



# SLOVENSKI STANDARD

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

**STANDARD PREVIEW**

Schlösser und Baubeschläge - Notausgangsschlüsse mit Drücker oder Stoßplatte, für Türen in Fluchtwegen - Anforderungen und Prüfverfahren

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Quincaillerie pour le bâtiment - Fermetures d'urgences manoeuvrées par une béquille ou une plaque de poussée, pour issues de secours situées sur les voies d'évacuation - Prescriptions et méthodes d'essai

**Ta slovenski standard je istoveten z: EN 179:2008**

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English Version

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

Quincaillerie pour le bâtiment - Fermetures d'urgence pour issues de secours manœuvrées par une béquille ou une plaque de poussée, destinées à être utilisées sur des voies d'évacuation - Exigences et méthodes d'essai

Schlösser und Baubeschläge - Notausgangsverschlüsse mit Drücker oder Stoßplatte für Türen in Rettungswegen - Anforderungen und Prüfverfahren

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

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## Foreword

This document (EN 179:2008) 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of an identical text or by endorsement, at the latest by July 2008, and conflicting national standards shall be withdrawn at the latest by July 2008.

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 supersedes EN 179:1997.

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 89/106/EEC, see informative Annex ZA which is an integral part of this document.

It has been revised to incorporate clarification of the definitions, safety requirements and test procedures, in particular for emergency exit devices intended for use on double leaf doorsets, in order to allow for more reproducible test methods.

It incorporates extension of the classification to avoid misuse of the products, extension of the limits of door mass and dimensions as well as extension of the field of application to cover products already available on the market, which were not covered by the 1997 edition of this European Standard.

It incorporates additional requirements for emergency exit devices intended for use on inwardly opening single leaf exit doors, which are required by the market. However, no other modifications have been made to the original concept and main requirements.

A full contribution to the preparation of this European Standard has been made by The European Federation of Associations of Lock and Builders Hardware Manufacturers (ARGE).

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 exit systems developed by Technical Committee CEN/TC 33.

Wherever reference is made to classes, they are considered to be technical classes and not classes according to Article 3(2) of the Construction Products Directive (89/106/EEC).

Verification or tests performed by mechanical test laboratory and fire test laboratory are listed in Table 1 summarizing performance characteristics and compliance criteria.

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.

## Introduction

Experience relating to escape from buildings, 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 emergency exit devices to common European Standard specifications.

The main purpose of the performance requirements contained in this European Standard is to give safe and effective escape through a doorway with one single operation to release the emergency exit device, although this might require prior knowledge of the door situation (e.g. inwardly opening).

The performance tests incorporated in this European Standard are considered to be reproducible and, as such, will provide a consistent and objective assessment of the performance of these emergency exit devices.

Where panic situations are foreseen, reference should be made to EN 1125, covering panic exit devices operated by a horizontal bar. See definition **3.18**.

Where additional security is required for exit doors, reference should be made to prEN 13633 covering electrically controlled panic exit systems, or to prEN 13637 covering electrically controlled exit systems for use on escape routes. See Bibliography.

Due to the wide range of emergency exit devices, the reader is advised to refer to the scope and the detailed contents of this European Standard for coverage but, for information and general guide, this revised European Standard now deals with:

- emergency exit devices designed to be used in emergency situations, where people are familiar with the exit and its hardware and therefore a panic situation is most unlikely to develop;
- emergency exit devices for use on hinged or pivoted door leaves only;
- range of emergency exit devices including those for use on double doorsets (see **7.10**);
- two specific types of operation: emergency exit devices with “lever handle” operation, type A (see **3.9**, see Figures 1 and 3) and emergency exit devices with “push pad” operation, type B (see **3.15**, see Figures 2 and 4);
- two categories of emergency exit device projection in order to maximize the width of the escape route, and minimize the projection from the door face where either or both of these criteria are of importance (see **4.1.12**);
- exceptional case of emergency exit devices intended for use on single leaf inwardly opening exit doors. It is assumed throughout this European Standard that emergency exit doors generally open towards the outside in order to assure safe escape. However, there are cases such as hospital or hotel bedroom doors, classroom doors, etc. where local building regulations allow, by way of exception, the exit door to open against the direction of exit;
- double doorset emergency exit devices of which the first opening leaf is equipped with a panic exit device conforming to EN 1125 and the second opening leaf is equipped with an emergency exit device conforming to EN 179. It is essential that this combination undergoes an additional test for approval (see **4.2.4**).

This European Standard does not cover the following:

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- any particular design of emergency exit devices and only such dimensions as are required for safety reasons are specified;
- specific emergency exit devices intended for use on inwardly opening double doorsets;
- specific emergency exit devices intended for use by the severely disabled (due to the wide range of disabilities, such emergency exit devices and their performances should be agreed between specifier and producer);
- panic exit devices operated by a horizontal bar (see EN 1125) or electrically controlled panic exit systems or electrically controlled exit systems (see prEN 13633 and prEN 13637).

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## 1 Scope

This European Standard specifies requirements for the manufacture, performance and testing of emergency exit devices mechanically operated by either a lever handle or a push pad for the purpose of achieving a safe exit under an emergency situation on escape routes.

The suitability of an emergency exit device for use on smoke/fire-resisting door assemblies is determined by fire performance tests conducted in addition to the performance tests required by this European Standard. Annex B indicates additional requirements for these products.

This European Standard covers emergency exit devices, which are either manufactured and placed on the market in their entirety by one producer, or produced by more than one producer and subsequently placed on the market as a kit in a single transaction.

## 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 1125, *Building hardware - Panic exit devices operated by a horizontal bar, for use on escape routes - 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 doors and shutter assemblies and openable windows*

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 1670:2007, *Building hardware - Corrosion resistance - Requirements and test methods*

EN ISO 9001:2000, *Quality management systems - Requirements (ISO 9001:2000)*

## 3 Terms and definitions

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

### 3.1

#### **active leaf**

first opening and last closing leaf of a rebated single swing double doorset

### 3.2

#### **automatic relatching device**

part of an emergency exit device to enable the automatic securing of a door in the closed position, after it has been operated

NOTE For example, a spring loaded latch bolt or an automatically thrown bolt head.

### 3.3

#### **bolt head**

portion of an emergency exit device that engages with the keeper to secure the door in the closed position

**3.4**

**dogging mechanism**

part of an emergency exit device for holding the bolt head(s) in the withdrawn position until manually reset

**3.5**

**doorset**

assembly consisting of a single leaf exit door being hinged or pivoted vertically in a frame

**3.6**

**inactive leaf**

last opening and first closing leaf of a rebated single swing double doorset

**3.7**

**inside**

face of the door on which the lever handle or push pad is situated for operating an emergency exit device in order to exit

**3.8**

**keeper**

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

**3.9**

**lever handle**

rotatable operating element as part of an emergency exit device whose axis of rotation is perpendicular to the face of the door and which operates the emergency exit device mechanism in order to release the bolt head(s)

**3.10**

**producer**

manufacturer, entity or organization that has legal responsibility for placing the product on the market

**3.11**

**outside**

face of the door opposite to the face on which the lever handle or push pad for operating the emergency exit device is situated

**3.12**

**outside access device**

optional part of an emergency exit device for opening an exit device from the outside

NOTE An outside access device can be supplied with optional re-entry function.

**3.13**

**operating element**

abbreviation for lever handle or push pad

**3.14**

**double doorset**

assembly consisting of two hinged or pivoted exit doors within a single frame

NOTE 1 The meeting stiles can be either plain or rebated.

NOTE 2 A double doorset where only one leaf is equipped with an emergency exit device is considered to be a single emergency exit doorset.

NOTE 3 A double doorset where the first opening leaf is equipped with a panic exit device conforming to EN 1125 and the second opening leaf is equipped with an emergency exit device conforming to EN 179 is considered to be a double emergency exit doorset, or a single panic exit door.

**3.15****push pad**

operating element of an emergency exit device that operates the emergency exit device mechanism in order to release the bolt head(s)

NOTE The term "pull pad" is sometimes used instead of "push pad" for use on inwardly opening exit doors.

**3.16****release force**

force applied to the operating element, which is necessary to withdraw or release all the bolt head(s) from the keeper(s), such that a door can be opened

**3.17****vertical rod**

extension of the bolt head of an emergency exit device that links it to the operating element via the operating mechanism

**3.18****panic exit device**

exit device conforming to EN 1125 intended to give safe and effective escape through a doorway 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 A panic exit device contains bolt head(s) that engage(s) with a keeper(s) in the surrounding door frame and/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 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 When a door opens in the direction of exit, a panic exit device can be used instead of an emergency exit device subject to local regulations.

**3.19****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 Figure 1 and Figure 2)

NOTE 1 An emergency exit device contains bolt head(s) that engage(s) with a keeper(s) in the surrounding door frame and/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 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 Emergency exit devices are suitable also for inwardly opening single leaf exit doors, where local building regulations allow.

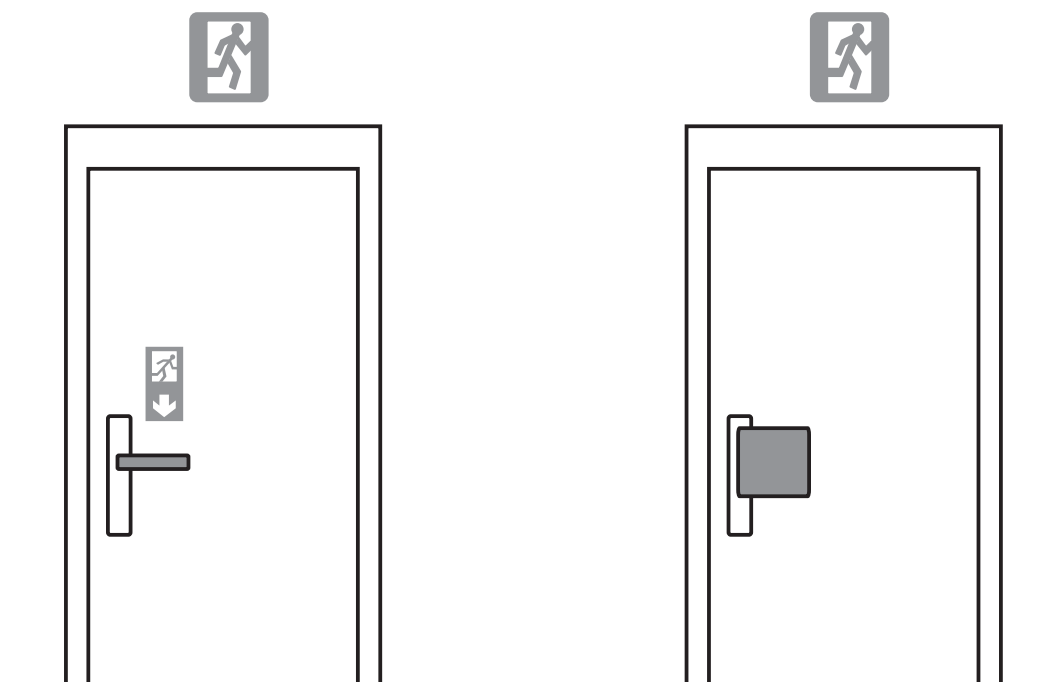


Figure 1 — Example of type A emergency exit device      Figure 2 — Example of type B emergency exit device

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**3.20 double doorset emergency exit device**

emergency exit device designed for use on the leaves of double doorsets, such that the operation of either operating element will release at least the door leaf to which it is fitted

**3.21 deadbolt**

part of an emergency exit device that can be deadlocked manually by key or automatically and which is released when the exit device is operated

NOTE An emergency exit device can be designed to incorporate additional deadbolt(s) thrown by a key or thumbturn, used only at certain periods of time for additional security.

**3.22 exit door**

door on an escape route equipped with an exit device conforming to EN 179 and/or EN 1125

**3.23 free end**

furthest point away from the axis or the bearing point of the lever handle or push pad

**3.24 re-entry function**

optional function that allows, for safety reasons, an individual to re-enter a room from outside without a key once the inside operating element has been actuated. After having released the device from the inside, any handle (or other means) to operate the exit device from outside remains unlocked until manually reset by key

**3.25****field of door application**

door configurations for which the emergency exit devices are designed and claimed by the producer

**3.26****limits of door mass and dimensions**

dimensional and mass limits of the doors for which the emergency exit devices are designed

**3.27****sub-assemblies**

pre-assembled set of components that form one part of the emergency exit device, for example: pullman catches, operating boxes and lock cases

**3.28****visual inspection**

assessment made with the naked eye, adjusted for normal vision and use of the appropriate measurement equipment

**3.29****functional test**

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

**3.30****measurement**

assessment made by using a measuring tool

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**4 Requirements**

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**4.1 Design requirements****4.1.1 General**

Compliance with the design requirements shall be as Table 1.

**4.1.2 Release function**

An emergency exit device shall be designed to release a door at all times from the inside in less than 1 s, by one single hand operation only, not requiring the use of a key or other similar object. It shall be designed to release the door without any delay from the time the operating element is operated to the released position of the mechanism.

The operation of the operating element shall enable immediate exit from the inside at all times regardless of any auxiliary locking and/or unlocking means being incorporated, such as a deadbolt or outside access device.

Compliance shall be verified by visual inspection, functional tests and/or measurements.

**4.1.3 Release operation**

The release direction of an emergency exit device shall not be opposite to the direction of the door opening.

Compliance shall be verified by visual inspection and functional tests.

#### 4.1.4 Lever handle design

Lever handle operated emergency exit devices shall be designed to release the door following a movement of the lever handle in a downward rotational direction.

Compliance shall be verified by visual inspection and functional tests

#### 4.1.5 Push pad design

Push pad operated emergency exit devices shall be designed to release the door following a movement in the direction of the door opening in an arc downwards or to the side. This requirement shall also apply to emergency exit devices intended for use on inwardly opening single leaf exit doors.

NOTE The term "pull pad" is sometimes used instead of "push pad" for use on inwardly opening single leaf exit doors.

Compliance shall be verified by visual inspection and functional tests

#### 4.1.6 Double doorset

The design of an emergency exit device intended for use on double doorset leaves shall allow both leaves to be opened simultaneously and to swing freely in the direction of exit once the door has been released.

NOTE 1 The construction and installation of a specific doorset assembly, including choice of hinges, leaf thickness and leaf width, can have a significant effect on the ability of both leaves to open simultaneously. These issues are beyond the scope of this European Standard. Additional guidance is given in A.5.

NOTE 2 For example, on rebated double doors, operating the emergency exit device on the inactive leaf will release both the inactive and the active leaf.

Compliance shall be verified by visual inspection and functional tests carried before and also after durability test.

#### 4.1.7 Corrosion resistance

The corrosion resistance shall comply with 4.2.9 or be at least grade 3 in accordance with EN 1670:2007, 5.6.

#### 4.1.8 Exposed edges and corners

An emergency exit device shall have all edges and exposed corners, that are likely to cause injury to persons using the exit, rounded to a radius of not less than 0,5 mm.

Compliance shall be verified by visual inspection and measurements.

#### 4.1.9 Temperature range

Materials selected in the design of an emergency exit device shall be suitable for the operation of the emergency exit device between temperatures of  $-10\text{ }^{\circ}\text{C}$  and  $+60\text{ }^{\circ}\text{C}$ . This requirement shall be verified by the test specified in 6.2.2. The maximum operating force at  $-10\text{ }^{\circ}\text{C}$  and at  $+60\text{ }^{\circ}\text{C}$  shall not exceed 50 % in excess of the operating forces measured at  $20\text{ }^{\circ}\text{C}$ .

#### 4.1.10 Suitability of emergency exit devices for use on smoke/fire-resisting doorsets

Emergency exit devices that are suitable for use on smoke/fire-resisting doorsets shall conform to the requirements of 4.2.3, 4.2.4, Annex B and be classified according to 7.4.

#### 4.1.11 Push pad installation

Push pads shall be designed such that the operating element can be installed at 250 mm or less (dimension Z) from the leading edge of the door when the door is in the closed position. See Figure 4.

Compliance shall be verified by visual inspection and measurements

#### 4.1.12 Lever handle installation

Lever handles shall be designed to have a minimum length (dimension X) of 120 mm, measured from the axis of rotation to the free end, and the axis of rotation no more than 150 mm (dimension Z) from the leading edge of the door. See Figure 3.

Compliance shall be verified by visual inspection and measurements

#### 4.1.13 Operating element projection

No part of an emergency exit device, when the door is in any position, shall project (dimension W) from the face of the door more than:

- category 1: projection up to 150 mm (large projection);
- category 2: projection up to 100 mm (standard projection).

NOTE 1 See Figures 3 and 4 for illustration of dimension W (projection).

NOTE 2 Category 1 does not apply to type A operation.

Compliance shall be verified by visual inspection and measurements.

#### 4.1.14 Operating element face

With the emergency exit device secured, the width of the operating element (dimension V) shall be not less than 18 mm. The shape of the operating element shall facilitate the application of the operating force to the lever handle or the push pad. Verification shall be made in accordance with a) and b). See Figure 5.

- a) If the operating element is a lever handle, it shall have on its operating face – to which the release force is applied – a minimum thickness of 5 mm, either with a flat surface or with a rounded surface featuring a radius of not less than 5 mm.
- b) If the operating element is a push pad, it shall have an operating face of not less than 1 400 mm<sup>2</sup>.

For the convenience of more architectural design freedom and less sophisticated production it is acceptable to allow the lever handle to have a reduced cross-section of not less than 15 mm width (dimension V) and not less than 4 mm thickness on the operating face, provided this reduction is within 20 mm from the free end of the lever handle.

Compliance shall be verified by visual inspection and measurements.

#### 4.1.15 Lever handle free end

To minimize the risk of injury or of trapping clothes, the free end of a lever handle shall point towards the door such that the dimension “U” is not less than 40 mm, the dimension “W” is not more than 100 mm (standard projection) and the angle  $\alpha$  between the free end of the lever handle perpendicular to the surface of the door is not more than 30°. See Figure 3.