



SLOVENSKI STANDARD
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Stavbno okovje - Zahteve in preskusne metode - Večtočkovne ključavnice, zapahi in varovalne podložke - Značilnosti in preskusne metode

Building hardware - Requirements and test methods - Multipoint locks, latches and locking plates - Characteristics and test methods

Schlösser und Baubeschläge - Mehrfachverriegelungs-Schlösser und Schließbleche - Anforderungen und Prüfverfahren

Quincaillerie pour le bâtiment - Serrures multipoints et leurs gaches - Prescriptions et méthodes d'essais

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EUROPEAN STANDARD
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English Version

Building hardware - Requirements and test methods - Multipoint locks, latches and locking plates - Characteristics and test methods

Quincaillerie pour le bâtiment - Serrures multipoints
et leurs gâches - Prescriptions et méthodes d'essais

Schlösser und Baubeschläge - Mehrfachverriegelungs-
Schlösser und Schließbleche - 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.

If this draft becomes a European Standard, 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.

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

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Contents	Page
European foreword	4
1 Scope	5
2 Normative references	5
3 Terms, definitions, symbols and abbreviations	6
3.1 Terms and definitions	6
3.2 Symbols and abbreviations	9
4 Product characteristics	10
4.1 General.....	10
4.2 Category of use (first digit).....	11
4.3 Durability characteristics (second digit)	18
4.4 Door mass and closing force (third digit)	20
4.5 Suitability for use on fire resistance and/or smoke control door set (forth digit).....	20
4.6 Safety (fifth digit)	21
4.7 Corrosion resistance and temperature (sixth digit)	21
4.8 Security of locking point (seventh digit).....	21
4.9 Key identification of lever locks (eight digit)	32
4.10 Security of anti-separation point (nine digit).....	33
4.11 Clenching (tenth digit)	41
5 Testing, assessment and sampling methods	42
5.1 General.....	42
5.2 Test apparatus	43
5.3 Test procedure - Drilling procedure	44
5.4 Test methods - general	44
5.5 Test methods - Category of use	45
5.6 Test methods - Durability	48
5.7 Test methods - Door mass and closing force.....	54
5.8 Suitability for use on fire resistance and smoke control doors	55
5.9 Safety	55
5.10 Corrosion resistance and temperature.....	56
5.11 Security of locking point.....	56
5.12 Key identification of lever locks	66
5.13 Security of anti-separation point	66
5.14 Test methods - Clenching.....	71
6 Assessment and verification of constancy of performance - AVCP	72
6.1 General.....	72
6.2 Type testing.....	72
6.3 Factory production Control (FPC).....	75
7 Classification	79
7.1 Coding system	79
7.2 Classification.....	80
7.3 Example of classification for multipoint locks and their locking plates.....	83
8 Marking	84
8.1 On the product	84

8.2 On the packaging.....	84
Annex A (normative) Test sampling and sequencing.....	85
Annex B (informative) Product information	89
Annex ZA (informative) Relationship of this European Standard with Regulation (EU) No.305/2011	92
Bibliography	95

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[oSIST prEN 15685:2019](https://standards.iteh.ai/catalog/standards/sist/81a5acdb-9e28-489a-9d30-f8e3f62d95ae/osist-pren-15685-2019)

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prEN 15685:2019 (E)**European foreword**

This document (prEN 15685:2019) 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 the CEN Enquiry.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential characteristics of EU Regulation(s).

For relationship with Regulation (EU) No. 305/2011 (CPR), see informative Annex ZA, which is an integral part of this document.

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

European standards for mechanically operated locks and latches (EN 12209) and for electromechanically operated locks and locking plates (EN 14846) 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 for all CEN Members.

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1 Scope

This document specifies product characteristics and test methods of mechanically operated multipoint locks and their locking plates:

- a) for use in doors in buildings;
- b) for use on fire and smoke compartmentation doors fitted with door closing devices, to enable such doors to close reliably and thus achieve self-closing in the event of fire;
- c) for use on locked fire doors to maintain the fire integrity of the door assembly.

This document covers multipoint locks their locking plates which are either manufactured and placed on the market in their entirety by one producer or assembled from sub-assemblies produced by more than one producer and designed to be used in combination.

This document does not cover assessment of the contribution of the product to the fire resistance of specific fire resistance and/or smoke control door set assemblies.

This document is not applicable to mechanical/electromechanical cylinders, handles, locks for windows, padlocks, locks for safes, furniture locks or prison locks.

This document does not specify mechanically operated locks or their locking plates which are specified by EN 12209.

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2 Normative references (standards.iteh.ai)

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.

EN 1303, *Building hardware - Cylinders for locks - Requirements and test methods*

EN 1634-1, *Fire resistance and smoke control tests for door, shutter and open able window assemblies and elements of building hardware - Part 1: Fire resistance tests for doors, shutters and open able windows*

EN 1634-2, *Fire resistance and smoke control tests for door, shutter and open able 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, open able 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, *Building hardware - Lever handles and knob furniture - Requirements and test methods*

EN 16035, *Hardware performance sheet (HPS) - Identification and summary of test evidence to facilitate the inter-changeability of building hardware for application to fire resisting and/or smoke control door sets and/or openable windows*

3 Terms, definitions, symbols and abbreviations

3.1 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 <https://www.iso.org/obp>

3.1.1

anti-separation point

locking point designed to prevent the separation of a door leaf from its frame or adjacent door leaf in the plane of the door

Note 1 to entry: Examples of anti-separation points are hook and mushroom types.

3.1.2

automatic deadlocking

deadlocking where deadbolt or deadlocked latch movement is self-propelled, and is triggered when the closed position of the door leaf has been reached

3.1.3

centrally controlled

having released the bolts of all of its locking and/or clenching and/or anti-separation points, from a single lock case

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oSIST prEN 15685:2019

3.1.4

clenching point

arrangement of components to draw together a door and its frame in the door closing direction to reduce distortion of the door and/or compress seal (may also be a locking point and/or anti-separation point)

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3.1.5

cylinder

device, usually separate from, but engaging with, its associated lock or latch, that contains the parts operated by the key

3.1.6

cylinder lock

lock in which the lock mechanism is operated by one or more cylinders

3.1.7

deadbolt

movable part of a lock that usually engages a locking plate and withdraws into a lock case that is operated at least in one direction by a key, handle or thumb turn

3.1.8

deadlocking

action of moving a deadbolt to a thrown position where pushing back of the bolt is positively prevented

3.1.9**detaining element**

component which is moved by a key into a pre-determined position to allow the bolt to be operated

3.1.10**differ**

variation between lock mechanisms of similar design, achieved by the detaining elements, which enables each lock to be operated only by its own key

3.1.11**effective differ**

difference between lock or key recognition systems of similar design achieved only by the detaining elements which allows each lock or key recognition system to be operated only by its own key

Note 1 to entry: 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.

3.1.12**follower**

part of a lock that operates the latch bolt and/or deadbolt(s) and/or clenching and/or anti-separation points when turned by a spindle

3.1.13**forend**

part of a case through which the lock is fixed to the door leaf and through which the latch bolt and/or deadbolt pass

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3.1.14**interlinked**

connected for the purpose of operation

3.1.15**key**

device that is removable and portable and is used to operate the lock

3.1.16**latch**

self-engaging fastener which secures a movable component (e.g. door) in a closed position and which can be released

3.1.17**latch action**

arrangement and performance of the constituent parts that operate a latch bolt

3.1.18**latch bolt**

spring-loaded movable part of a lock that usually engages a component fixed to a frame, and withdraws into a lock case that automatically engages a locking plate to keep the door leaf in its closed position

prEN 15685:2019 (E)**3.1.19****lever lock**

lock with integral differs operated by a key

3.1.20**lock**

fastener which secures a door leaf in its closed position and which is operated by a key or other device

3.1.21**lockable follower**

mechanism operated by a key to block the rotation of the follower inside a lock case or the rotation of a handle/knob when it is a part of the lock

3.1.22**lock case**

part of a lock in which the lock mechanism is housed

3.1.23**locking plate**

component, which is usually fixed to a door frame to engage at least a locking point or, latch bolt or an anti-separation point or a clenching point

3.1.24**locking point**

arrangement of components interacting between a deadbolt or anti-separation point and locking plate for security purpose

3.1.25**locking snib**

device, usually in the form of a small lever or knob, which can be operated to prevent the locking point, or latch bolt or an anti-separation point or clenching point from being thrown or withdrawn, or to change the operating mode of a lock

3.1.26**lock mechanism**

constituent parts of a lock that operate the deadbolt and/or latch bolt or an anti-separation point or a clenching point and, where required, provide the differs

3.1.27**manual deadlocking**

deadlocking where movement of the deadbolt is by key, handle or thumb turn

3.1.28**mortice lock**

lock for fixing in a mortice, usually in the closing edge of a door leaf

3.1.29**multipoint lock**

lock comprising at least two points of interaction (security, anti-separation or clenching) interlinked and centrally controlled, where at least two points are more than 200 mm apart in locked or thrown position

3.1.30**set**

all components necessary for the complete function of the product or a number of components delivered or recommended as a part of a complete multipoint lock

3.1.31**shared latch action**

latch action in which withdrawal of the latch bolt is by means of a handle or key

3.2 Symbols and abbreviations

Test parameter	Definition	Unit
F1	Return force on latch bolt	N
F2	Side force on latch bolt	kN
F3	Side force on latch bolt and locking plate (durability test)	kN
F4	Side force on deadbolt and locking plate	kN
F5	End load on deadbolt and locking plate / Disengaging force on hook/claw bolt	kN
F6	Pull force on hook/claw bolt or locking plate	kN
F7	Force on locating device or lifting force on locking plate	kN
F9	Door closing force (durability test)	N
F10	Door closing force (operating requirement)	N
F11	Clenching force	N
H1	Minimum projection	mm
L1	Deadbolt projection	mm
L2	Resulting projection	mm
M1	Torque to operate the latch bolt and/or deadbolt with key	Nm
M2	Torque to operate the latch and/or deadbolt bolt with handle, spring handle or knob	Nm
M3	Torque on follower stop	Nm
M4	Torque on lockable follower	Nm
M5	Torque on lockable follower	Nm
M6	Strong key torque on lever locks	Nm
M7	Torque resistance on knob or lever handle	Nm

Test parameters also illustrated in the figures.

4 Product characteristics

4.1 General

Product characteristics are given in 4.1.1 to 4.1.6.

4.1.1 Essential characteristics

The following characteristics have special significance because they are a part of the Annex ZA Essential characteristics:

a) Self-closing ability:

1) ability to close and keep the door in a closed position:

i) 4.1.3, return force of latch bolt;

ii) 4.2.1, resistance to side force on latch bolt;

iii) 4.4.2, door closing force;

2) suitability for use on fire resistance and/or smoke control door set:

i) 4.5, suitability for use on fire resistance and/or smoke control door set

b) Self-closing ability - durability :

1) 4.3.1 Durability of latch action.

All multipoint locks regardless of classification shall conform to 4.1.2, 4.1.4, 4.1.6 and where applicable 4.1.3, 4.1.5.

4.1.2 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.

Check in accordance with 5.4.1.

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

4.1.3 Return force of latch bolt

The return force F_1 (see Figure 1) on each latch bolt shall be $\geq 2,5$ N

The test result of a lock without latch bolt shall be expressed as "NPD".

The return force shall be tested in accordance with 5.4.2.

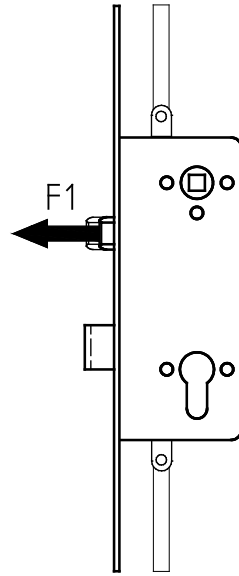


Figure 1 — Return force of latch bolts

4.1.4 Strength of lever lock key

The key for lever lock shall have the strength so it can resist a torque of 2,5 Nm and still be able to operate its lock with the torque M1 appropriate with its grade in 4.2.2.

This requirement is not applicable to cylinder keys which have to conform to EN 1303.

The key strength shall be tested in accordance with 5.4.3.

4.1.5 Strength of bolt action

The locking point, anti-separation and clenching point components shall resist a torque of 30 Nm and the latch bolt components shall resist a torque of 20 Nm operated through the follower and the lock shall still be able to operate with the torque M1 and M2 appropriate with its grade in 4.2.2.

The strength of bolt actions shall be tested in accordance with 5.4.4.

4.1.6 Minimum follower restoring torque

The lock shall have a minimum restoring torque on the follower of 0,8 Nm, unless the manufacturer has declared on the Product Information Sheet (see 4.1.4) that the product is intended for use with spring supported furniture.

The restoring torque shall be tested in accordance with 5.4.5.

4.2 Category of use (first digit)

Product characteristics are given in clause 4.2.1 to 4.2.4.

4.2.1 Resistance to side force on latch bolt

The latch bolt shall resist a side force F2 (see Figure 2) as specified in Table 1 after which operating torque shall not exceed that specified in 4.2.2, return force on latch shall still not be less than 2,5 N, and closing force shall not exceed that specified in 4.4.2.

The resistance to side force shall be tested in accordance with 5.5.1.

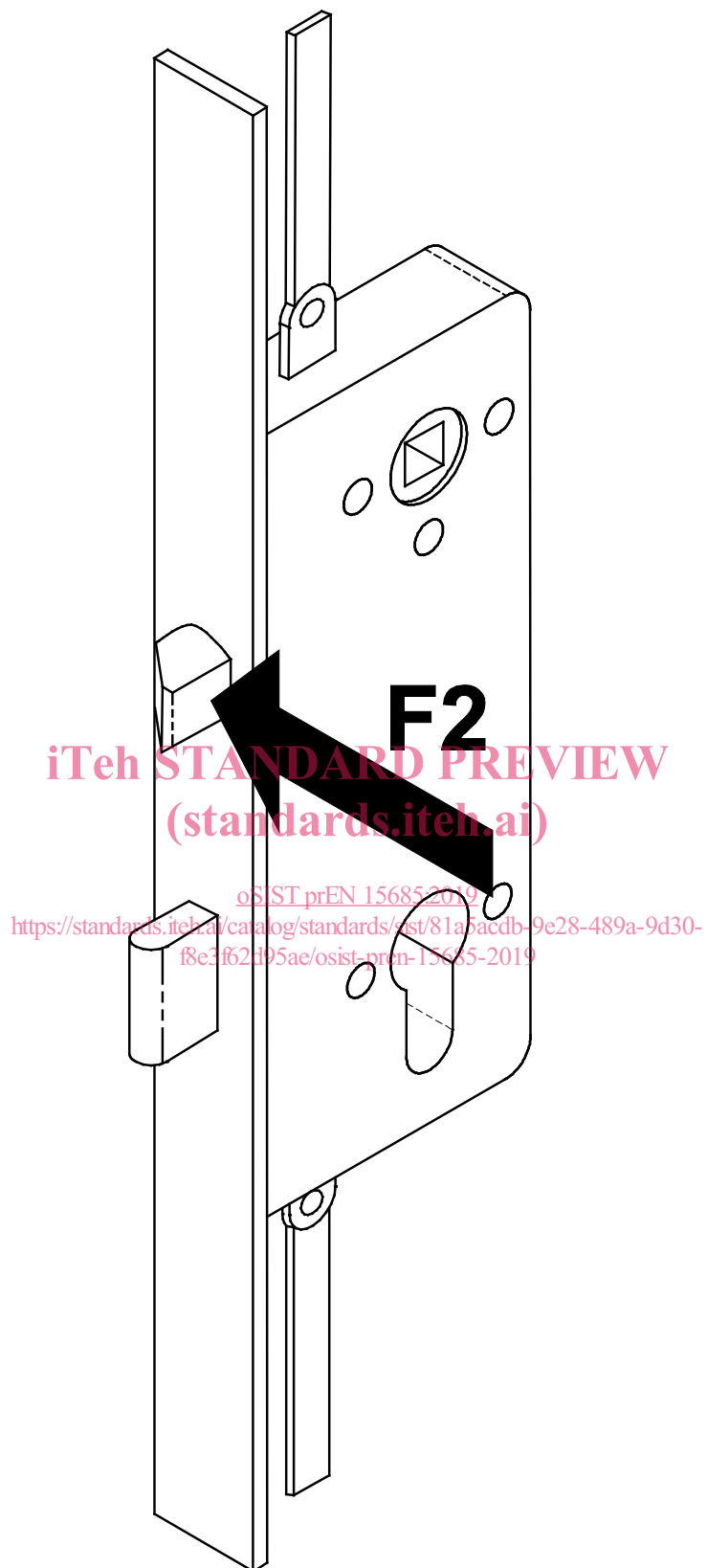


Figure 2 — Resistance to side force on latch bolt

4.2.2 Torque to operate the multipoint lock

4.2.2.1 The multipoint lock shall conform to torque on key 4.2.2.2 and torque on follower 4.2.2.5.

4.2.2.2 The torque on the key to operate the latch bolt, locking point(s) or anti-separation point(s) shall not exceed M1 for unloaded points (see Figure 3 and Table 1).

The torque on the key shall be tested in accordance to 5.5.2.

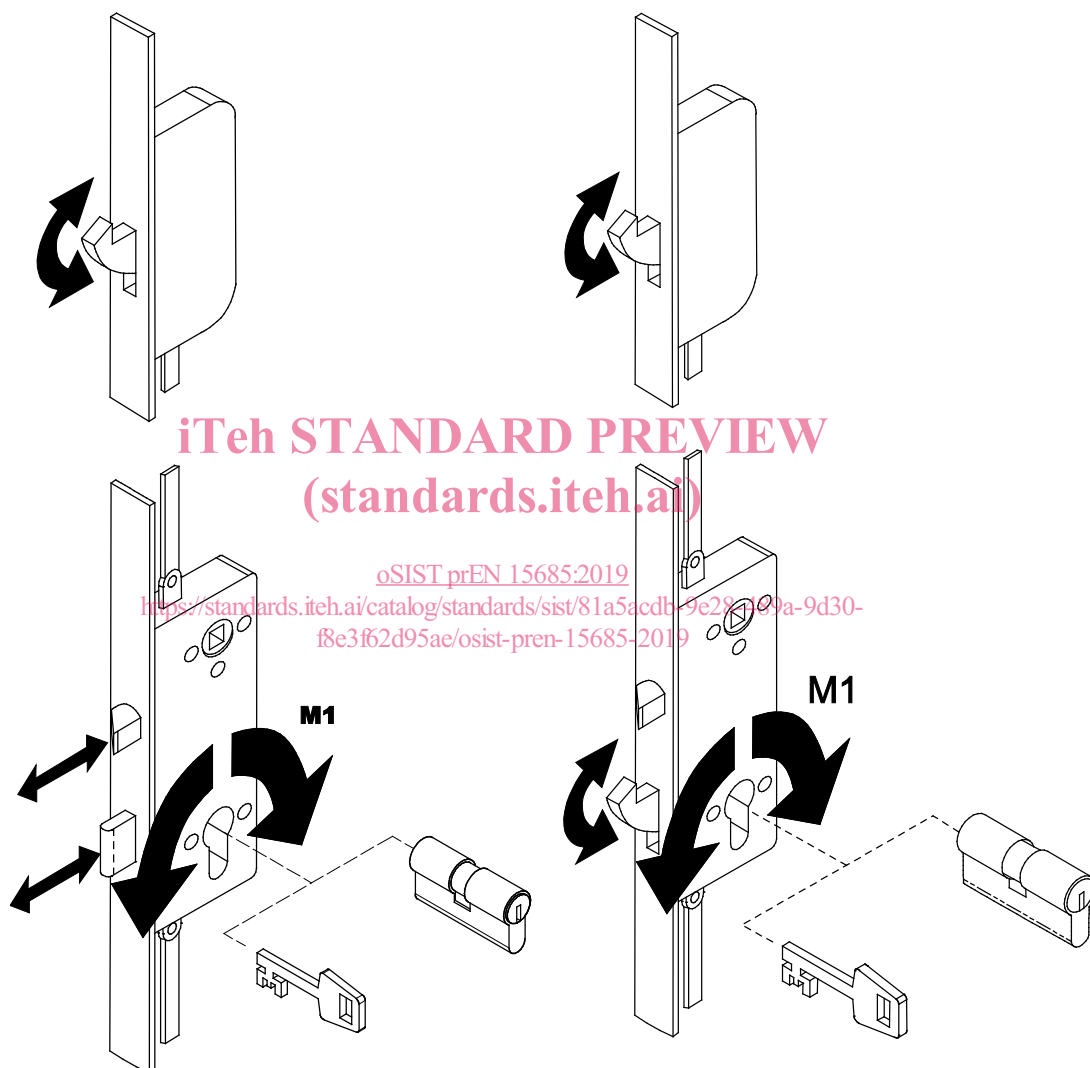


Figure 3 — Torque to operate the multi-point lock with the key

4.2.2.3 The torque on the follower to operate the latch bolt, locking point(s) or anti-separation point(s) without side force shall not exceed M2 for unloaded points (see Figure 4 and Table 1).

The torque on the follower shall be tested in accordance to 5.5.2.