SLOVENSKI STANDARD
SIST EN 1303:2015

01-september-2015

Nadomešča:
SIST EN 1303:2005
SIST EN 1303:2005/AC:2008

Stavbno okovje - Profilni cilindri za ključavnice - Zahteve in preskusne metode

Building hardware - Cylinders for locks - Requirements and test methods

Baubeschläge - Schließzylinder für Schlösser - Anforderungen und Prüfverfahren

Quincaillerie pour le bâtiment - Cylindres de serrures - Exigences et méthodes d'essai

Ta slovenski standard je istoveten z: **EN 1303:2015**

ICS:

91.190	Stavbna oprema	Building accessories

SIST EN 1303:2015 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1303

June 2015

ICS 91.190

Supersedes EN 1303:2005

English Version

Building hardware - Cylinders for locks - Requirements and test methods

Quincaillerie pour le bâtiment - Cylindres de serrures - Exigences et méthodes d'essai

Schlösser und Baubeschläge - Schließzylinder für Schlösser - Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 19 March 2015.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 1303:2015 E

Contents

Page

Foreword 4

Introduction 5

1 Scope 6

2 Normative references 6

3 Terms and definitions 7

4 Requirements 8
4.1 General 8
4.2 Category of use — Key strength 8
4.3 Durability 8
4.4 Door mass 8
4.5 Suitability for use on fire resistant / smoke control doors 8
4.6 Safety 8
4.7 Corrosion resistance and operation at extreme temperatures 8
4.7.1 Corrosion resistance 8
4.7.2 Operation at extreme temperatures 9
4.8 Key related security 9
4.8.1 Minimum number of effective differs 9
4.8.2 Minimum number of movable detainers 9
4.8.3 Maximum number of identical steps 9
4.8.4 Direct coding on key 9
4.8.5 Operation of security mechanism (inter-passing) 9
4.8.6 Torque resistance of plug/cylinder relevant to key related security 10
4.9 Attack resistance 10
4.9.1 General 10
4.9.2 Resistance to attack by drilling 10
4.9.3 Resistance to attack by chisel 11
4.9.4 Resistance to attack by twisting 11
4.9.5 Resistance to attack by plug / cylinder extraction 11
4.9.6 Torque resistance of plug/cylinder relevant to attack resistance 11

5 Test – General and test apparatus 12
5.1 General 12
5.2 Test rigs and apparatus 13

6 Test methods – procedures 13
6.1 General 13
6.2 Key strength 13
6.3 Durability tests — Standard test cycles 14
6.4 Door mass 16
6.5 Suitable for use on fire resistance / smoke control doors 16
6.6 Safety 16
6.7 Corrosion resistance and test of operation at extreme temperatures 16
6.7.1 Corrosion resistance 16
6.7.2 Test of operation at extreme temperatures 16
6.8 Key related Security 16
6.8.1 Minimum numbers of effective differs 16
6.8.2 Minimum number of movable detainer 17
6.8.3 Maximum number of identical steps 17

6.8.4 Direct coding on key 17
6.8.5 Operation of the security mechanism 17
6.8.6 Torque resistance of plug and/or cylinder 17
6.9 Attack resistance 17
6.9.1 Resistance to drilling 17
6.9.2 Resistance to attack by chisel 18
6.9.3 Resistance to attack by twisting 19
6.9.4 Resistance to attack by plug/cylinder extraction 20
6.9.5 Torque resistance of plug/cylinder relevant to attack resistance 24

7 Classification 25
7.1 General 25
7.2 Category of use (1st digit) 25
7.3 Durability (2nd digit) 25
7.4 Door mass (3rd digit) 25
7.5 Suitable for use on fire resistant / smoke control doors (4th digit) 25
7.6 Safety (5th digit) 25
7.7 Corrosion resistance and temperature (6th digit) 25
7.8 Key related security (7th digit) 26
7.9 Attack resistance (8th digit) 26

8 Marking 26

Annex A (normative) Cylinders suitable for use on fire resistant / smoke control doors 27

Annex B (informative) Tables of test sequence 28

Annex C (informative) Product information 29

Annex D (informative) Manufacturer's declaration of compliance 30

Annex E (informative) Comparison table between EN 1303:2005 and EN 1303:2015 32

Bibliography 33

Foreword

This document (EN 1303:2015) has been prepared by Technical Committee CEN/TC 33 “Doors, windows, shutters, building hardware and curtain walling”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2015, and conflicting national standards shall be withdrawn at the latest by December 2015.

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 1303:2005.

The European Federation of Associations of Lock and Builders Hardware Manufacturers, ARGE, collaborated in the drafting of this European Standard.

The main changes from the previous edition are to be found as follows:

a) Definition 3.7: New definition for "movable detainer";

b) Subclause 4.7.2: Temperature change from − 20 °C and + 80 °C to − 25 °C and + 65 °C;

c) Subclause 4.9.5: Plug extraction, two Grades A and B without extraction added; Grade C with 10 kN replaces grade 1; Grade D replaces grade 2;

d) Clause 5: Added headline: Test - General and test apparatus;

e) Subclause 6.9.4: Plug extraction test method developed;

f) Subclause 7.5: Grade 1 replaced with grade A and grade B (see Annex A);

g) Subclause 7.9: Additional grades for attack resistance introduced;

h) Subclause 7.9: New grading for attack resistance (0, A to D), see new Annex E;

i) Annex A: Suitability for use on fire/smoke resistant doors (normative);

j) Annex A: Grade A for smoke added. Grade 1 replaced with Grade B;

k) Annex B: Tables of test sequence (informative);

l) Annex C: Product information (informative);

m) Annex D: Manufacturers declaration (informative);

n) Annex E: Comparison table between EN 1303:2005 and EN 1303:2015 (informative).

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The aim of the test methods described in this standard is to keep human influence on the test results to a minimum, thus improving reproducibility.

The suitability of cylinders for use on fire or smoke-door assemblies is determined by fire performance tests conducted in addition to the performance testing required by this standard. Since suitability for use on fire doors is not essential in every situation the manufacturer has the option to state if the cylinder conforms to these additional requirements or not. If so claimed, cylinders will comply with the requirements in Annex A.

1 Scope

This European Standard applies to cylinders and their keys for such locks as are normally used in buildings and are designed to be used with cylinders, where the locks have an operational torque of maximum 1,2 Nm.

This European Standard specifies performance and other requirements for the strength, security, durability, performance and corrosion resistance of cylinders and their original keys. It establishes one category of use, three grades of durability, three grades for fire and four grades corrosion resistance all based on performance tests as well as six grades of key related security based on design requirements and five grades on performance tests that simulate attack.

This European Standard includes tests of satisfactory operation at a range of temperatures. It specifies test methods to be used on cylinders and their protective measures linked with these cylinders and recommended by the manufacturer.

Corrosion resistance is specified by reference to the requirements of EN 1670 on corrosion resistance of building hardware.

The suitability of cylinders for use on fire or smoke-door assemblies is determined by fire performance tests conducted in addition to the performance testing required by this standard. Since suitability for use on fire doors is not essential in every situation the manufacturer has the option to state if the cylinder conforms to these additional requirements or not. If so claimed, cylinders will comply with the requirements in Annex A.

On occasions there may be a need for additional functions within the design of the cylinder. Purchasers should satisfy themselves that the products are suitable for their intended use.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 636, *Plywood — Specifications*

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

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

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

3 Terms and definitions

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

3.1
cylinder
device, usually distinct from its associated lock or latch, operated by a key

3.2
cam
component of the cylinder to provide the movement to effect locking

3.3
effective differ
difference between cylinders of similar design, achieved only by the movable detainer, which allows each cylinder to be operated only by its own key

3.4
direct code
marking on the key where the key steps can be determined without reference to another data source

3.5
key
separate device corresponding to the cylinder, which can mechanically operate the cylinder

3.6
keyway
aperture extending along the whole or part of the length of the plug into which the key is inserted

3.7
movable detainer
permutable part of the mechanism of a cylinder which should first be moved by the key into a pre-determined position before the key and/or plug can move

3.8
plug
part of a cylinder that can be moved when the proper key is used

3.9
steps
characteristics of a key which operates movable detainers

4 Requirements

4.1 General

The structure of this clause reflects the classification in accordance with Clause 7.

4.2 Category of use — Key strength

The key shall not break under the applied torque of 2,5 Nm.

After the test, the key shall be capable of being removed from the cylinder and re-used to operate the same cylinder with a torque not exceeding 1,5 Nm.

Tested in accordance with 6.2.

4.3 Durability

It shall be possible to operate the cylinders with a new original key the number of test cycles specified in Table 1.

Tested in accordance with 6.3.

Table 1 — Number of cycles

Durability	Number of cycles
Grade 4	25 000
Grade 5	50 000
Grade 6	100 000

4.4 Door mass

There is no requirement on the cylinder related to the door mass.

4.5 Suitability for use on fire resistant / smoke control doors

The cylinder shall conform to the requirements of Annex A.

Verified in accordance with 6.5.

4.6 Safety

There is no requirement on the cylinder related to safety.

4.7 Corrosion resistance and operation at extreme temperatures

4.7.1 Corrosion resistance

It shall be possible to operate the cylinder with its proper key using a maximum torque of 1,5 Nm after tested according to grade 3 of EN 1670.

This corrosion test shall apply to the functionality only.

No distinction is made between the inside and the outside of cylinder and/or door.

Tested in accordance with 6.7.1.

4.7.2 Operation at extreme temperatures

It shall be possible to operate the cylinder with its proper key using a maximum torque of 1,5 Nm at both − 25 °C and + 65 °C.

Tested in accordance with 6.7.2

4.8 Key related security

4.8.1 Minimum number of effective differs

The number of effective differs is equal to the number of theoretical differs after deduction of the differs suppressed by the manufacturer due to technical constraints and those differs suppressed in accordance with the restraints of 4.8.3.

The minimum number of effective differs shall be as indicated in Table 2.

The number of effective differs shall be verified in accordance with 6.8.1.

4.8.2 Minimum number of movable detainers

A movable detainer shall have minimum 3 permutable characteristics (position, layer, height or other technical distinction).

The minimum number of movable detainers shall be as indicated in Table 2.

The number of movable detainers shall be verified in accordance with 6.8.2.

4.8.3 Maximum number of identical steps

The choice of key steps for movable detainer operation which have the same operating level shall be restricted as indicated in Table 2.

Maximum identical adjacent key steps are allowed as indicated in Table 2.

The requirements are related to one row only of movable detainers.

The number of identical steps shall be verified in accordance with 6.8.3.

4.8.4 Direct coding on key

Direct key coding shall not be permitted on keys for the key related security grades 3 to 6 as specified in Table 2.

4.8.5 Operation of security mechanism (inter-passing)

For the key related security grades 1, 2 and 3, it shall not be possible before the durability test to operate the cylinder with the next closest key to its own key using a torque of $(1{,}5\ ^{+0,2}_{0})$ Nm.

For the key related security grades 4, 5 and 6, it shall not be possible before and after the durability test to operate the cylinders with the next closest key to its own key using a torque of $(1{,}5\ ^{+0,2}_{0})$ Nm.

Tested in accordance with 6.8.5.

4.8.6 Torque resistance of plug/cylinder relevant to key related security

It shall not be possible to rotate the plug and/or cylinder in the key related security grades 1 to 6, using the specified applied torque as indicated in Table 2.

Tested in accordance with 6.8.6.

Table 2 — Summary key related security

Clause	Requirement	Test clause	Parameter	Grades						Unit
				1	2	3	4	5	6	
4.8.1	Min. number of effective differs	6.8.1	-	100	300	15000	30000	30000	100000	No
4.8.2	Min. number of movable detainers	6.8.2	-	2	3	5	5	6	6	No
4.8.3	Max. number of identical steps [c]	6.8.3	-	100	70	60	60	60	50	%
	Max number of identical adjacent steps		-	-	2	2	2	2	2	No
4.8.4	Direct coding on key	6.8.4	-	-	-	No	No	No	No	-
4.8.5	Operation of security mechanism (Interpassing)	6.8.5	Torque	1,5 [a]	1,5 [a]	1,5 [a]	1,5 [b]	1,5 [b]	1,5 [b]	Nm
4.8.6	Torque resistance of plug/cylinder	6.8.6	Torque	2,5	5	15	15	15	15	Nm

[a] Tested before the durability test.
[b] Tested before and after the durability test.
[c] Rounded to the lower integer

4.9 Attack resistance

4.9.1 General

The cylinders, including any reinforcement or protection device supplied with them shall be tested as one unit.

In case of a double cylinder, it is assumed that the grades for the attack resistance apply to the attack side / outside of the cylinder. This side shall have a proper indication, either on the product or on the documents with the product. If both sides are identical, it is not necessary to put an indication on the product.

4.9.2 Resistance to attack by drilling

It shall not be possible to rotate the cam using a maximum torque of 5 Nm without the correct key, after the drilling time specified in Table 3.

It is not necessary for the correct key to operate the cylinder after testing.