



SLOVENSKI STANDARD

SIST EN 1906:2002

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Stavbno okovje - Kljuke in bunke - Zahteve in preskusne metode

Building hardware - Lever handles and knob furniture - Requirements and test methods

Schlösser und Baubeschläge - Türdrücker und Türknäufe - Anforderungen und Prüfverfahren

Quincaillerie pour le bâtiment - Béquilles et boutons de porte - Prescriptions et méthodes d'essai

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English version

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This European Standard was approved by CEN on 4 November 2001.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 1906:2002) 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of an identical text or by endorsement, at the latest by August 2002, and conflicting national standards shall be withdrawn at the latest by August 2002.

Contribution to the preparation of this standard has been made from the European manufacturer's organisation "ARGE".

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

Compliance of a set of lock or latch furniture with this European Standard, in its entirety satisfies the Construction Products Directive with regard to the essential requirements in normal use, for safety in use and for safety in case of fire.

In this standard the Annexes A and C are normative and the Annexes B and D informative.

Normative and informative annexes to this standard are indicated in the contents.

Normative annexes give information on requirements for security lock furniture that offers enhanced resistance to attack, requirements for lock furniture and latch furniture that offers enhanced resistance to fire and the essential requirements. [SIST EN 1906:2002](https://standards.iteh.ai/catalog/standards/sist/3feef7df-2a0f-4d44-a3c4-201500a0709a/en-1906-2002)

Work is in progress in order to support the implementation of the European Standards by evidence which demonstrates the conformity of products to the technical requirements set out in those standards.

In order not to delay the publication of the present standard, those conformity assessment criteria related to lever handles and knobs will be published separately. They will be incorporated in this standard when next revised.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies test methods and requirements for spindle and fastening elements, operating torques, permissible free play and safety, free angular movement and misalignment, durability, static strength and corrosion resistance for sprung and unsprung lever handles and knobs for doors on backplates or roses.

This standard is applicable only to lever handles and knobs that operate a latch or a lock.

It states four categories of use according to the frequency and other conditions of use.

Compliance with this European Standard ensures a margin of strength in excess of that needed for normal operation. Additional requirements are needed for special safety furniture which is suitable for use in situations where there is a high risk of falling. Since special safety furniture is not essential in every situation, this European Standard provides for additional safety requirements (see 5.13) which are only necessary when the manufacturer states that the safety furniture is claimed to conform to these requirements.

This standard states five grades of security. Grade 0 according to requirements stated in the main part of this standard. Grades 1 to 4 are stated according to requirement for security lock furniture for use on burglary resistant doors (see annex A). These additional security requirements are necessary only when the manufacturer states that the products are claimed to have a high level of security, which is not essential in every situation.

The suitability of lock or latch furniture for use on fire/smoke door assemblies is determined by fire performance tests conducted in addition to the performance tests required by this standard. Since suitability for use on fire/smoke door assemblies is not essential in every situation, the manufacturer has the option of stating whether the furniture is claimed to conform to these additional requirements or not. If so stated the additional requirements given in annex C are necessary.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to, or revisions of, any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 1634-1, *Fire resistance tests for door and shutter assemblies - Part 1: Fire doors and shutters*

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

ISO 10899:1996, *High-speed steel two-flute twist drills — Technical specifications*

3 Terms and definitions

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

3.1

backplate

element generally, but not essentially, approximately rectangular in plan whose purpose is, firstly, functional to provide a bearing for the rotation of a door lever handle or knob and the means of attachment to the door and, secondly, decorative as a trim plate to cover holes provided in the door for the passage of spindles, keys or lock cylinders (see Figure 1a)

3.2

baseplate

component of an assembly of two parts that fit together to form a backplate or rose. This baseplate provides the bearing and means of fixing the assembly to the door (see Figure 1b)

3.3

door furniture

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

3.4

door knob

fixed or rotatable operating element, usually designed to be circular in plan, but which may be non-circular with a maximum offset of 75 mm from its axis of rotation, which engages a spindle passing through the door; the spindle then operating a latch mechanism when rotated, so that the latch bolt is withdrawn in order to unlatch the door, or alternatively, is fixed against rotation and is used to pull the door to the closed position and thereby relatch the door (see Figure 2)

3.5

door lever handle

rotatable operating element designed as a lever whose length from its axis of rotation to its free end exceeds 75 mm and which engages a spindle passing through a door

3.6

emergency release

facility provided on the external plate that enables the door to be opened in case of emergency (see Figure 3)

3.7

entrance set

any set of two lever handles or knobs with two lockplates or latchplates or, alternatively, roses and escutcheons and complete with a spindle and fastening elements where one lever handle or knob is free to rotate to withdraw the latch bolt and the other is fixed to act only as a door pull

3.8

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 damage caused by keys (see Figure 2)

3.9

external plate

backplate or rose that is fitted on the external face of a door (see Figure 3)

3.10

fixed spindling system

system in which the spindle is fastened to both lever handles or both knobs of a lockset or latchset often without any additional fixing of the handles or knobs to the backplates or roses, which allows the rotation of the follower of the lock or latch to withdraw the latch bolt, permits adaptation for different thicknesses of doors, connects the lever handle or knob to the spindle and transmits imposed axial pulling forces to the opposite face of the door

3.11

floating spindling system

system in which the spindle is not attached to either of the lever handles or knobs of a lockset or latchset but has additional fixing of the lever handles or knobs to the backplates or roses, which allows the rotation of the follower of the lock or latch to withdraw the latchbolt and permits adaptation for different thicknesses of doors

NOTE This system does not transmit imposed axial pulling forces to the opposite face of the door.

3.12

half set

single lever or knob attached to a plate or rose which allows operation of the lock or latch from one side of the door only and usually supplied with a short length spindle fixed to the lever or knob

3.13

indicator

device that is visible from the exterior of the door to indicate whether the door is locked or unlocked

3.14

internal plate

backplate or rose that is fitted on the internal face of a door (see Figure 3)

3.15

latchplate

backplate adapted for use in conjunction with a latch and having no keyhole or cylinder aperture

3.16

lockplate – cylinder

backplate having a cylinder aperture for use in conjunction with a cylinder lock

3.17

lockplate – lever

backplate having a keyhole for use with a lever lock

3.18

plug protection plate

plate whose function is to protect the cylinder plug and its components against violent attack

3.19

rose

element generally circular, but which may have equi-axed or approximately equi-axed shapes such as square or octagonal, that otherwise has the same features as a backplate (see Figure 2)

3.20

security furniture

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

3.21

set of mortice latch furniture

two door lever handles or knobs with two latchplates or roses and complete with a spindle and fastening elements

3.22**set of mortice lock furniture**

two door lever handles or knobs with two lockplates or, alternatively, roses and escutcheons complete with a spindle and fastening elements (see Figure 2)

3.23**snib**

small T-handle, knob or other handle fitted to the internal plate of a set of latch furniture that operates a device which prevents rotation of the lever handle or knob, thereby providing locking of the door for privacy

3.24**special safety furniture**

where the strength of the fixing of the lever or knob to the backplate and/or spindle and the strength of the fixing of the backplate to the door combine to provide a robust attachment to withstand a heavy force in the direction of removing the lever or knob from the door

3.25**spindle**

bar, usually square in cross-section, that engages a pair of lever handles or knobs on opposite sides of a door, passing through the door and engaging a latch action, thereby providing the mechanical connection by which the latch is operated when a lever handle or knob is rotated

3.26**spring-assisted furniture**

lever handle furniture, usually exceptionally heavy in design, that incorporates a spring which assists the return of the lever handle to its intended "at-rest" position but which may not necessarily have sufficient torque to return it fully

NOTE For exceptionally heavy lever handles it is difficult to design springs that have sufficient torque to return the handles and also have an adequate working life. For reasons relating to design of spring, the operating angle of such lever handles is usually restricted to 40°, and they are used with latches whose bolts retract fully at this angle of operation. When in use the combined action of the lever handle spring and the latch spring is sufficient to return the lever handle to its intended "at-rest" position.

3.27**spring-loaded furniture**

door furniture that incorporates a spring which fully returns the lever handle or knob to its intended "at-rest" position after operating the latch

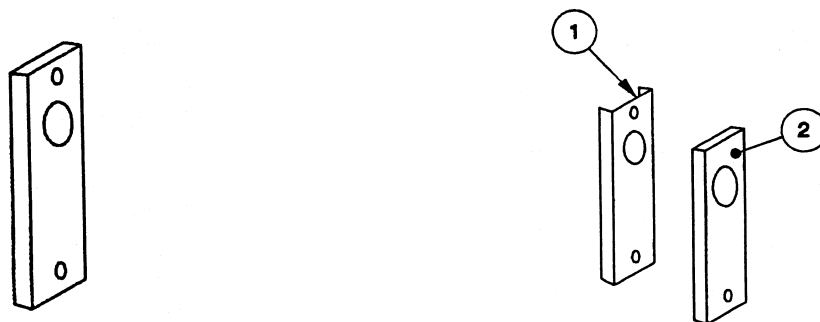
NOTE Spring-loaded furniture frequently includes an internal stop to prevent rotation beyond the intended "at-rest" position, but this feature is not essential if the furniture is used in conjunction with a latch mechanism incorporating its own stop.

3.28**thumb turn**

small T-handle, knob or other handle fitted on the internal plate of a set of bathroom lock furniture that operates a lock deadbolt in order to provide privacy rather than high security (see Figure 3)

3.29**trim plate**

component of an assembly of two parts that fit together to form a backplate or rose which is fastened to the baseplate as a decorative cover (see Figure 1b)



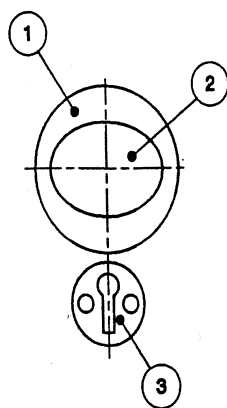
Key
 1 Baseplate
 2 Trim plate

Figure 1a — One part backplate

Figure 1b — Two part backplate

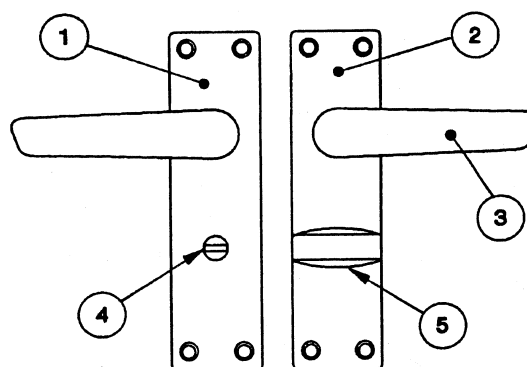
Figure 1 — Illustrations of backplates

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Key
 1 Rose
 2 Door knob
 3 Escutcheon

Figure 2 — Set of lock furniture



Key
 1 External plate
 2 Internal plate
 3 Lever handle
 4 Emergency release
 5 Thumb turn

Figure 3 — Bathroom lockset

4 Classification

4.1 Coding system

4.1.1 General

For the purpose of this European Standard, lever handles and knobs for doors on backplates or roses shall be classified according to the eight digit coding system described in 4.1.2 to 4.1.9.

4.1.2 Category of use (first digit)

Four grades are identified :

- grade 1 : medium frequency of use by people with a high incentive to exercise care and with a small chance of misuse, e.g. internal residential doors ;
- grade 2 : medium frequency of use by people with some incentive to exercise care but where there is some chance of misuse, e.g. internal office doors ;
- grade 3 : high frequency of use by public or others with little incentive to exercise care and with a high chance of misuse, e.g. public office doors ;
- grade 4 : high frequency of use on doors which are subject to frequent violent usage, e.g. football stadiums, offshore installations (oil rigs), barracks, public toilets, etc.

4.1.3 Durability (second digit) (standards.iteh.ai)

Two grades of durability are identified :

- grade 6 : medium frequency of use : 100 000 cycles ;
- grade 7 : high frequency of use : 200 000 cycles.

4.1.4 Door mass (third digit)

No classification.

4.1.5 Fire resistance (fourth digit)

Two grades of fire resistance are identified :

- grade 0 : not approved for use on fire/smoke door assemblies ;
- grade 1 : suitable for use on fire/smoke door assemblies.

4.1.6 Safety (fifth digit)

Two grades of safety are identified :

- grade 0 : normal use ;
- grade 1 : safety applications.

NOTE Standard furniture requires compliance with 5.1 to 5.12. Safety furniture requires compliance with 5.1 to 5.13.

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4.1.7 Corrosion resistance (sixth digit)

Five grades of corrosion resistance are identified according to EN 1670:1998.

- grade 0 : no defined corrosion resistance ;
- grade 1 : mild resistance ;
- grade 2 : moderate resistance ;
- grade 3 : high resistance ;
- grade 4 : very high resistance.

Products for internal use shall comply with the minimum requirements for grade 1.

Products for external use, e.g. entrance doors, shall comply with the minimum for grade 3. Other grades can be chosen for special purposes. e.g. grade 4 should be used for products exposed to marine atmospheres or very polluted industrial environments.

Products which are intended to develop a natural surface patina (e.g. bronze or brass products) or are intended to be cleaned frequently, are not required to comply with any corrosion requirements.

4.1.8 Security (seventh digit)

Five grades of security are identified :

- grade 0 : furniture not approved for use on burglary resistant doors;
- grade 1 : mild burglary resistance;
- grade 2 : moderate burglary resistance;
- grade 3 : high burglary resistance;
- grade 4 : extra high burglary resistance.

Grades 1, 2, 3 and 4 are determined according to the requirements and optional tests of annex A.

Furniture submitted to annex A shall firstly comply with all the appropriate requirements of clause 5 and meet the additional requirements of annex A in order to be deemed to comply with this European Standard.

4.1.9 Type of operation (eighth digit)

Three types of operation are identified:

- type A : spring-assisted furniture.
- type B : spring-loaded furniture.
- type U : unsprung furniture.

4.2 Example of classification

1	6	—	0	0	1	0	U
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This classification example denotes furniture for use by people with a high incentive to use care in a domestic situation, with durability grade 6 for medium frequency of use. There is no classification for door mass, it is not approved for fire/smoke doors, nor for safety applications and has a mild resistance to corrosion for internal use. It is not suitable for use on burglary resistant doors and is of the unsprung type.

5 Requirements

5.1 General

Sets of lock or latch furniture shall be subjected to the sequence of tests specified in 6.1, and listed in Table 1 using the test apparatus in accordance with 6.2 and the methods specified in clause 7 and shall meet the requirements detailed in 5.2 to 5.14.

For entrance sets, endurance tests shall be undertaken on the equivalent set of lock or latch furniture to verify that both lever handles or knobs comply with the durability requirements. All other appropriate tests shall be carried out on the entrance set assembly. Furniture that is made available with a lever one side and a knob on the other side shall be made known to the testing authority and endurance tests shall be undertaken accordingly.

According to this standard, sets of furniture shall be classified in grades 1 to 4 (see 4.1.2) in regard to the performance requirements detailed in 5.2 to 5.13.

NOTE If door furniture is to perform satisfactorily in service, it is essential that it is correctly selected for the application for which it is to be used and fitted strictly in accordance with the manufacturer's recommendations.

Materials in products shall not release any dangerous substances in excess of the maximum levels specified in the European material standards and any national regulations.