SLOVENSKI STANDARD
SIST EN 13637:2015

01-september-2015

Stavbno okovje - Električno krmiljeni sistemi izhodov za evakuacijske poti - Zahteve in preskusne metode

Building hardware - Electrically controlled exit systems for use on escape routes - Requirements and test methods

Schlösser und Baubeschläge - Elektrisch gesteuerte Fluchttüranlagen für Türen in Fluchtwegen - Anforderungen und Prüfverfahren

Quicaillerie pour le bâtiment - Systèmes de fermeture contrôlés électriquement destinés à être utilisés sur des voies d'évacuation - Exigences et méthodes d'essai

Ta slovenski standard je istoveten z: **EN 13637:2015**

ICS:

13.200	Preprečevanje nesreč in katastrof	Accident and disaster control
91.190	Stavbna oprema	Building accessories

SIST EN 13637:2015 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13637

June 2015

ICS 91.190

English Version

Building hardware - Electrically controlled exit systems for use on escape routes - Requirements and test methods

Quicaillerie pour le bâtiment - Systèmes de fermeture contrôlés électriquement destinés à être utilisés sur des voies d'évacuation - Exigences et méthodes d'essai

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This European Standard was approved by CEN on 7 May 2015.

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 13637:2015) 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of an identical text or by endorsement, at the latest by December 2015, and conflicting national standards shall be withdrawn at the latest by March 2017.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

This European Standard is part of a group of Standards dedicated to building hardware products. It is one of a group of standards for exit devices and electrically controlled exit systems developed by Technical Committee CEN/TC 33.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

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, 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

Experience relating to fire and/or smoke hazards and general safety has made it desirable that doors in circulation areas, or those that have to be operated in an emergency situation, be fitted with exit devices.

Increasingly, such exit devices may form a part of the security system of a building and involve the use of electrical locking and controlling elements. This standard provides common European Standard requirements for such electrically controlled exit systems.

This standard offers, in addition to safety, increased security to avoid unsafe means of locking the door, for example additional padlocks and chains.

The performance requirements contained in this European Standard give safe and effective escape through a doorway with a **maximum of two operations** to release the electrically controlled exit system, although this might require prior knowledge of the number of operations (e.g. initiating and/or operating element), and of the door situation (e.g. inwardly opening).

This standard introduces the concept of time delayed exit and denied exit mode, as a means of increasing the security of the building against unauthorised exit, and the concept of central management control. It is the responsibility of the regulatory authorities in each member country to decide whether or not such control methods can be allowed, and if so, to what extent within the limits stated in the standard.

It is intended that the requirements of this standard should apply at all times, regardless of whether or not the building is occupied. For safety reasons, any additional features of the system, such as access control, are required to maintain the principle of fail safe release at all times.

The performance tests incorporated in this standard are considered to be reproducible and, as such, will provide a consistent and objective assessment of the performance of these electrically controlled exit systems throughout CEN Members.

1 Scope

This European Standard specifies requirements for performance and testing of electrically controlled exit systems, specifically designed for use in an emergency or panic situation on escape routes.

This European Standard covers electrically controlled exit systems that are either manufactured and placed on the market in their entirety by one manufacturer or assembled from sub-assemblies produced by more than one manufacturer and subsequently placed on the market as a kit in a single transaction.

These electrically controlled exit systems consist of at least the following elements, separated or combined:

— **initiating element** for requesting the release of electrical locking element in order to exit;

— **electrical locking element** for securing an exit door;

— **electrical controlling element** for supplying, connecting and controlling electrical locking element and initiating element;

— in addition, these electrically controlled exit systems can include **time delay and/or denied exit mode.**

The Products covered by this standard are intended to be used for doors on escape routes, on either fire or non-fire rated door assemblies.

Examples of Products covered by this European Standard:

— electrically controlled exit systems designed to be used in emergency situations, where people are familiar with the exit and its hardware;

— electrically controlled exit systems designed to be used in panic situations, where people are not always familiar with the exit and its hardware;

— electrically controlled exit systems for use on hinged or pivoted door leaves only;

— a range of electrically controlled exit systems including those for use on double doorsets;

— the exceptional case of electrically controlled exit systems intended for use on single leaf inwardly opening exit doors. It is assumed throughout this European Standard that exit doors generally open towards the outside in order to ensure safe escape. However, there are cases such as hospital or hotel bedroom doors, classroom doors, etc. where building authorities allow, by way of exception, the exit door to open against the direction of exit;

Products not covered by this European Standard:

— any particular design of electrically controlled exit systems and only such dimensions as are required for safety reasons are specified;

— any other element of a security system, other than those directly involved in the control of an exit door;

— mechanically operated exit devices containing electrical functions that are not related to release of an electrically locking element. Such devices are within the field of EN 1125 or EN 179;

— electrically controlled exit systems intended for use on inwardly opening double doorsets.

Electrically controlled exit systems intended for use by the severely disabled; due to the wide range of disabilities, such exit systems and their performances should be agreed between specifier and manufacturer.

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

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

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

EN 1634-1, *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 1634-2, *Fire resistance and smoke control tests for door, shutter and openable window assemblies and elements of building hardware - Part 2: Fire resistance characterisation test for elements of building hardware*

EN 1634-3, *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 55022, *Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement (CISPR 22)*

EN 60529, *Degrees of protection provided by enclosures (IP Code) (IEC 60529)*

EN 61000-3-2, *Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase) (IEC 61000-3-2)*

EN 61000-3-3, *Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <= 16 A per phase and not subject to conditional connection (IEC 61000-3-3)*

EN 61000-4-2, *Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test (IEC 61000-4-2)*

EN 61000-4-11, *Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests (IEC 61000-4-11)*

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

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)*

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

EN 60068-2-2: 2007, *Environmental testing - Part 2-2: Tests - Test B: Dry heat (IEC 60068-2-2:2007)*

EN 60068-2-30:2005, *Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle) (IEC 60068-2-30:2005)*

EN 60947-5-5, *Low-voltage switchgear and controlgear - Part 5-5: Control circuit devices and switching elements - Electrical emergency stop device with mechanical latching function (IEC 60947-5-5)*

EN 61508-1, *Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 1: General requirements (IEC 61508-1)*

EN ISO 7010:2012, *Graphical symbols - Safety colours and safety signs - Registered safety signs (ISO 7010:2011)*

IEC 60050-845, *International Electrotechnical Vocabulary — Lighting*

3 Terms and definitions

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

3.1
exit device
mechanically operated device intended for panic exit function (panic exit device) or emergency exit function (emergency exit device) for use on escape routes

3.2
panic exit device
exit device conforming to EN 1125 intended to give safe and effective escape through a doorway with one single operation to release the panic exit device, with minimum effort and without prior knowledge of the panic exit device allowing safe escape even in the event of the door being under pressure such as by people being pushed against the door in the direction of escape

Note 1 to the entry A panic exit device contains bolt head(s) that engage(s) with a keeper(s) in the surrounding door frame or floor for securing a door when closed. The bolt head(s) can be released by the bar positioned horizontally across the inside face of the door when it is moved anywhere along its effective length in the direction of travel and/or in an arc downwards.

Note 2 to the entry Panic exit devices are intended for use where panic situations can arise. In a panic situation, a group of people will react differently from an individual. When two or more people are rushing to an escape door, probably in darkness and/or smoke, it is possible that the first one to reach the door will not necessarily operate the panic exit device, but can push the surface of the door (door under pressure) while other people will be trying to operate the horizontal bar by hand or body pressure.

Note 3 to the entry When a door opens in the direction of exit, a panic exit device can be used instead of an emergency exit device.

3.3
emergency exit device
exit device conforming to EN 179 intended for emergency purposes where panic situations are not likely to arise, to give safe and effective escape through a doorway with one single operation to release the emergency exit device, although this can require prior knowledge of its operation (see EN 179)

Note 1 to the entry An emergency exit device contains bolt head(s) that engage(s) with a keeper(s) in the surrounding door frame or floor for securing a door when closed. The bolt head(s) can be released by the lever handle or the push pad positioned on the inside face of the door.

Note 2 to the entry Exit devices conforming to EN 179 are intended for emergency purposes where panic situations are not likely to arise. Where a pressure against the door caused by people in a panic is foreseen, then a panic exit device conforming to EN 1125 should be used.

Note 3 to the entry Emergency exit devices are suitable also for inwardly opening single leaf exit doors.

Note 4 to the entry The term “pull pad” is sometimes used instead of “push pad” for use on inwardly opening exit doors.

3.4
exit system
electrically controlled system for use on escape routes according to EN 13637 which enables the electrical control of exit doors by means of electrical locking elements, an initiating element and electrical controlling elements. These separate elements may be inter-connected or may be combined in various assemblies, to provide the required system functions

3.5
electrical locking element
electrically operated element of an exit system that maintains the door in secured condition. For example: an electrical magnet, an electrical strike, an electrically lockable operating element (see 3.9)

3.6
controlling element
the element in an exit system which monitors, supplies, connects and controls the electrical locking element and initiating element

3.7
initiating element
manually operated element for initiating the release of electrical locking elements in order to allow the exit

3.8
operating element
manually operated element of an exit system or an exit device that mechanically releases the door

3.9
electrically lockable operating element
operating element which, when energized, prevents the release of the door

EXAMPLE: an electrically lockable panic exit device or an electrically lockable lever handle

3.10
to reset
to manually or automatically return the exit system to its original condition

3.11
rated supply voltage
nominal voltage for which the system is intended

3.12
to release
to deactivate the electrical locking element by disconnecting it from electric power (fail save principle) to unlock the electrical locking element

Note 1 to the entry to open the door, it may be necessary to additionally operate a mechanical exit device.

3.13
fail safe
ability of an exit system, to release during a power interruption or the failure of any one electrical component or connection between controlling, locking and initiating elements of the system

3.14
single time delay (t1)
fixed time delay between the actuation of the initiating element and the release of the electrical locking element

3.15
double time delay (t1+t2)
time delay (t1) with the additional possibility of manually initiating a further time delay (t2) through a central management control

3.16
central management control (CMC)
centrally controlling panel supervised by authorized personnel to monitor and to operate electrically controlled exit systems including the double time delay function and/or denied exit function

Note 1 to the entry CMC may control either a complete building or a part of it, to remote doors individually or group(s) of doors.

Note 2 to the entry CMC may include an interface to e.g. Alarm System, Building Management, Visualization, Video control, access control 3.18

3.17
immediate release
release in one second or less

3.18
keeper
part of an exit system such as a strike, socket or other fitting with which the bolt head(s) engages

3.19
denied exit mode
manually activated mode denying the exit when the initiating element is operated, i.e. during periods of time when the public are not allowed in a building or the area concerned

3.20
visual inspection
assessment made with the naked eye, adjusted for normal vision

3.21
functional test
assessment made by operating the test door (opening and closing) and/or operating any element of the exit system

3.22
measurement
assessment made by using a measuring tool

3.23
operation (to release the door)
one movement in one direction to release the door (not to open it)

3.24
dogging mechanism
part of an exit system for holding the bolt heads in the withdrawn position until reset

3.25
access level
according to the different situations of operation, functions and maintenance the exit system deals with necessary precautions to avoid unsafe situations according to staff skills and responsibility

Note 1 to the entry see Annex D

3.26
failure
a single fault which may lead to a dangerous situation, caused by a component, a programme or an external influence, etc

3.27
failure criteria
performance limit(s) for test procedure(s), relevant to fulfil the requirements

4 Requirements

4.1 General

4.1.1 Compliance

An electrically controlled exit system shall be tested in accordance with the specified test methods in Clause 5. The performance of the electrically controlled exit system (or components) shall conform to the specific requirements.

4.1.2 Association between components

4.1.2.1 Technically independent components

The manufacturer of an electrically controlled exit system may be combined with "**technically independent components**", with mechanical exit devices according to EN 179 or EN 1125.

"Technically independent components" means: exit devices without any electrical and/or mechanical interaction on the safety functions of the exit system.

On a door in an escape route equipped with the Exit System in combination with an exit device, this exit device will comply with EN 1125 or EN 179, to maintain the performances of the complete combination.

It shall be on the manufacturer of an electrically controlled exit system to declare which exit devices to EN 1125 or EN 179 could be combined with the exit system.

4.1.2.2 Technically dependent components

On the other hand, systems according to EN 13637 may include "**technically dependent components**", with an electrical and/or a mechanical interaction on the safety functions of the exit systems, an exit device according to EN 1125 or EN 179 such as an initiating element being integrated in the operating element.