SLOVENSKI STANDARD
oSIST prEN 16867:2019

01-januar-2019

Stavbno okovje - Mehatronsko okovje za vrata - Zahteve in preskusne metode

Building hardware - Mechatronic door furniture - Requirements and test methods

Schlösser und Baubeschläge - Mechatronische Türbeschläge - Anforderungen und Prüfverfahren

Quincaillerie pour le bâtiment - Ensemble plaques béquilles mécatroniques - Exigences et méthodes d'essai

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91.190	Stavbna oprema	Building accessories

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Building hardware - Mechatronic door furniture - Requirements and test methods

Quincaillerie pour le bâtiment - Ensemble plaques béquilles mécatroniques - Exigences et méthodes d'essai

Schlösser und Baubeschläge - Mechatronische Türbeschläge - Anforderungen und Prüfverfahren

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 33.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 16867:2018) 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 document is currently submitted to CEN Enquiry.

No existing European Standard is superseded.

This European standard is one of a series of European standards dedicated to building hardware products.

European standards for mechanically operated lever handles and knob furniture (EN 1906) are also available.

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 products throughout CEN Member.

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Introduction

The development of building hardware to include electrically and electronic operations and control has introduced a large number of products on the market.

For locks and door furniture the range of electrical or electronic components to be fitted to existing mechanical locks or door furniture to a complete Mechatronic Door Furniture (MDF) has increased.

Also complete units with lock and door furniture in unique combination to MDF occur frequently.

Typically MDF is installed directly on the door leaf and includes all functions like operating the follower of the lock, reading and decoding the credential and power.

Following components and units are covered by the standard.

Type A: Handle or knob operated door furniture with electrically operated activator, reading unit for credential and power supply to be combined with a mechanical operated lock where the lock meets EN 12209 or prEN 15685.

Type B: Handle or knob operated door furniture with reading unit for credential and power supply to be combined with electrically operated locks where the lock meets EN 14846.

This standard does not cover electrically operated locks or striking plates in combination with an access control system not fitted on the door.

This standard provides the MDF with requirements for:

— category of use to ensure the performance during its normal use;

— durability to ensure good performance during lifetime;

— specification for system management;

— suitability for use on fire resistant/smoke controlled doors;

— environmental resistance for good performance during lifetime in different environmental conditions;

— security for different types of credentials;

— attack resistance to ensure use on Burglary resistant doors;

— product information to give summary of the performance.

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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 devices throughout CEN Member States.

It is assumed that MDF will conform to the legal regulations i.e. RED – Radio Equipment Directive 2014/53/EU.

On occasions there may be a need for additional functions within the design of the MDF. Purchasers should convince themselves that the products are suitable for their intended use. This is particularly important when the operation of such additional functions is safety-related. Accordingly, this European standard includes assessment of such features when they are included in the MDF design.

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1 Scope

1.1 General

This document applies to Mechatronic door furniture (MDF) fitted on the door set which gives the possibility to control the locking and/or release part through an electronic authorization means. This can be operable by credentials (i.e. card, code, biometric).

The MDF according to this document is combined with locks according to EN 12209, EN 14846, prEN 15685 or may be a part of an emergency exit device according to EN 179, EN 1125 or EN 13637.

The MDF may be standalone or linkable to an external control system.

The document would allow classifying the MDF upon several characteristics such as category of use, durability, environmental, security, and type of operating device.

The suitability of the MDF for use on fire or smoke-door assemblies is determined by fire resistance tests conducted in addition to the performance testing specified by this document.

1.2 Exclusions

This document does not cover:

— mechatronic cylinders according to EN 15684;

— electromechanical operated locks and striking plates according to EN 14846.

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2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

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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 636:2012+A1:2015, *Plywood — Specifications*

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

EN 1303, *Building hardware — Cylinders for locks - 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 1670:2007, *Building hardware — Corrosion resistance — Requirements and test methods*

EN 1906:2012, *Building hardware — Lever handles and knob furniture — Requirements and test methods*

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

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

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

EN 15684, *Building hardware — Mechatronic cylinders — Requirements and test methods*

prEN 15685, *Building hardware — Requirements and test methods — Multipoint locks, latches and locking plates*

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

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

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

EN 60068-2-27, *Environmental testing — Part 2-27: Tests — Test Ea and guidance: Shock (IEC 60068-2-27)*

EN 60068-2-30, *Environmental testing — Part 2: Tests — Test Db and guidance: Damp heat, cyclic (12 + 12 hour cycle) (IEC 60068-2-30)*

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

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

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EN 61000-4-3, *Electromagnetic compatibility (EMC) — Part 4-3: Testing and measurement techniques — Radiated, radio-frequency, electromagnetic field immunity test (IEC 61000-4-3)*

EN 61000-4-4, *Electromagnetic compatibility (EMC) — Part 4-4: Testing and measurement techniques — Electrical fast transient/burst immunity test (IEC 61000-4-4)*

EN 61000-4-5:2014, *Electromagnetic compatibility (EMC) — Part 4-5: Testing and measurement techniques — Surge immunity test (IEC 61000-4-5)*

EN ISO 10666, *Drilling screws with tapping screw thread — Mechanical and functional properties (ISO 10666)*

EN ISO 15480, *Hexagon washer head drilling screws with tapping screw thread (ISO 15480)*

EN ISO 15481, *Cross recessed pan head drilling screws with tapping screw thread (ISO 15481)*

EN ISO 15482, *Cross recessed countersunk head drilling screws with tapping screw thread (ISO 15482)*

EN ISO 15483, *Cross recessed raised countersunk head drilling screws with tapping screw thread (ISO 15483)*

ISO/IEC 18033-3:2010, *Information technology — Security techniques — Encryption algorithms — Part 3: Block ciphers*

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3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
access card
card or tag, read only or read write, without integrated circuit, does not provide encryption. Can be used with contact or contactless

EXAMPLEs magnetic stripe, Wigand, barcode

3.2
actuator
electrically operated means to effect or enable operation of the MDF "at rest" position unforced condition of the lever handle or knob

3.3
attack
unauthorized attempt to open a MDF by various techniques (destructive and or non-destructive techniques)

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3.4
audit trail
functionality intended to provide a record of MDF and/or its credential events that will identify the individual credential used to operate the MDF

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3.5
backplate
element whose purpose is, firstly, functional, providing a bearing for the rotation of a lever handle or knob and the means of attachment to the door; and, secondly, decorative, working as a trim plate to cover holes provided in the door for the passage of spindles, keys or lock cylinders

3.6
coupled
status of the activator when the bolt and/or latch bolt can be operated by the handle, knob/ thumb turn or electrically

3.7
credential
identification means containing information necessary to authorize operation of the MDF

3.8
cylinder
device, usually distinct from its associated lock or latch, operated by a key, knob or thumb turn

3.9
door furniture
combination of lever handles or knobs on backplates or roses for the purpose of operating latches or locks

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3.10
escutcheon
surround with a shaped hole to accommodate a key or a lock cylinder, with or without a pivoted cover plate, intended primarily to protect the door leaf from abrasion caused by keys

3.11
external plate
backplate or rose that is fitted on the external face of a door

3.12
False Acceptance Rate
FAR
probability that the system incorrectly authorizes a non-authorized person, due to incorrectly matching the biometric input with a template

Note 1 to entry: The FAR is normally expressed as a percentage, following the FAR definition this is the percentage of invalid inputs which are incorrectly accepted.

3.13
FAR-1
FAR-1 (1/FAR) is the inverse of FAR

3.14
half set
single lever or knob attached to a plate or rose which enables operation of the lock or latch from one side of the door only

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3.15
Integrated Circuit Card
ICC
card, tag or device with an integrated circuit

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Note 1 to entry: Can be used with contact or contactless (RFID), active or passive.

EXAMPLEs: RFID, Smartcard.

3.16
inside
The side of the door that is facing the controlled area

3.17
internal plate
backplate or rose that is fitted on the internal face of a door

3.18
knob
element for mechanical hand operation of the MDF

3.19
latchplate
backplate adapted for use with a latch and having no keyhole or cylinder aperture

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3.20
lever handle
rotatable operating element designed as a lever with a length from its axis of rotation to its free end that exceeds 75 mm

3.21
manufacturer
any natural or legal person who manufactures a construction product or who has such a product designed or manufactured, or markets that product under his name or trademark and putting the product on the market

3.22
mechatronic door furniture – MDF
combination of lever handles or knobs on backplates or roses with an integrated or a remote electronic system, which is to be used with a mechanical or electromechanical lock for the purpose of operating the lock after verifying the authorization of a credential

Note 1 to entry: Type A: handle or knob operated door furniture with electrically operated activator, reading unit for credential and power supply to be combined with a mechanical operated lock where the lock shall meet EN 12209 or prEN 15685.

Note 2 to entry: Type B: Handle or knob operated door furniture with reading unit for credential and power supply to be combined with electrically operated locks where the lock shall meet EN 14846.

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3.23
outside
side of the door that is facing the uncontrolled area

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3.24
rose
element generally circular, but which may have equi-axial or approximately equi-axial shapes such as square or octagonal, that otherwise has the same features as a backplate

3.25
security furniture
device which provides added resistance to the lock and/or cylinder against physical attack

3.26
spindle
bar, usually square in cross-section, that engages with a follower

3.27
spring-assisted handle / knob
MDF lever handle or knob furniture that incorporates a spring which assists the return of the handle or knob to its intended “at-rest” position

3.28
spring-loaded handle / knob
MDF lever handle or knob that incorporates a spring which returns of the handle or knob to its intended “at-rest” position

3.29
tester
person who performs the test

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3.30
time zone
degree of functionality intended to provide security or convenience by limiting the time that a valid credential will operate the mechatronic door furniture

3.31
thumb turn
element of the MDF for mechanical finger operation

3.32
uncoupled
status of the activator when neither bolt or latch bolt can be operated by the handle, knob/ thumb turn or electrically

3.33
unsprung handle / knob
MDF handle or knob not fitted with a spring in the backplate or rose

4 Requirements

4.1 General

4.1.1 Classification principle

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The structure of the following requirements and test procedures reflects the classification in accordance with Clause 7.

It is up to the tester together with the manufacturer to decide which requirements and test methods are relevant to the technical design.

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4.1.2 Compatibility between cooperating parts

The manufacturer shall state which cooperating parts have been designed to be used in combination.

For compatibility and functionality between cooperating parts (products) similar classification is necessary.

4.1.3 Dangerous substances

National regulations on dangerous substances may require verification and declaration on release, and sometimes content, when construction products covered by this standard are placed on those markets.

In the absence of European harmonized test methods, verification and declaration on release/content should be done taking into account national provisions in the place of use.

NOTE An informative database covering European and national provisions on dangerous substances is available at the Construction website on EUROPA accessed through http://ec.europa.eu/growth/tools-databases/cp-ds_en .

Verified by 6.1.3

4.1.4 Operation time for locking and unlocking

Operation time for a change of status shall not exceed 3 s.

Verified by 6.1.4.

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4.1.5 Product information requirements

Products classified in accordance with this European standard shall have clear and detailed instructions for their installation and maintenance. These instructions shall at least contain:

a) the limitation of the products intended use, the limitation of the door mass and door dimensions, temperature range and the field of door application and centre distance between axes where applicable;

b) the spindle and fastening elements shall be specified by the manufacturer. The manufacturer should state clearly the door thickness or range of door thicknesses for which the furniture is suitable, and in the case of spring-assisted and spring-loaded furniture, the angle of rotation possible by the design;

c) information to ensure that the product can conform to the performance requirements of this document, including known restriction of use, for example conditions under which the product could be rendered inoperable;

d) information if the axial strength test has been done;

e) an extended temperature range if applicable;

f) information about suitability for use on fire resistance and/or smoke control door set if applicable;

g) information of the risk of misuse, dangerous substances and explosion of heated parts;

h) if applicable information of IP classification according to EN 60529, for outside and/or inside;

i) the information of any override function if applicable (i.e. mechanical cylinder);

j) information about the following product features:

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1) time zone possibilities (like number of time profiles, special time functions);

2) the quality of time zones (for example recurring (daily, weekly or calendar);

3) authorization process for an access modification (code, master code);

4) audit trails: quantity, with or without time-stamp, authorized access, denied access also, access programming;

5) effect on the coupled and uncoupled status during and after the removal of main power;

6) battery change: duration of no data loss;

7) battery low or main power failure, deeper than the minimum of working voltage;

8) external power supply in case of main power failure (if applicable);

9) duration of storage of the audit trails;

10) max number of operation with new battery and theoretical operable time for the MDF in years without operation with new battery (battery recommended by the manufacturer) and mean stand-by power consumption in Watt;

11) for devices with external power supply: