



# SLOVENSKI STANDARD

SIST EN 14637:2008

01-maj-2008

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

Schlösser und Baubeschläge - Elektrisch gesteuerte Feststellanlagen für Feuer-/Rauchschutztüren - Anforderungen, Prüfverfahren, Anwendung und Wartung

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Quincaillerie pour le bâtiment - (Systemes de retenue contrôlés électriquement pour blocs -portes, coupe-feu ou pare-fumée - Exigences, méthode d'essai, mise en oeuvre et maintenance

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**Ta slovenski standard je istoveten z: EN 14637:2007**

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**ICS:**

91.060.50

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ICS 91.060.50; 91.190

English Version

Building hardware - Electrically controlled hold-open systems for  
fire/smoke door assemblies - Requirements, test methods,  
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Quincaillerie pour le bâtiment - Systèmes de retenue  
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Schlösser und Baubeschläge - Elektrisch gesteuerte  
Feststellanlagen für Feuer-/Rauchschutztüren -  
Anforderungen, Prüfverfahren, Anwendung und Wartung

This European Standard was approved by CEN on 30 September 2007.

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## Foreword

This document (EN 14637:2007) 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of an identical text or by endorsement, at the latest by May 2008, and conflicting national standards shall be withdrawn at the latest by May 2008.

This European Standard is part of a series of European Standards dedicated to building hardware products.

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.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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## Introduction

The purpose of an electrically controlled hold-open system is to reliably hold open and then release self-closing fire/smoke control door assemblies at the earliest practicable moment, in the event of fire, but not to generate an alarm signal. In this regard the required function of the fire detectors is different to the normal usage of fire detectors in fire detection and fire alarm systems. In the case of hold-open systems, conforming to this European Standard, the primary objective is to release a door reliably for self-closing and any incidence of false alarms is of secondary importance. In the case of fire detection and fire alarm systems, however, the incidence of false alarms needs to be kept to the absolute minimum (See 6.1.1 and 6.1.2). This does not, however, exclude the fact that detectors of fire detection and fire alarm systems may be used to initiate door release signals. A logic diagram for modes of operation of an electrically controlled hold-open system is shown in Figure 3.

This European Standard is drafted on the basis of essential system functions and components which are provided on all electrically controlled hold-open systems and which comprise hold-open device(s), a control unit, a power supply unit, and fire detector(s) (see Figure 1). Options with requirements for additional system functions and components can also be provided, such as remote indicating devices, interconnecting cables, door position sensors, interfaces with other systems, manual controls and a stand-by power supply (see Figure 2).

It is intended that the options be used for specific applications. The optional function(s) and components are included separately, with their own set of associated requirements, in order to permit electrically controlled hold-open systems with many different combinations of functions to conform to this European Standard. Where an option is taken, corresponding requirements are included.

The performance tests incorporated in this European Standard are reproducible and, as such, will provide a consistent and objective assessment of the performance of these hold-open systems.

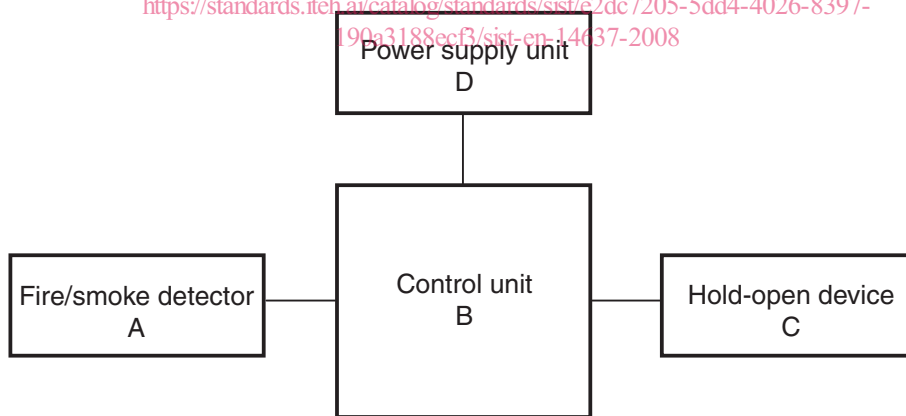
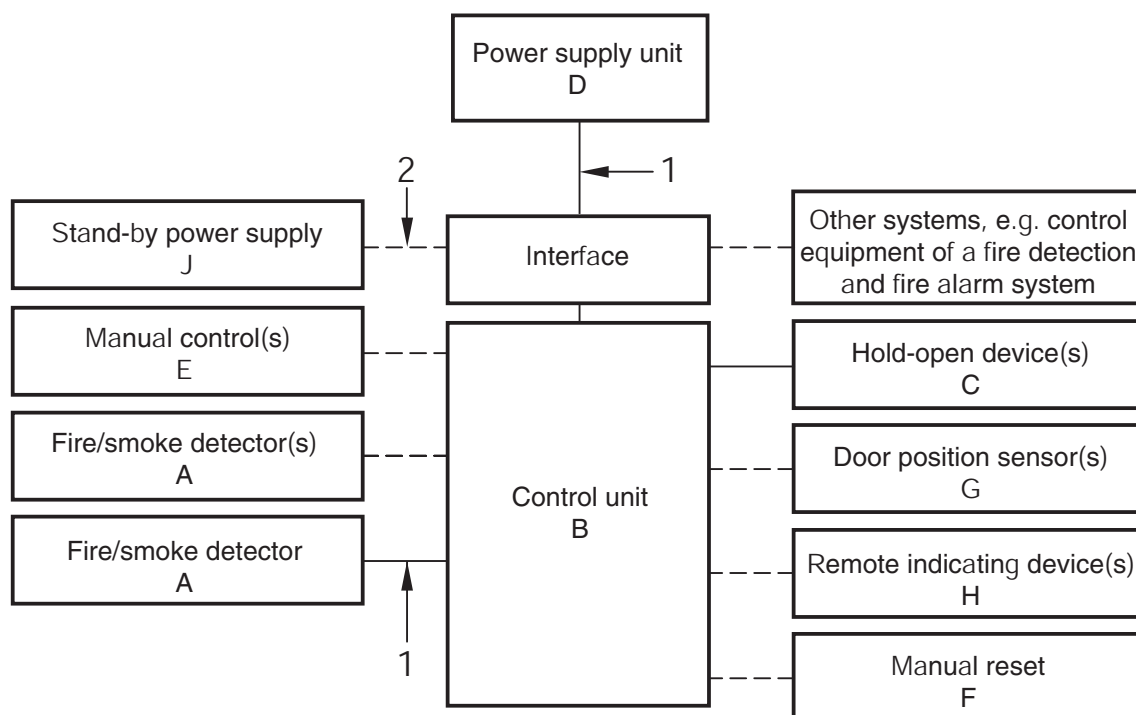


Figure 1 — Basic system components with essential functions



**Key**

- 1 Connection cable  
 2 Connection cable (optional)

NOTE The dotted lines linking various components indicate the optional components that can be included in the system.

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**Figure 2 — Typical system with additional functions and components**

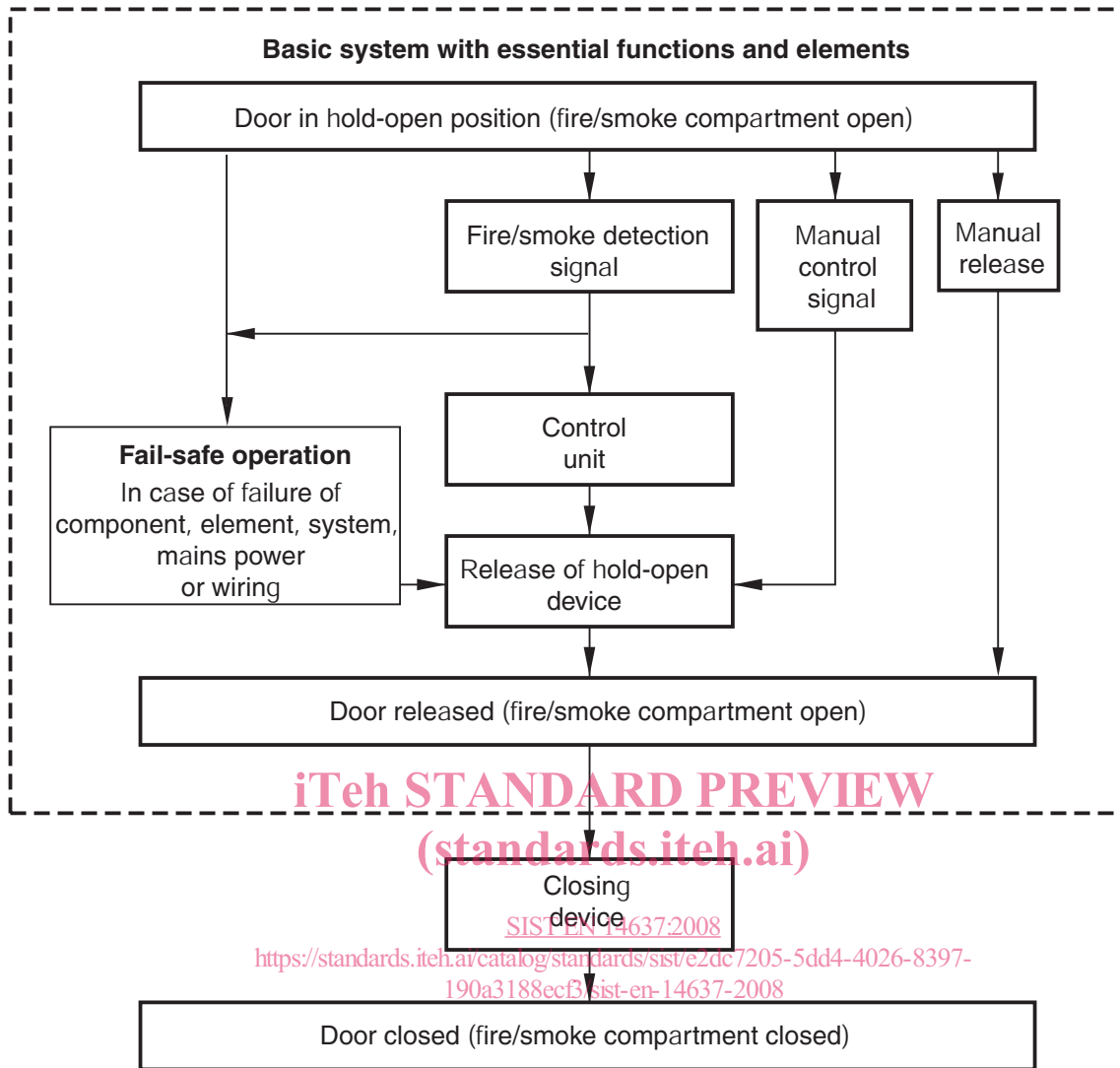


Figure 3 — Logic diagram for modes of operation of an electrically controlled hold-open system

## 1 Scope

This European Standard specifies requirements, methods of test and performance criteria against which the compatibility of components and their performance can be assessed when used in combination to form an electrically controlled hold-open system. It also specifies requirements for the integrity of such hold-open systems when connected to fire detection and fire alarm systems or other systems, including the signal exchange and technical data for interfaces.

This European Standard provides requirements for the application of electrically controlled hold-open systems used for fire/smoke doors in buildings, where such doors are required to be self-closing. It covers planning, design (see Annex A), installation (see Annex B), commissioning, use and maintenance (see Annex E) of hold-open systems, intended for the protection of life and/or the protection of property. This may also include hold-open systems, or components of the hold-open system, that are self-contained in a single enclosure.

Electrically controlled hold-open systems manufactured, installed and serviced in accordance with this European Standard are recommended for use wherever there is a requirement for reliable hold-open and release of an individual self-closing fire/smoke door assembly in the case of fire.

The use of hold-open systems for closures in conveyor systems conforming to EN 1366-7, which applies in conjunction with EN 1363-1, may require additional proof of suitability, which is not covered by this European Standard.

This European Standard does not cover design, installation, commissioning, use and maintenance of building fire detection and fire alarm systems (covered by CEN/TS 54-14) but does cover the connection of hold-open systems conforming to this European Standard to building fire detection and fire alarm systems, under certain prescribed conditions.

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This European Standard does not cover the requirements of performance characteristics and operational environment conditions of particular components of a hold-open system, where these requirements are already covered by European specifications, and which include appropriate test methods to assure reproducible test results for the product conformity assessment. These European Standards are referred to in Clause 5.

This European Standard does not cover electrically controlled systems used for smoke venting purposes or systems that allow the door to remain open under fault conditions (i.e. not fail-safe).

This European Standard does not cover electrically controlled hold-open systems that are not connected to main power supply and are battery powered only.

## 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 54-1:1996, *Fire detection and fire alarm systems — Part 1: Introduction*

EN 54-2:1997, *Fire detection and fire alarm systems — Part 2: Control and indicating equipment*

EN 54-4:1997, *Fire detection and fire alarm systems — Part 4: Power supply equipment*

EN 54-5, *Fire detection and fire alarm systems — Part 5: Heat detectors — Point detectors*

EN 54-7:2000, *Fire detection and fire alarm systems — Part 7: Smoke detectors — Point detectors using scattered light, transmitted light or ionization*

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CEN/TS 54-14:2004, *Fire detection and fire alarm systems — Part 14: Guidelines for planning, design, installation, commissioning, use and maintenance*

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

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

EN 1634 (all parts), *Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware*

EN 1670:1998, *Building hardware — Corrosion resistance — Requirements and test methods*

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

prEN 12650-1:1996, *Building hardware — Powered pedestrian doors — Part 1: Product requirements and test methods*

EN 12978, *Industrial, commercial and garage doors and gates — Safety devices for power operated doors and gates — Requirements and test methods*

EN 60068-1, *Environmental testing — Part 1: General and guidance (IEC 60068-1:1988 + Corrigendum 1988 + A1:1992)*

EN 60068-2-1:2007, *Environmental testing — Part 2: Tests — Tests A: Cold (IEC 60068-2-1:1990)*

EN 60068-2-2:1993, *Basic environmental testing procedures — Part 2: Tests, Tests B: Dry heat (IEC 60068-2-2:1974/A1:1993)*

EN 60068-2-6:1995, *Environmental testing — Part 2: Tests — Tests Fc: Vibration (sinusoidal) (IEC 60068-2-6:1995 + Corrigendum 1995)*

EN 60068-2-78:2001, *Environmental testing — Part 2-78: Tests; Test Cab: Damp heat, steady state (IEC 60068-2-78:2001)*

EN 60669-1, *Switches for household and similar fixed-electrical installations — Part 1: General requirements (IEC 60669-1:1998, modified)*

EN 60950-1, *Information technology equipment — Safety — Part 1: General requirements (IEC 60950-1:2005, modified)*

EN 61000-3-2, *Electromagnetic compatibility (EMC) — Part 3-2: Limits — Limits for harmonic current emissions (equipment input current up to and including 16 A per phase) (IEC 61000-3-2:2005)*

EN 61000-3-3, *Electromagnetic compatibility (EMC) — Part 3: Limits — Section 3: Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current  $\leq 16$  A (IEC 61000-3-3:1994)*

EN 61000-6-2, *Electromagnetic compatibility (EMC) — Part 6-2: Generic standards — Immunity for industrial environments (IEC 61000-6-2:2005)*

EN 61000-6-3, *Electromagnetic compatibility (EMC) — Part 6-3: Generic standards; Emission standard for residential, commercial and light-industrial environments (IEC 61000-6-3:2006)*

### 3 Terms, definitions and abbreviated term

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

#### 3.1

##### **electrically controlled hold-open system**

hold-open system

combination of compatible components which has the function to hold open self-closing fire/smoke control doors, and, in the case of fire, to release these doors for self-closing, at the earliest practicable moment

NOTE 1 Hold-open systems conforming to this European Standard are intended for the control of individual door assemblies only.

NOTE 2 A hold-open system consists of at least a fire detector, an electrically powered hold-open device, a control unit and a power supply unit. All, or any, of these components could be in a common enclosure.

#### 3.2

##### **fire detector**

component of the hold-open system or of a FDAS that contains at least one sensor, which constantly, or at frequent intervals, monitors at least one suitable physical and/or chemical phenomenon associated with fire, and that provides at least one corresponding signal to the control unit of the hold-open system either directly or triggered by the control and indicating equipment of the FDAS

NOTE Examples of suitable detectors include point-type smoke detectors to EN 54-7, and heat sensitive point detectors to EN 54-5.

#### 3.3

##### **control unit**

component of the hold-open system that processes the signals emitted by the fire detector(s) and, in the event of a certain threshold value relating to a characteristic fire parameter being exceeded, releases electrically the connected hold-open device(s)

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#### 3.4

##### **electrically powered hold-open device**

hold-open device

component of the hold-open system that allows a self-closing fire/smoke control door to remain open at either a pre-set or chosen angle until electrically released

NOTE Examples of suitable devices include electro-magnets, solenoid valves and magnetic clutches.

#### 3.5

##### **power supply unit**

component of the hold-open system which supplies power for the control unit, and for those components fed with power from the control unit

NOTE The power supply unit can include multiple power supplies (e.g. electricity from mains and stand-by sources).

#### 3.6

##### **fire detection and fire alarm system**

FDAS

system of components in which signals from fire detectors are automatically evaluated in order to be transformed into audible and/or visible signals to occupants of the building

NOTE Parts of such a system can provide a release signal (serving as a control unit) for connected hold-open devices.

**3.7**  
**closing device**  
component of a fire/smoke control door assembly with the function of automatically returning a door to its closed position by means of stored energy but without the use of any external power supply

NOTE Examples of suitable devices include those conforming to EN 1154 and prEN 12650-1, as well as counterweight systems and spring-operated systems.

**3.8**  
**manual control**  
component of a hold-open system used for the manual initiation of a release function, e.g. by means of a switch or push-button

**3.9**  
**manual release**  
action of manually pulling or pushing a door from its held position so that the door will continue to the closed position under the control of the closing device

**3.10**  
**manual reset**  
component of a hold-open system used for the manual initiation of a resetting function

**3.11**  
**automatic reset**  
function of a fire detector to automatically reinstate its functional capability after the cessation of the conditions which caused the response

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**3.12**  
**detector group**  
group of fire detectors connected in one line for which a separate indicator for alarm and fault signals is provided on the indicator board where such a board exists

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NOTE The detector group can consist of just one detector.

**3.13**  
**presence sensor**  
electro-sensitive protective equipment  
device designed to detect the presence of stationary objects or persons and give a signal to a control system

**3.14**  
**fail-safe**  
design of an electrically controlled hold-open system such that the failure of one or more components (with the exception of manual control push-buttons or switches) and/or defined components of the hold-open system results in the releasing of the door from its held position

NOTE The failure of a manual control push-button or switch has no influence on the effective release of the door under the condition of fire/smoke detection.

**3.15**  
**indicator**  
device which can change its state to give information

NOTE Examples include a light-emitting diode or other component offering comparable reliability.

**3.16**  
**receiving component**  
any of the following components: control unit; electrically powered hold-open device or a closing device

**3.17****transmitting component**

any of the following components: presence sensor or a fire detector

**4 Classification****4.1 Coding system**

For the purpose of this European Standard, hold-open systems shall be classified in accordance with the coding system described in 4.2 to 4.7.

**4.2 Category of use (first digit)**

Only one category of use is identified:

- Grade 3: High frequency of use by public and others with little incentive to exercise care, i.e. where there is some chance of misuse.

EXAMPLE Doors within factories, office buildings, hotels, hospitals, schools and other buildings which provide access to designated areas and which are used by the public and others frequently carrying or moving bulky objects.

**4.3 Durability (second digit)**

Seven grades of durability are identified, based on the hold-open component of the system:

- Grade 0: 500 test cycles;
- Grade 1: 2 500 test cycles; [SIST EN 14637:2008](https://standards.iteh.ai/catalog/standards/sist/e2dc7205-5dd4-4026-8397-190a3188ec3/sist-en-14637-2008)
- Grade 3: 10 000 test cycles; <https://standards.iteh.ai/catalog/standards/sist/e2dc7205-5dd4-4026-8397-190a3188ec3/sist-en-14637-2008>
- Grade 5: 50 000 test cycles;
- Grade 6: 100 000 test cycles;
- Grade 7: 200 000 test cycles;
- Grade 8: 500 000 test cycles.

For the test method, 5.5.2 and 5.5.3.2 shall apply.

**4.4 Door type (third digit)**

Five grades of door types and therefore different hold-open systems are identified:

- Grade 1: Swing doors;
- Grade 2: Sliding doors;
- Grade 3: Roller shutter, sectional and lifting doors;
- Grade 4: Automatic swing doors;
- Grade 5: Automatic sliding and folding doors.