 1 to entry: Gypsum plasterboards, mineral fibre boards with adhesive binder and silicate fibre boards are not considered to be friable.

4 Products characteristics

4.1 Resistance to fire (for fire compartmentation uses)

The capability of the products covered by this standard to provide “integrity” (E), “integrity and insulation” (EI_1, EI_2) or “integrity and radiation” (EW) for a certain period of time in the event of fire is tested according to 5.1 and results are classified according to EN 13501-2.

4.2 Smoke control (only for applications where limitation of smoke spread is required)

The capability of the products covered by this standard to prevent smoke leakage at medium temperature (S_{200}) or smoke leakage at ambient temperature (S_a) in the event of smoke is tested according to 5.2 and results are classified according to EN 13501-2.

4.3 Ability to release

In order to release the products covered by this standard and enable the reliable closing of a doorset and/or openable window in the event of fire and/or smoke or failure of the power supply the hold-open device shall be tested according to 5.3 and test results shall be expressed as “released”.

4.4 Self-closing (only for self-closing fire resistant and/or smoke control doorsets and/or openable windows)

Self-closing (C) is the ability of an open doorset and/or openable window to close fully into its frame and engage any latching device that may be fitted without human intervention, e.g. by stored energy, or by mains power backed up by stored energy in case of power failure and is verified according to A.2.2. Results are classified according to EN 13501-2 and expressed by “C” and may be completed with a digit of 0 to 5 according to the use categories determined by the number of cycles performed (see 4.5.2.1).

4.5 Durability

4.5.1 Durability of the ability to release

The durability of ability to release is verified according to 5.4.1 and the result is expressed as “release maintained”.

4.5.2 Durability of self-closing (only for self closing doorsets and/or openable windows)

4.5.2.1 Durability of self-closing against degradation (cycling testing)

The durability of self-closing against degradation is ensured by cycling testing according to 5.4.2.

The results shall be expressed according to the use categories indicated in Table 1.

Table 1 — Use categories, number of test cycles to be performed in order to assign a use category to the self-closing class

Use category	Cycles
5	≥ 200 000
4	≥ 100 000
3	≥ 50 000
2	≥ 10 000
1	≥ 500
0	1 to 499

4.5.2.2 Durability of self-closing against ageing (corrosion)

The durability of self-closing is considered to be achieved if the building hardware used in the doorset and/or openable windows complies with the relevant clauses of the building hardware product standards as listed in Table 2 except in cases where the hardware is classified by these standards as not corrosion resistant. Building hardware not covered by product standards listed in Table 2 shall show their compliance to EN 1670.

The durability of self-closing against ageing (corrosion) of the doorset and/or openable window shall be expressed as “achieved”.

Table 2 — Relevant EN standards for building hardware

Product Group		Relevant European Standard	Clauses of the European Standards covering the essential characteristic "Durability of self-closing"	
Single axis hinges		EN 1935:2002	5.4, 5.5, 5.8	
Controlled door closing devices		EN 1154:1996 [a]	5.2.2, 5.2.17.1, 5.2.17.2	
Electrically powered hold-open devices	electrically powered hold-open devices incorporated in a door close	EN 1155:1997 [b]	EN 1154:1996 [a]	5.2.2, 5.2.17.1, 5.2.17.2
	separate electrically powered hold-open devices		EN 1155:1997 [b]	5.2.4, 5.2.14.1 5.2.14.2
Door coordinating devices	for separate door coordinator devices	EN 1158:1997 [c]	5.2.5, 5.2.7.1, 5.2.7.2	
	for door coordinator devices incorporated in door closers		EN 1154:1996 [a]	5.2.2, 5.2.17.1, 5.2.17.2
	for door coordinator devices with electrically powered hold-open devices incorporated in a door closer		EN 1155:1997 [b]	5.2.4, 5.2.14.1, 5.2.14.2
Mechanical locks and latches		EN 12209:2003	5.3.1	
Emergency exit devices		EN 179:2008	4.2.1	
Panic exit devices		EN 1125:2008	4.2.1	
Uncontrolled door closing devices for single action doors		EN 15887 [d]	4.2.2, 4.2.8.2, 4.2.10, 4.2.11, 4.2.12, 4.2.13, 4.2.14	
Electromechanically operated lochs and striking plates		EN 14846:2008	5.3.2	
Electrically controlled exit systems		EN 13637 [d]	4.7	
Multipoint locks, latches and locking plates		EN 15685 [d]	4.3.1; 4.7.1	

[a] This document is impacted by the stand-alone amendment EN 1154:1996/A1:2002.
[b] This document is impacted by the stand-alone amendment EN 1155:1997/A1:2002.
[c] This document is impacted by the stand-alone amendment EN 1158:1997/A1:2002.
[d] To be published.

5 Testing, assessment and sampling methods

5.1 Resistance to fire (for fire compartmentation uses)

Following pre-test conditioning according to A.2, the fire resistance shall be determined by testing according to EN 1634-1.

5.2 Smoke control (only for applications where limitation of smoke spread is required)

Following pre-test conditioning according to A.3 the smoke control characteristic shall be determined by testing according to EN 1634-3.

5.3 Ability to release

The ability to release test shall be undertaken on one sample which is submitted to fire resistance testing according to EN 1634-1 or smoke control testing according to EN 1634-3.

The ability to release shall be verified by simulating a fire signal (e.g. cut off mains power) three consecutive times.

5.4 Durability

5.4.1 Durability of the ability to release

The durability of the ability to release is satisfied if the electrically powered hold open device complies with EN 1155 or EN 14637.

5.4.2 Durability of self closing (only for self closing doorsets and/or openable windows) — Durability of self closing against degradation (cycling testing)

The test methods for cycling testing are given in EN 1191 (for pedestrian doorsets and/ or openable windows and EN 12605 (for industrial, commercial and/or garage doorsets).

6 Assessment and verification of constancy of performance - AVCP

6.1 General

The compliance of fire resisting and/or smoke control doorsets and/or openable windows with the requirements of this standard and with the performances declared by the manufacturer in the DoP shall be demonstrated by:

— determination of the product type;

— factory production control by the manufacturer, including product assessment.

The manufacturer shall always retain the overall control and shall have the necessary means to take responsibility for the conformity of the product with its declared performance(s).

6.2 Type testing

6.2.1 General

All performances related to characteristics included in this standard shall be determined when the manufacturer intends to declare the respective performances unless the standard gives provisions for

declaring them without performing tests. (e.g. use of previously existing data, Classification Without Further Testing (CWFT) and conventionally accepted performance).

Assessment previously performed in accordance with the provisions of this standard, may be taken into account provided that they were made to the same or a more rigorous test method, under the same AVCP system on the same product or products of similar design, construction and functionality, such that the results are applicable to the product in question.

NOTE Same AVCP system means testing by an independent third party under the responsibility of a notified product certification body.

For the purposes of assessment, the manufacturer's products may be grouped into families, where it is considered that the results for one or more characteristics from any one product within the family are representative for those same characteristics for all products within that same family

Products may be grouped in different families for different characteristics.

Reference to the assessment method standards should be made to allow the selection of a suitable representative sample(s).

In addition, the determination of the product type shall be performed for all characteristics included in the standard for which the manufacturer declares the performance:

— at the beginning of the production of a new or modified fire resisting and/or smoke control doorsets and/or openable windows (unless a member of the same product range), or

— at the beginning of a new or modified method of production (where this may affect the stated properties),

or

they shall be repeated for the appropriate characteristic(s), whenever a change occurs in the fire resisting and/or smoke control doorsets and /or openable windows design, in the raw material or in the supplier of the components, or in the method of production (subject to the definition of a family), which would affect significantly one or more of the characteristics.

Where components are used whose characteristics have already been determined, by the component manufacturer, on the basis of assessment methods of other product standards, these characteristics need not be re-assessed. The specifications of these components shall be documented.

Products bearing regulatory marking in accordance with appropriate harmonized European specifications may be presumed to have the performances declared in the DoP, although this does not replace the responsibility on the fire resisting and/or smoke control doorset and /or openable window manufacturer to ensure that the fire resisting and/or smoke control doorsets and /or openable windows as a whole is correctly manufactured and have the declared performance values.

6.2.2 Test samples, testing and compliance criteria

The number of samples of fire resisting and/or smoke control doorsets and /or openable windows to be tested/assessed shall be in accordance with Table 3.

Table 3 — Number of samples to be tested and compliance criteria

Characteristic	Product Characteristic	Assessment method	No. of samples	Compliance criteria
Resistance to fire	4.1	5.1	EN 1634-1:2014, 6.3	4.1
Smoke control	4.2	5.2	EN 1634-3:2004, 6.2	4.2
Ability to release	4.3	5.3	1	4.3
Self-closing	4.4	Annex A, A.2.2	1	4.4
Durability of ability to release	4.5.1	5.4.1	1	4.5.1
Durability of self-closing against degradation	4.5.2.1	5.4.2	1	4.5.2.1
Durability of self-closing against ageing	4.5.2.2	4.5.2.2	1	4.5.2.2

6.2.3 Test reports

The results of the determination of the product type shall be documented in test reports. All test reports shall be retained by the manufacturer for at least 10 years after the last date of production of the fire resisting and/or smoke control doorsets and /or openable windows to which they relate.

6.2.4 Cascading determination of the product type results

For some construction products, there are companies (often called “system houses”) which supply or ensure the supply of, on the basis of an agreement[5)], some or all of the components (e.g. in case of windows: profiles, gaskets, weather strips)[6)] to an assembler who then manufactures the finished product (referred to below as the “assembler”) in his factory.

Provided that the activities for which such a system house is legally established include manufacturing/assembling of products as the assembled one, the system house may take the responsibility for the determination of the product type regarding one or several essential characteristics of an end product which is subsequently manufactured and/or assembled by other firms in their own factory.

When doing so, the system house shall submit an “assembled product” using components manufactured by it or by others, to the determination of the product type and then make the determination of the product type report available to the assemblers, i.e. the actual manufacturer of the product placed on the market.

To take into account such a situation, the concept of cascading determination of the product type might be taken into consideration in the technical specification, provided that this concerns characteristics for which either a notified product certification body or a notified test laboratory intervene, as presented below.

The determination of the product type report that the system house has obtained with regard to tests carried out by a notified body, and which is supplied to the assemblers, may be used for the regulatory marking

5) The formulation of such an agreement can be done by licence, contract, or any other type of written consent and should contain clear provisions with regard to responsibility and liability of the component producer (system house), on the one hand, and the assembler of the finished product, on the other hand.

6) These companies may produce components but they are not required to do so.

purposes without the assembler having to involve again a notified body to undertake the determination of the product type of the essential characteristic(s) that were already tested, provided that:

— the assembler manufactures a product which uses the same combination of components (components with the same characteristics), and in the same way, as that for which the system house has obtained the determination of the product type report; if this report is based on a combination of components not representing the final product as to be placed on the market, and/or is not assembled in accordance with the system house's instruction for assembling the components, the assembler needs to submit his finished product to the determination of the product type;

— the system house has notified to the manufacturer the instructions for manufacturing/assembling the product and installation guidance;

— the assembler (manufacturer) assumes the responsibility for the correct assembly of the product in accordance with the instructions for manufacturing/assembling the product and installation guidance notified to him by the system house;

— the instructions for manufacturing/assembling the product and installation guidance notified to the assembler (manufacturer) by the system house are an integral part of the assembler's Factory Production Control system and are referred to in the determination of the product type report;

— the assembler is able to provide documented evidence that the combination of components he is using, and his way of manufacturing, correspond to the one for which the system house has obtained the determination of the product type report (he needs to keep a copy of the system house's determination of the product type report);

— regardless the possibility of referring, on the basis of the agreement signed with the system house, to the latter's responsibility and liability under private law, the assembler remains responsible for the product being in compliance with the declared performances, including both the design and the manufacture of the product, which is given when he affixes the regulatory marking on his product.

6.3 Factory production control (FPC)

6.3.1 General

The manufacturer shall establish, document and maintain an FPC system to ensure that the products placed on the market comply with the declared performance of the essential characteristics.

The FPC system shall consist of procedures, regular inspections and tests and/or assessments and the use of the results to control raw and other incoming materials or components, equipment, the production process and the product.

All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures.

This factory production control system documentation shall ensure a common understanding of the evaluation of the constancy of performance and enable the achievement of the required product performances and the effective operation of the production control system to be checked. Factory production control therefore brings together operational techniques and all measures allowing maintenance and control of the compliance of the product with the declared performances of the essential characteristics.

In case the manufacturer has used shared or cascading product type results, the FPC shall also include the appropriate documentation as foreseen in 6.3.4 and 6.3.5.

6.3.2 Requirements

6.3.2.1 General

The manufacturer is responsible for organizing the effective implementation of the FPC system in line with the content of this product standard. Tasks and responsibilities in the production control organization shall be documented and this documentation shall be kept up-to-date.

The responsibility, authority and the relationship between personnel that manages, performs or verifies work affecting product constancy, shall be defined. This applies in particular to personnel that need to initiate actions preventing product non-constancies from occurring, actions in case of non-constancies and to identify and register product constancy problems.

Personnel performing work affecting the constancy of performance of the product shall be competent on the basis of appropriate education, training, skills and experience for which records shall be maintained.

In each factory the manufacturer may delegate the action to a person having the necessary authority to:

— identify procedures to demonstrate constancy of performance of the product at appropriate stages;

— identify and record any instance of non-constancy;

— identify procedures to correct instances of non-constancy.

The manufacturer shall draw up and keep up-to-date documents defining the factory production control. The manufacturer's documentation and procedures should be appropriate to the product and manufacturing process. The FPC system should achieve an appropriate level of confidence in the constancy of performance of the product. This involves:

a) the preparation of documented procedures and instructions relating to factory production control operations, in accordance with the requirements of the technical specification to which reference is made;

b) the effective implementation of these procedures and instructions;

c) the recording of these operations and their results;

d) the use of these results to correct any deviations, repair the effects of such deviations, treat any resulting instances of non-conformity and, if necessary, revise the FPC to rectify the cause of non-constancy of performance.

Where subcontracting takes place, the manufacturer shall retain the overall control of the product and ensure that he receives all the information that is necessary to fulfill his responsibilities according to this European Standard.

If the manufacturer has part of the product designed, manufactured, assembled, packed, processed and/or labelled by subcontracting, the FPC of the subcontractor may be taken into account, where appropriate for the product in question.

The manufacturer who subcontracts all of his activities may in no circumstances pass the above responsibilities on to a subcontractor.

NOTE Manufacturers having an FPC system which complies with EN ISO 9001 standard and which addresses the provisions of the present European Standard are considered as satisfying the FPC requirements of the Regulation (EU) No 305/2011.

6.3.2.2 Equipment

6.3.2.2.1 Testing

All weighing, measuring and testing equipment shall be calibrated and regularly inspected according to documented procedures, frequencies and criteria.

6.3.2.2.2 Manufacturing

All equipment used in the manufacturing process shall be regularly inspected and maintained to ensure use, wear or failure does not cause inconsistency in the manufacturing process. Inspections and maintenance shall be carried out and recorded in accordance with the manufacturer's written procedures and the records retained for the period defined in the manufacturer's FPC procedures.

6.3.2.3 Raw materials and components

The specifications of all incoming raw materials and components shall be documented, as shall the inspection scheme for ensuring their compliance. In case supplied kit components are used, the constancy of performance system of the component shall be that given in the appropriate harmonized technical specification for that component.

6.3.2.4 Traceability and marking

Individual fire resisting and/or smoke control doorsets and/or openable windows shall be identifiable and traceable with regard to their production origin. The manufacturer shall have written procedures ensuring that processes related to affixing traceability codes and/or markings are inspected regularly.

6.3.2.5 Controls during manufacturing process

The manufacturer shall plan and carry out production under controlled conditions.

6.3.2.6 Product testing and evaluation

The manufacturer shall establish procedures to ensure that the stated values of the characteristics he or she declares are maintained. The characteristics, and the means of control, are those included in Clause 4 and Clause 5.

6.3.2.7 Non-complying products

The manufacturer shall have written procedures which specify how non-complying products shall be dealt with. Any such events shall be recorded as they occur and these records shall be kept for the period defined in the manufacturer's written procedures.

Where the product fails to satisfy the acceptance criteria, the provisions for non-complying products shall apply, the necessary corrective action(s) shall immediately be taken and the products or batches not complying shall be isolated and properly identified.

Once the fault has been corrected, the test or verification in question shall be repeated.

The results of controls and tests shall be properly recorded. The product description, date of manufacture, test method adopted, test results and acceptance criteria shall be entered in the records under the signature of the person responsible for the control/test.

With regard to any control result not meeting the requirements of this European Standard, the corrective measures taken to rectify the situation (e.g. a further test carried out, modification of manufacturing process, throwing away or putting right of product) shall be indicated in the records.

6.3.2.8 Corrective action

The manufacturer shall have documented procedures that instigate action to eliminate the cause of non-conformities in order to prevent recurrence.

6.3.2.9 Handling, storage and packaging

The manufacturer shall have procedures providing methods of product handling and shall provide suitable storage areas preventing damage or deterioration.

6.3.3 Product specific requirements

The FPC system shall address this European Standard and ensure that the products placed on the market comply with the declaration of performance.

The FPC system shall include a product specific FPC, which identifies procedures to demonstrate compliance of the product at appropriate stages, i.e.:

a) the controls and tests to be carried out prior to and/or during manufacture according to a frequency laid down in the FPC test plan; and/or

b) the verifications and tests to be carried out on finished products according to a frequency laid down in the FPC test plan.

If the manufacturer uses only finished products, the operations under b) shall lead to an equivalent level of compliance of the product as if FPC had been carried out during the production.

If the manufacturer carries out parts of the production himself, the operations under b) may be reduced and partly replaced by operations under a). Generally, the more parts of the production that are carried out by the manufacturer, the more operations under b) may be replaced by operations under a).

In any case the operation shall lead to an equivalent level of compliance of the product as if FPC had been carried out during the production.

NOTE Depending on the specific case, it can be necessary to carry out the operations referred to under a) and b), only the operations under a) or only those under b).

The operations under a) refer to the intermediate states of the product as on manufacturing machines and their adjustment, and measuring equipment, etc. These controls and tests and their frequency shall be chosen based on product type and composition, the manufacturing process and its complexity, the sensitivity of product features to variations in manufacturing parameters, etc.

The manufacturer shall establish and maintain records that provide evidence that the production has been sampled and tested. These records shall show clearly whether the production has satisfied the defined acceptance criteria and shall be available for at least three years.

6.3.4 Initial inspection of factory and of FPC

Initial inspection of factory and of FPC shall be carried out when the production process has been finalized and in operation. The factory and FPC documentation shall be assessed to verify that the requirements of 6.3.2 and 6.3.3 are fulfilled.

During the inspection it shall be verified:

a) that all resources necessary for the achievement of the product characteristics included in this European Standard are in place and correctly implemented, and

b) that the FPC-procedures in accordance with the FPC documentation are followed in practice, and

c) that the product complies with the product type samples, for which compliance of the product performance to the DoP has been verified.

All locations where final assembly or at least final testing of the relevant product is performed, shall be assessed to verify that the above conditions a) to c) are in place and implemented. If the FPC system covers more than one product, production line or production process, and it is verified that the general requirements are fulfilled when assessing one product, production line or production process, then the assessment of the general requirements does not need to be repeated when assessing the FPC for another product, production line or production process.

All assessments and their results shall be documented in the initial inspection report.

6.3.5 Continuous surveillance of FPC

Surveillance of the FPC shall be undertaken once per year. The surveillance of the FPC shall include a review of the FPC test plan(s) and production processes(s) for each product to determine if any changes have been made since the last assessment or surveillance. The significance of any changes shall be assessed.

Checks shall be made to ensure that the test plans are still correctly implemented and that the production equipment is still correctly maintained and calibrated at appropriate time intervals.

The records of tests and measurement made during the production process and to finished products shall be reviewed to ensure that the values obtained still correspond with those values for the samples submitted to the determination of the product type and that the correct actions have been taken for non-compliant products.

6.3.6 Procedure for modifications

If modifications are made to the product, production process or FPC system that could affect any of the product characteristics declared according to this standard, then all the characteristics for which the manufacturer declares performance, which may be affected by the modification, shall be subject to the determination of the product type, as described in 6.2.

Where relevant, a re-assessment of the factory and of the FPC system shall be performed for those aspects, which may be affected by the modification.

All assessments and their results shall be documented in a report.

7 Marking, labelling and packaging

Each doorset and/or openable window shall be provided with a fixed and easily readable label or marking giving at least the following information:

— manufacturer (name or contact details, e.g. code or address);

— type and/or name of the product;

— series number or unique reference number of the product;

— fire resistance, smoke control and/or self-closing classification.

Where regulatory marking provisions require information on some or all items listed in this clause the provisions of this clause concerning those common items are deemed to be met.

Annex A
(normative)

Pre-test conditioning

A.1 General

Pre-test conditioning shall be undertaken before carrying out the resistance to fire and/or smoke control test.

A.2 Before the resistance to fire test

A.2.1 General

The following checks shall be undertaken on the sample to be submitted to the resistance to fire test. Evidence of completion of the tests shall be recorded in the EN 1634-1 test report.

A.2.2 Operability test

The sample to be fire tested shall be checked for operability in the fire restraint frame prior to being mounted on the test furnace by operating:

— from fully closed to the maximum possible opening and at least 90° (in the case of hinged or pivoted doorsets and/or openable windows), or

— from fully closed to maximum movement (in case of vertical or horizontal sliding or rolling doorsets) or where this is not possible due to furnace or product size restrictions (for example large sliding doors) a minimum movement of 300 mm per cycle is necessary,

and back to fully closed for 25 cycles.

This opening and closing operation shall be manual unless the doorset is fitted with a self-closing device, in which case, this device shall perform the closing function.

Where a self-closing device is fitted one additional operation is performed under the opening conditions described in A.4.1 or A.4.2 as appropriate.

Where a shakedown conditioning test is to be performed, the operability test shall be carried out afterwards.

A.2.3 Shakedown conditioning

Where friable materials are incorporated, the sample shall be subjected to 5 000 cycles of operation as follows:

— for manually operated pedestrian doorsets the method used shall be as described in EN 1191 and for industrial, commercial and/or garage doorsets as described in EN 12605, but with a 50 % increase over the reference velocity specified in those standards;

— for power operated doorsets, operation shall be by the power operating system at its maximum operating speed.

This conditioning shall be carried out with any lock/latch bolt(s) being held in the withdrawn position.

A.3 Before the smoke control test

A.3.1 General

The following checks shall be undertaken on the sample to be submitted to the smoke control test.

Evidence of completion of the tests shall be recorded in the EN 1634-3 test report.

A.3.2 Operability test

The sample to be smoke tested shall be checked for operability in the test frame prior to being mounted on the test chamber by operating:

— from fully closed to the maximum possible opening and at least 90° (in the case of hinged or pivoted doorsets and / or openable windows), or

— from fully closed to maximum movement (in case of vertical or horizontal sliding or rolling doorsets) or where this is not possible due to test chamber or product size restrictions (for example large sliding doors) a minimum movement of 300 mm per cycle is necessary,

and back to fully closed for 25 cycles.

This opening and closing operation shall be manual unless the doorset is fitted with a self-closing device, in which case, this device shall perform the closing function.

Where a self-closing device is fitted one additional operation is performed under the opening conditions described in A.4.1 or A.4.2 as appropriate.

A.4 Self-closing test

A.4.1 Self-closing for doorsets or openable windows without coordinating devices

For single leaf hinged or pivoted doorsets and/or openable windows the sample is opened to 10° ± 2° (for controlled closing devices) or 30° ± 2° (for uncontrolled closing devices) and held for 20 s ± 2 s, released without shock and allowed to close at a maximum mean average speed of 300 mm/s to ensure that their closed position is achieved.

Other products are opened to 300 mm, held for 20 s ± 2 s, released without shock and allowed to close. For these products the maximum mean average speed shall be 300 mm/s except those with a vertical opening/closing movement where the maximum mean average speed shall be 150 mm/s.

A.4.2 Self-closing for samples fitted with door coordinating devices

For double leaf hinged or pivoted doorsets and/or openable windows the active leaf of the sample is opened to 10° ± 2° (controlled closing devices) or 30° ± 2° (uncontrolled closing devices) and held for 20 s ± 2 s, released without shock and allowed to close at a maximum mean average speed of 300 mm/s to ensure that their closed position is achieved.

Following this, both leaves shall be opened together by operating the inactive leaf only to an angle of not more than 10° ± 2° (30° ± 2° when uncontrolled door closers are incorporated as a closing device for self-closing) (in case of pedestrian doorsets) or to 300 mm (in case of industrial, commercial and/or garage doorsets) beyond the minimum waiting position of the coordinating device.

The inactive leaf shall be held for 20 s ± 2 s and then released without shock and allowed to close at the maximum mean speed of 300 mm/s to ensure that the closed position is achieved.

For doorsets where the inactive leaf can be opened only after the active leaf is partly opened to unlock the inactive leaf, the active leaf may be opened first beyond the minimum waiting position of the co-ordinating device.

Annex B
(informative)

Installation provisions

The manufacturer should provide adequate instructions for the installation of the product.

Annex ZA
(informative)

Clauses of this European Standard addressing the provisions of the EU Construction Products Regulation

ZA.1 Scope and relevant characteristics

This European Standard has been prepared under Mandate M/101 “External and internal doors and windows, roof openings and roof lights (including fire doors and shutters)” given to CEN by the European Commission and the European Free Trade Association.

If this European Standard is cited in the Official Journal of the European Union (OJEU), the clauses of this standard, shown in this annex, are considered to meet the provisions of the relevant mandate, under the Regulation (EU) No. 305/2011.

This annex deals with the CE marking of the fire resisting and/or smoke control doorsets and/or openable windows intended for the uses indicated in Table ZA.1 and shows the relevant clauses applicable.

This annex has the same scope as in Clause 1 of this standard related to the aspects covered by the mandate and is defined by Table ZA.1

Table ZA.1 — Relevant clauses for fire resisting and/or smoke control doorsets and/or openable windows products and intended to be used in fire and/or smoke compartmentation and/or escape routes

Product: fire resisting and/or smoke control doorsets and/or openable windows **Intended use:** fire and/or smoke compartmentation and/or escape routes			
Essential Characteristics	**Subclauses in this and other European Standard(s) related to essential characteristics**	**Regulatory classes**	**Notes**
Resistance to fire (for fire compartmentation uses)	4.1		class
Smoke control (only for applications where limitation of smoke spread is required)	4.2		class
Ability to release	4.3		description
Self-closing (only for self-closing fire resistant and/or smoke control doorsets and /or openable windows)	4.4		class
Durability of ability to release	4.5.1		description
Durability of self-closing (only for self-closing fire resistant and/or smoke control doorsets and /or openable windows)			
- against degradation (cycling testing)	4.5.2.1		class
- against ageing (corrosion)	4.5.2.2		description

The declaration of the product performance related to certain essential characteristics is not required in those Member States (MS) where there are no regulatory requirements on these essential characteristics for the intended use of the product.

In this case, manufacturers placing their products on the market of these MS are not obliged to determine nor declare the performance of their products with regard to these essential characteristics and the option “No performance determined” (NPD) in the information accompanying the CE marking and in the declaration of performance (see ZA.3) may be used for those essential characteristics.

ZA.2 Procedure for AVCP of fire resisting and/or smoke control doorsets and /or openable windows

ZA.2.1 System(s) of AVCP

The AVCP system(s) of fire resisting and/or smoke control doorsets and /or openable windows indicated in Table ZA.1 established by EC Decision 1999/93/EU (OJEU L29, 1999-02-03) amended by EC Decision 2011/246/EU (OJEU L103, 2011-04-18) is shown in Table ZA.2 for the indicated intended use(s) and relevant level(s) or class(es) of performance.

Table ZA.2 — System(s) of AVCP

Product(s)	Intended use(s)	Level(s) or class(es) of performance	AVCP system(s)
Doors and gates (with or without related hardware) Windows (with or without related hardware)	fire/smoke compartmentation and on escape routes	-	1
System 1: See Regulation (EU) No. 305/2011 (CPR) Annex V, 1.2.			

The AVCP of the fire resisting and/or smoke control doorsets and/or openable windows in Table ZA.1 shall be according to the AVCP procedures indicated in Table ZA.3 resulting from application of the clauses of this or other European Standard indicated therein. The content of tasks of the notified body shall be limited to those essential characteristics as provided for, if any, in Annex III of the relevant mandate and to those that the manufacturer intends to declare.

Table ZA.3 — Assignment of AVCP tasks for fire resisting and/or smoke control doorsets and /or openable windows under system 1

Tasks		Content of the task	AVCP to apply
Tasks for the manufacturer	Factory production control (FPC)	Parameters related to essential characteristic of Table ZA.1 relevant for the intended use which are declared	6.3
	Further testing of samples taken at factory according to the prescribed test plan	Essential characteristic of Table ZA.1 relevant for the intended use which are declared	6.2
Tasks for the notified product certification body	Determination of the product type on the basis of type testing (including sampling), type calculation, tabulated values or descriptive documentation of the product	Essential characteristics of Table ZA.1, relevant for the intended use: - Resistance to fire E, I - Smoke leakage S - Ability to release (only for the related hardware) - Self closing C	6.2
	Initial inspection of manufacturing plant and of FPC	Parameters related to essential characteristics of Table ZA.1, relevant for the intended use which are declared, namely: - Resistance to fire E, I - Smoke leakage S - Ability to release (only for the related hardware) - Self closing C Documentation of the FPC.	6.3.4
	Continuous surveillance, assessment and evaluation of FPC	Parameters related to essential characteristics of Table ZA.1, relevant for the intended use which are declared, namely: - Resistance to fire - Smoke control - Ability to release - Self closing Documentation of the FPC.	6.3.5

ZA.2.2 Declaration of performance (DoP)

ZA.2.2.1 General

The manufacturer draws up the DoP and affixes the CE marking on the basis of the different AVCP systems set out in Annex V of the Regulation (EU) No 305/2011:

— the factory production control and further testing of samples taken at the factory according to the prescribed test plan, carried out by the manufacturer; and

— the certificate of constancy of performance issued by the notified product certification body on the basis of determination of the product type on the basis of type testing (including sampling), type calculation, tabulated values or descriptive documentation of the product; initial inspection of the manufacturing plant and of factory production control and continuous surveillance, assessment and evaluation of factory production control.

ZA.2.2.2 Content

The model of the DoP is provided in Annex III of the Regulation (EU) No 305/2011.

According to this Regulation, the DoP shall contain, in particular, the following information:

— the reference of the product-type for which the declaration of performance has been drawn up;

— the AVCP system or systems of the construction product, as set out in Annex V of the CPR;

— the reference number and date of issue of the harmonized standard which has been used for the assessment of each essential characteristic;

— where applicable, the reference number of the Specific Technical Documentation used and the requirements with which the manufacturer claims the product complies.

The DoP shall in addition contain:

a) the intended use or uses for the construction product, in accordance with the applicable harmonized technical specification;

b) the list of essential characteristics, as determined in the harmonized technical specification for the declared intended use or uses;

c) the performance of at least one of the essential characteristics of the construction product, relevant for the declared intended use or uses;

d) where applicable, the performance of the construction product, by levels or classes, or in a description, if necessary based on a calculation in relation to its essential characteristics determined in accordance with the Commission determination regarding those essential characteristics for which the manufacturer shall declare the performance of the product when it is placed on the market or the Commission determination regarding threshold levels for the performance in relation to the essential characteristics to be declared;

e) the performance of those essential characteristics of the construction product which are related to the intended use or uses, taking into consideration the provisions in relation to the intended use or uses where the manufacturer intends the product to be made available on the market;

f) for the listed essential characteristics for which no performance is declared, the letters “NPD” (No Performance Determined).

Regarding the supply of the DoP, Article 7 of the Regulation (EU) No 305/2011 applies.

The information referred to in Article 31 or, as the case may be, in Article 33 of Regulation (EC) No 1907/2006, (REACH) shall be provided together with the DoP.

ZA.2.2.3 Example of DoP

The following gives an example of a filled-in DoP for fire resisting and/or smoke control doorsets and/or openable windows:

DECLARATION OF PERFORMANCE

No. xxx [to be given by the manufacturer]

1. Unique identification code of the product-type:

to be given by the manufacturer

2 Type, batch or serial number or any other element allowing identification of the construction product as required under Article 11(4):

to be given by the manufacturer

3. Intended use or uses of the construction product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer:

fire and/or smoke compartmentation and/or escape routes

4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required under Article 11(5):

AnyCo SA,

PO Box 21

B-1050 Brussels, Belgium

Tel. +32987654321

Fax: +32123456789

Email: anyco.sa@provider.be

5. Where applicable, name and contact address of the authorized representative whose mandate covers the tasks specified in Article 12(2):

N/A

6. System or systems of assessment and verification of constancy of performance of the construction product as set out in CPR, Annex V:

System 1

7. In case of the declaration of performance concerning a construction product covered by a harmonized standard:

Notified product certification body No. xxxx performed the determination of the product type on the basis of type testing (including sampling), initial inspection of the manufacturing plant and of the factory production control and continuous surveillance, assessment and evaluation of factory production control and issued the certificate of constancy of performance of the product.

8. Declared performance

Essential characteristics	Performance	Harmonized technical specification
Resistance to fire (for fire compartmentation uses): E: EI_1: $EI_{2:}$ EW:	 **90** **60** **90** **60**	EN 16034:2014
Smoke control (only for applications where limitation of smoke spread is required):	S_{200}	
Ability to release	released	
Self-closing (only for self-closing fire resistant and/or smoke control doorsets and /or openable windows)	C	
Durability of ability to release	release maintained	
Durability of self-closing (only for self-closing fire resistant and/or smoke control doorsets and /or openable windows): - against degradation (cycling testing): - against ageing (corrosion):	 2 achieved	

9. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 8.

This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

……
(name and function)

……..…… ……..……
(place and date of issue) (signature)

ZA.3 CE marking and labelling

The CE marking symbol shall be in accordance with the general principles set out in Article 30 of Regulation (EC) No 765/2008 and shall be affixed visibly, legibly and indelibly to the fire resisting and/or smoke control doorsets and /or openable windows followed by the number of the notified product certification body.

The CE marking logo, the number of the notified product certification body shall be given in the accompanying commercial document together with the following information:

— the last two digits of the year in which it was first affixed,

— the name and the registered address of the manufacturer, or the identifying mark allowing identification of the name and address of the manufacturer easily and without any ambiguity,

— the unique identification code of the product-type,

— the reference number of the declaration of performance (see example of DoP),

— the level or class of the performance declared,

— the dated reference to the harmonized technical specification applied,

— the intended use as laid down in the harmonized technical specification applied.

The CE marking shall be affixed before the construction product is placed on the market. It may be followed by a pictogram or any other mark notably indicating a special risk or use.

Figure ZA.1 to Figure ZA.2 give examples of the information related to products subject to AVCP under system 1 to be given on the product and on the accompanying documentation.

CE xxx	*CE marking, consisting of the "CE"-symbol* *Identification number of the product certification body*

Figure ZA.1 — Example CE marking information of products under AVCP system 1 to be placed on the product

CE xxx	*CE marking, consisting of the "CE"-symbol* *Identification number of the product certification body*
AnyCo Ltd, PO Box 21, B-1050, Brussels, Belgium **14** **to be given by the manufacturer**	*Name and the registered address of the manufacturer, or identifying mark* *Last two digits of the year in which the marking was first affixed* *Reference number of the DoP*
EN 16034:2014 **to be given by the manufacturer** Fire and/or smoke compartmentation and/or escape routes Resistance to fire (for fire compartmentation uses): E: **90** EI_1: **60** EI_2: **90** EW: **60** Smoke control (only for applications where limitation of smoke spread is required): S_{200} Ability to release: released Self-closing (only for self-closing fire resistant and/or smoke control doorsets and /or openable windows): C Durability of ability to release: release maintained Durability of self-closing (only for self-closing fire resistant and/or smoke control doorsets and /or openable windows): - against degradation (cycling testing): 2 - against ageing (corrosion): achieved	*No. of European Standard applied, as referenced in OJEU (see Note 14)* *Unique identification code of the product-type* *Intended use of the product as laid down in the European Standard applied* *Level or class of the performance declared*

Figure ZA.2 — Example CE marking information of products under AVCP system 1 to be given in the commercial accompanying documentation

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[5] EN 12433-2, *Industrial, commercial and garage doors and gates — Terminology — Part 2: Parts of doors*

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[7] EN 12604, *Industrial, commercial and garage doors and gates — Mechanical aspects — Requirements*

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[16] EN 60335-2-95, *Household and similar electrical appliances — Safety — Part 2-95: Particular requirements for drives for vertically moving garage doors for residential use (IEC 60335-2-95)*

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