



SLOVENSKI STANDARD

SIST EN 1906:2010

01-september-2010

Nadomešča:
SIST EN 1906:2002

Stavbno okovje - Kljuka in bunke - Zahteve in preskusne metode

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

Schlösser und Baubeschläge - Türdrücker und Türkäufe - Anforderungen und Prüfverfahren

Quincaillerie pour le bâtiment - Bequilles et boutons de porte - Exigences et méthodes d'essai

iTeh STANDARD PREVIEW

(standards.iteh.ai)

[SIST EN 1906:2010](https://standards.iteh.ai/catalog/standards/sist/54362962-3051-459e-bc8d-10c1e1ebc7e1/SIST-EN-1906:2010)

[https://standards.iteh.ai/catalog/standards/sist/54362962-3051-459e-bc8d-](https://standards.iteh.ai/catalog/standards/sist/54362962-3051-459e-bc8d-10c1e1ebc7e1/SIST-EN-1906:2010)

Ta slovenski standard je istoveten z: EN 1906:2010

ICS:

91.190

Stavbna oprema

Building accessories

SIST EN 1906:2010

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 1906:2010

<https://standards.iteh.ai/catalog/standards/sist/54362962-3051-459e-bc8d-b7120ace1ebc/sist-en-1906-2010>

EUROPEAN STANDARD

EN 1906

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2010

ICS 91.190

Supersedes EN 1906:2002

English Version

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

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

Schlösser und Baubeschläge - Türdrücker und Türkäufe -
Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 11 March 2010.

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 CEN 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 CEN Management Centre has the same status as the official versions.

iTeh STANDARD PREVIEW

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, 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 United Kingdom.

SIST EN 1906:2010

<https://standards.iteh.ai/catalog/standards/sist/54362962-3051-459e-bc8d-b7120ace1ebc/sist-en-1906-2010>



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword	4
1 Scope.....	6
2 Normative references	6
3 Terms and definitions.....	6
4 Classification	11
4.1 Coding system	11
4.1.1 General.....	11
4.1.2 Category of use (first digit)	11
4.1.3 Durability (second digit).....	11
4.1.4 Door mass (third digit).....	11
4.1.5 Fire resistance (fourth digit)	11
4.1.6 Safety (fifth digit).....	11
4.1.7 Corrosion resistance (sixth digit).....	12
4.1.8 Security (seventh digit)	12
4.1.9 Type of operation (eighth digit)	12
4.2 Example of classification	12
5 Requirements	13
5.1 General.....	13
5.2 Check of spindle and fastening elements	14
5.3 Rotational torque strength.....	15
5.4 Axial strength of lock furniture or latch furniture and fixing.....	15
5.5 Free play and safety	15
5.5.1 Requirement for free play	15
5.5.2 Safety requirements.....	15
5.6 Free angular movement or misalignment.....	15
5.7 Torque of return mechanism	16
5.7.1 General.....	16
5.7.2 Unsprung and spring-assisted lever handles	16
5.7.3 Unsprung knobs.....	16
5.7.4 Spring-loaded lever handles or knobs.....	16
5.8 Durability of mechanism	16
5.9 Repeat test of axial strength of lock or latch furniture and methods of fixing.....	16
5.10 Repeat test of free play measurement	16
5.11 Repeat test of measurement of free angular movement or misalignment.....	17
5.12 Repeat test of torque of return mechanism	17
5.13 Axial strength for safety furniture (optional)	17
5.14 Corrosion resistance	17
6 Tests – Sequence and test.....	17
6.1 Test sequence	17
6.2 Test apparatus.....	18
6.2.1 Fixing to a test block (see Figures B.1 and B.2)	18
6.2.2 Apparatus for strength tests.....	18
6.2.3 Apparatus for endurance test.....	19
7 Test methods	20
7.1 General.....	20
7.2 Acceptance conditions.....	20
7.3 Performance tests.....	21
7.3.1 Check of spindle and fastening elements (Test 1)	21

7.3.2	Axial strength of lock or latch furniture and fastening elements (Test 2)	21
7.3.3	Free play and safety (Test 3).....	21
7.3.4	Free angular movement or misalignment (Test 4).....	21
7.3.5	Torque of return mechanism (Test 5)	22
7.3.6	Durability of mechanism (Test 6)	22
7.3.7	Repeat test of axial strength and methods of fastening (Test 7).....	23
7.3.8	Repeat check of free play (Test 8).....	23
7.3.9	Repeat measurement of free angular movement (Test 9).....	23
7.3.10	Repeat test of torque of return mechanism (Test 10)	23
7.3.11	Axial strength and method of fastening of special safety furniture (Test 11 – optional)	23
7.3.12	Rotational strength (Test 12)	24
7.4	Corrosion resistance (Test 13)	24
8	Marking	24
Annex A (normative) Requirements for security lock furniture for use on burglary resistant doors		
		25
A.1	Introduction	25
A.2	Requirements	25
A.2.1	Design requirements	25
A.2.2	Performance requirements	26
A.3	Test methods.....	26
A.3.1	Test parameters	26
A.3.2	Pre-checks (Test A.1).....	27
A.3.3	Plate strength (Test A.2).....	27
A.3.4	Strength of fastening elements (Test A.3).....	28
A.3.5	Resistance to attack by drilling (Test A.4).....	28
A.3.6	Resistance to attack by chisel (Test A.5).....	28
A.3.7	Strength of plug protection plate (if fitted) (Test A.6).....	30
A.4	Classification	30
A.5	Marking	30
A.6	Fixing instructions	30
Annex B (informative) Test apparatus illustrations		
		31
Annex C (normative) Requirements for lock and latch furniture for use on smoke control and fire resistant door assemblies.....		
		44
C.1	General.....	44
C.2	Classification for smoke control and fire resistant Grades A, B and C	44
C.3	Additional requirements for fire resistance classification Grade C with fire proof core.....	45
C.4	Tests.....	46
C.4.1	Fire resistance.....	46
C.4.2	Smoke control	46
C.5	Test report	46
Annex D (informative) Flow charts of test procedures.....		
		47
Bibliography		
		49

EN 1906:2010 (E)**Foreword**

This document (EN 1906:2010) 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 October 2010, and conflicting national standards shall be withdrawn at the latest by October 2010.

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 1906:2002.

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

This document 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 conforms to requirements in normal use for safety in use and for safety in case of fire.

In this document, Annexes A and C are normative and Annexes B and D are informative.

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

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

This document states five grades of security. Grade 0 in accordance with requirements specified in the main part of this document. Grades 1 to 4 are specified in accordance with requirements for security lock furniture for use on burglary resistant doors (see Annex A). These additional security requirements are necessary only when the manufacturer claims that products 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 in addition to the performance tests specified 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.

Annex C refers to all kinds of lock or latch furniture for use on fire/smoke door assemblies, and their use on single leaf or double leaf doors.

A product conforming to this standard can also be part of an exit device in accordance with EN 179.

In order to claim conformance to EN 1906 all requirements of Table 1 – Main test parameters, should be declared.

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, Croatia, 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.

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 1906:2010

<https://standards.iteh.ai/catalog/standards/sist/54362962-3051-459e-bc8d-b7120ace1ebc/sist-en-1906-2010>

EN 1906:2010 (E)**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, knobs for doors, push pads and similar in combination with backplates or roses operating latches.

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

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

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 314-2:1993, *Plywood — Bonding quality — Part 2: Requirements*

EN 636:2003, *Plywood — Specifications*

EN 1634-1, *Fire resistance and smoke control tests for door shutter and openable window assemblies and elements of building hardware — Part 1: Fire resistance tests for doors, shutters 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* standards.iteh.ai/catalog/standards/sist/54362962-3051-459e-bc8d-b7120ace1ebc/sist-en-1906-2010

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/IEC 17025, *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:2005)*

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

3 Terms and definitions

For the purposes of this document, 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

NOTE E.g. in Figure 1a).

3.2**baseplate**

component of an assembly of two parts that fit together to form a backplate or rose, which provides the bearing and means of fixing the assembly to the door

NOTE E.g. in 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 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

NOTE E.g. in Figure 2.

3.5**door lever handle**

rotatable operating element designed as a lever with length, from its axis of rotation to its free end, which 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

NOTE E.g. in Figure 3. standards.iteh.ai/catalog/standards/sist/54362962-3051-459e-bc8d-b7120ace1ebc/sist-en-1906-2010

3.7**set of door furniture**

two lever handles or knobs with two lockplates or latchplates or, alternatively, roses and escutcheons and complete with a spindle and fastening elements to operate the latch

3.8**entrance set**

set with a lever handle on the one side of the door and a fixed knob or bar or no handle on the other

3.9**fire protection inlay**

metal sheet inlay under the escutcheon and in the lever handle, which prevents fire going through after melting of the cover or escutcheon

NOTE Materials with a melting point higher than 1 000 °C are used.

3.10**fireproof core**

fireproof material (typically steel) inside lever handle which enables the handle function to remain operable after a fire

3.11**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

EN 1906:2010 (E)

NOTE E.g. in Figure 2.

3.12**external plate**

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

NOTE E.g. in Figure 3.

3.13**fixed spindle 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 enables rotation of the follower of the lock or latch to withdraw the latch bolt, and which enables 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

3.14**floating spindle 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 enables rotation of the follower of the lock or latch to withdraw the latchbolt and which enables adaptation for different thicknesses of doors

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

3.15**radial split spindle system**

system in which the spindle is split across radial X-section which is normal to its axis of normal operation including door furniture spindle suitable for emergency exit-entrance door locks

3.16**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

3.17**indicator**

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

3.18**internal plate**

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

NOTE E.g. in Figure 3.

3.19**latchplate**

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

3.20**lockplate**

backplate having an aperture for use with a cylinder or lever key

3.21**cylinder protection plate**

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

3.22**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

NOTE E.g. in Figure 2.

3.23**security furniture**

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

3.24**set of mortice latch furniture**

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

3.25**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

NOTE E.g. in Figure 2.

3.26**special safety furniture**

furniture where the strength of the fixing of the lever, lever handle 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 any direction of removing the lever, lever handle or knob from the door

3.27**spindle**

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

SIST EN 1906:2010

<https://standards.iteh.ai/catalog/standards/sist/54362962-3051-459e-bc8d->

3.28**spring-assisted furniture**

lever handle or knob furniture, usually exceptionally heavy in design, that incorporates a spring which assists the return of the 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 designs of springs, 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.

3.29**Sprung 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 Sprung 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 with a latch mechanism incorporating its own stop.

3.30**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 to provide privacy rather than high security

NOTE E.g. in Figure 3.

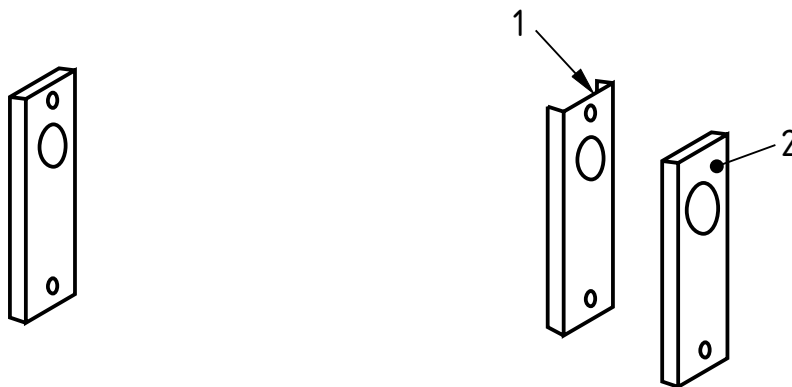
EN 1906:2010 (E)

3.31

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

NOTE E.g. in Figure 1b).



a) One part backplate

b) Two part backplate

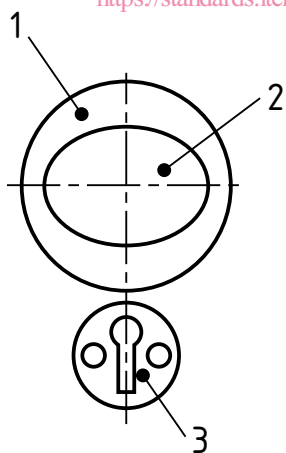
Key

- 1 Baseplate
- 2 Trim plate

iTeh STANDARD PREVIEW

Figure 1 — Illustrations of backplates

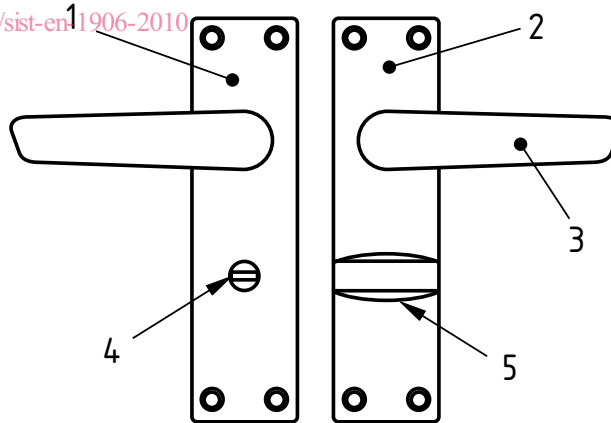
SIST EN 1906:2010
<https://standards.iteh.ai/catalog/standards/sist/54362962-3051-459e-bc8d-b7120ace1ebc/sist-en-1906-2010>



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 document, lever handles and knobs for doors on backplates or roses shall be classified in accordance with the eight digit coding system specified 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)

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)

Four grades of fire resistance are identified:

- grade 0: no performance determined;
- grade A: for use on smoke control door assemblies;
- grade B: for use on smoke control and fire resistance door assemblies;
- grade C: for use on smoke control and fire resistance door assemblies with requirements for special core in the handle/knob.

NOTE See Annex C.

4.1.6 Safety (fifth digit)

Two grades of safety are identified:

iTech STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 1906:2010

http://standards.iteh.ai/catalog/standards/sist/54362962-3051-459e-bc8d-b7120ace1ebc/sist-en-1906-2010

EN 1906:2010 (E)

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

NOTE Standard furniture should conform to 5.1 to 5.12. Safety furniture should conform to 5.1 to 5.13.

4.1.7 Corrosion resistance (sixth digit)

Six grades of corrosion resistance are identified in accordance with EN 1670:2007 as follows:

- grade 0: no performance determined;
- grade 1: mild resistance;
- grade 2: moderate resistance;
- grade 3: high resistance;
- grade 4: very high resistance;
- grade 5: extremely high resistance.

4.1.8 Security (seventh digit)

Five grades of security are identified:

- grade 0: no performance determined;
- 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 in accordance with the requirements and optional tests of Annex A.

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
----------	----------	----------	----------	----------	----------	----------	----------

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 are in general similar executed groups. From this group the expected weakest assembly is 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 conform to 5.2 to 5.14.

Results of a sequence of tests may be found to be applicable or be found to conform to sets which are tested in another sequence of tests. If sets which have equivalent construction both sides of the door have been endurance tested, these sets cannot be passed on a one sided movable knob set or lever handle set.

For entrance sets, the equivalent set of lock or latch furniture shall be endurance tested to verify that the lever handles or knobs conform to the durability requirements. The entrance set assembly shall be tested in accordance with all other appropriate tests. Furniture that is made available with a lever one side and a knob on the other side shall be endurance tested accordingly.

Sets of furniture shall be classified in grades 1 to 4 (see 4.1.2) in regard to performance requirements specified in 5.2 to 5.13.

NOTE 1 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.

NOTE 2 National regulations may also be applicable.

Table 1 — Main test parameters

Test	Subclause	Figure	Description	Category of use acceptance criteria			
				grade 1	grade 2	grade 3	grade 4
1	5.2 and 7.3.1	—	Check of fastening elements and spindle	yes/ no	yes/ no	yes/ no	Yes/ no
2	5.4 and 7.3.2	B.3	Axial strength				
			— Axial strength $^{+5}_0$ % at 50 mm \pm 1 mm	300 N	500 N	800 N	1 000 N
			— pre-load \pm 1N at 50 mm \pm 1 mm	15 N	15 N	15 N	15 N
			— permanent deformation at 75 mm \pm 2 mm	\leq 2 mm	\leq 2 mm	\leq 2 mm	\leq 2 mm
3	5.5 and 7.3.3	B.8	Free play "at-rest" and then at 60° \pm 5° or maximum of design				
			— force \pm 1N at 50 mm \pm 1 mm	15 N	15 N	15 N	15 N
			— total movement at 75 mm \pm 2 mm	\leq 10 mm	\leq 10 mm	\leq 6 mm	\leq 6 mm
			Safety requirements	yes	yes	yes	Yes
4	5.6 and 7.3.4	B.9	Free angular movement				
			— force \pm 1N at 50 mm \pm 1 mm	15 N	15 N	15 N	15 N
			— misalignment measured at 75 mm \pm 2 mm	\leq 10 mm	\leq 10 mm	\leq 5 mm	\leq 5 mm