

AKNA- JA UKSETARVIKUD. MEHAANILISED
LUKUKORPUSED JA VASTURAUAD. NÕUDED JA
KATSEMEETODID

Building hardware - Mechanically operated locks and
locking plates - Requirements and test methods

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 12209:2016 sisaldab Euroopa standardi EN 12209:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 12209:2016 consists of the English text of the European standard EN 12209:2016.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 16.03.2016.	Date of Availability of the European standard is 16.03.2016.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 91.190

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:

Aru 10, 10317 Tallinn, Eesti; koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Aru 10, 10317 Tallinn, Estonia; homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

EUROPEAN STANDARD

EN 12209

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2016

ICS 91.190

Supersedes EN 12209:2003

English Version

Building hardware - Mechanically operated locks and locking plates - Requirements and test methods

Quincaillerie pour le bâtiment - Serrures mécaniques et gâches - Exigences et méthodes d'essai

Schlösseer und Baubeschläge - Mechanisch betätigte Schlösser und Schließbleche - Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 8 November 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

Contents

Page

European foreword.....	6
Introduction	8
1 Scope.....	9
2 Normative references.....	9
3 Terms and definitions	10
4 Requirements	12
4.1 General.....	12
4.1.1 Essential characteristics.....	12
4.1.2 Dangerous substances.....	12
4.1.3 Return force of latch bolt.....	13
4.1.4 Product information requirements.....	13
4.1.5 Strength of lever lock key.....	13
4.1.6 Strength of bolt actions.....	14
4.1.7 Minimum follower restoring torque.....	14
4.1.8 Protection against removal from door.....	14
4.2 Category of use (first digit).....	14
4.2.1 Resistance to side force on latch bolt.....	14
4.2.2 Torque to operate the lock.....	15
4.2.3 Strength of follower stops.....	16
4.2.4 Torque resistance for lockable deadbolt operation by handle/knob.....	16
4.3 Durability requirements (second digit).....	18
4.3.1 Durability of latch action.....	18
4.3.2 Durability of deadbolt mechanism.....	18
4.3.3 Durability of locking snib mechanism.....	18
4.4 Door mass and door closing force (third digit).....	18
4.4.1 Door mass.....	18
4.4.2 Door closing force.....	18
4.5 Suitability for use on fire resistance and/or smoke control doorset (fourth digit).....	19
4.6 Safety (fifth digit).....	19
4.7 Corrosion resistance and temperature (sixth digit).....	19
4.7.1 Corrosion resistance.....	19
4.7.2 Operation at extreme temperatures.....	19
4.8 Security (seventh digit).....	19
4.8.1 General.....	19
4.8.2 Locking.....	19
4.8.3 Manual deadlocking.....	19
4.8.4 Torque resistance of knob of tubular lock.....	20
4.8.5 Requirements for side force.....	20
4.8.6 Deadbolt projection.....	21
4.8.7 Resistance to force in the unlocking direction (disengaging force).....	22
4.8.8 Requirements for pulling of anti-separation bolt.....	23
4.8.9 Requirements for anti-lifting devices in sliding door locks.....	24
4.8.10 Requirement for torque resistance of lockable followers.....	25
4.8.11 Strong key attack on lever locks.....	26

4.8.12	Resistance to force on box protected locking plates.....	26
4.8.13	Resistance to side force on locking plates	27
4.8.14	Resistance to pulling on locking plates.....	27
4.8.15	Resistance to lifting force on locking plates	27
4.9	Key identification requirements of lever locks (eight digit)	30
4.9.1	Minimum number of detaining elements	30
4.9.2	Minimum number of effective differs.....	30
4.9.3	Differing steps height on key.....	30
4.9.4	Non-interpassing of keys with just one interval differ	30
4.9.5	Coding protection	30
5	Test, assessment and sampling methods.....	31
5.1	General	31
5.2	Test apparatus	32
5.2.1	Test door.....	32
5.2.2	Drill machine.....	32
5.2.3	Test fixtures.....	32
5.3	Test procedure - Drilling procedure.....	32
5.4	Test methods - general	33
5.4.1	Dangerous substances verification	33
5.4.2	Return force of latch bolt	33
5.4.3	Product information requirements verification	33
5.4.4	Strength of lever lock key	33
5.4.5	Strength of bolt action.....	33
5.4.6	Minimum follower restoring torque.....	34
5.4.7	Protection against removal from door	34
5.5	Test methods - Category of use	34
5.5.1	Resistance to side force on latch bolt	34
5.5.2	Torque to operate the lock.....	36
5.5.3	Strength of follower stops	36
5.5.4	Torque resistance for lockable deadbolt operation by handle/knob	36
5.6	Test methods - durability	37
5.6.1	Durability of latch action without force applied	37
5.6.2	Durability of latch action with force applied.....	38
5.6.3	Durability of deadbolt mechanism.....	40
5.6.4	Durability of locking snib mechanism	41
5.7	Door mass and closing force	41
5.7.1	Door mass verification.....	41
5.7.2	Door closing force.....	41
5.8	Suitability for use on fire resistance and/or smoke control doorset	42
5.9	Safety.....	42
5.10	Corrosion resistance and temperature	42
5.10.1	Corrosion resistance.....	42
5.10.2	Operation at extremes of temperature.....	42
5.11	Security.....	43
5.11.1	Key operation and locking	43
5.11.2	Torque resistance of knob of tubular lock test.....	44
5.11.3	Resistance to side force	44
5.11.4	Deadbolt projection measure.....	47
5.11.5	Resistance to forcing in the unlocking direction (disengaging force) test	47
5.11.6	Resistance to pulling of anti-separation bolt test.....	49
5.11.7	Resistance to forcing of locating device in sliding door locks	50
5.11.8	Torque resistance for lockable deadbolt operation by handle/knob test.....	50

5.11.9	Strong key attack on locks with internal blocking elements	51
5.11.10	Resistance to end force on box protected locking plate test.....	51
5.11.11	Resistance to side force on locking plate test.....	51
5.11.12	Resistance to pulling on locking plate.....	52
5.11.13	Resistance to lifting force on locking plate.....	52
5.12	Key related security for lever locks.....	53
5.12.1	Detaining elements verification	53
5.12.2	Effective differs verification.....	53
5.12.3	Differing step heights on key	53
5.12.4	Non-interpassing of keys with just one interval differ.....	53
5.12.5	Coding protection.....	53
6	Assessment and verification of constancy of performance – AVCP.....	53
6.1	General.....	53
6.2	Type testing.....	54
6.2.1	General.....	54
6.2.2	Test samples, testing and compliance criteria	55
6.2.3	Test reports.....	55
6.2.4	Shared other party results.....	55
6.2.5	Cascading determination of the product type results	56
6.3	Factory production control (FPC)	57
6.3.1	General.....	57
6.3.2	Requirements.....	57
6.3.3	Product specific requirements.....	60
6.3.4	Initial inspection of factory and of FPC	60
6.3.5	Continuous surveillance of FPC.....	61
6.3.6	Procedure for modifications.....	61
7	Classification.....	61
7.1	Coding system.....	61
7.2	Classification for mechanically operated locks and locking plates	61
7.2.1	Category of use (first digit).....	61
7.2.2	Durability (second digit)	62
7.2.3	Door mass and closing force (third digit).....	62
7.2.4	Suitability for use on fire resisting and/or smoke control doorset (fourth digit)	62
7.2.5	Safety (fifth digit)	63
7.2.6	Corrosion resistance and temperature (sixth digit)	63
7.2.7	Security and drill resistance (seventh digit).....	63
7.2.8	Key identification of lever locks (eighth digit)	64
7.3	Example for classification of locks, latches and their locking plates	64
8	Marking, labelling and packaging	64
8.1	On the product.....	64
8.2	On the packaging.....	65
8.3	On the installation instruction.....	65
Annex A (normative)	Locks and locking plates for use on fire resisting and/or smoke control doorset.....	66
A.1	Grade A.....	66
A.2	Grade B.....	66
A.3	Grade N.....	66
Annex B (normative)	Test sampling and sequencing for locks and latches	68
Annex C (informative)	Product information	71

Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU Construction Products Regulation (305/2011)	73
ZA.1 Scope and relevant characteristics	73
ZA.2 Procedure for AVCP of locks and locking plates	74
ZA.2.1 System(s) of AVCP	74
ZA.2.2 Declaration of performance (DoP)	75
ZA.2.2.1 General	75
ZA.2.2.2 Content	75
ZA.2.2.3 Example of DoP	77
ZA.3 CE marking and labelling	78
Bibliography	81

European foreword

This document (EN 12209:2016) 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 supersedes EN 12209:2003.

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 September 2016, and conflicting national standards shall be withdrawn at the latest by December 2017.

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

For relationship with EU Directive(s), 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 electromechanically operated locks and locking plates (EN 14846) and for mechanically operated multi-point locks (prEN 15685) are also available.

The performance tests incorporated in this standard are considered to be reproducible and as such provide a consistent and objective assessment of the performance of these products throughout CEN Members.

The major changes in this revision are as follows:

- a) the type of lock that has been named latch is now integrated in the definition of locks;
- b) the number of classification has been reduced
 - 1) field of door application have been integrated in product information;
 - 2) type of key operation and locking is moved to Security and drill resistance;
 - 3) type of spindle operation have been integrated in product information;
- c) suitability for use on fire resistance and/or smoke control doorset introduces new classification. Grade 0, A, B and N is shown in Annex A;
- d) temperature range changed to -10 °C to $+60\text{ °C}$;
- e) requirements, test methods, forces, torques, figures and tables have been renumbered;
- f) new requirement for product information have been added;
- g) grades for durability with 10 N side force is deleted;
- h) the document EN 12209:2003/AC:2005 has been integrated in this issue;

i) assessment and verification of constancy of performance – AVCP have replaced Evaluation of conformity

1) Annex ZA has been rewritten to include CPR format.

NOTE A lock conforming to this European Standard can at the same time be part of an exit device in accordance with EN 179 or EN 1125.

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.

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

Mechanically operated locks and their locking plates used in fire resistant and/or smoke control door assemblies require additional attributes in order to conform to the Essential Requirement “Safety in case of fire” as a part of a complete assembly. Additional requirements for locks and their locking plates used on fire resistant and/or smoke control door assemblies are specified in Annex A.

This European Standard for mechanically operated locks and their locking plates specifies requirements and test methods for durability, strength, security, and functionality and they are

- for use on doors, in buildings;
- 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; and
- for use on locked fire doors to maintain the fire integrity of the door assembly.

This standard specifies locks and locking systems intended for use in different environmental and security conditions, thus necessitating different grades.

This European Standard specifies the dimensions and properties required for security and for the assessment of fire resistance and/or smoke control door suitability.

This European Standard does not specify any particular design or installation.

1 Scope

This European Standard specifies requirements and test methods for durability, strength, security and functionality of mechanically operated 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; and
- c) for use on locked fire doors to maintain the fire integrity of the door assembly.

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

This European Standard specifies mechanically operated locks and locking systems intended for use in different environmental and security conditions, thus necessitating different grades.

This European Standard does not specify Multipoint locks or their locking plates which are specified by prEN 15685.

This European Standard specifies the dimensions and properties required for security.

Assessment of the contribution of the product to the fire resistance of specific fire resistance and/or smoke control doorset assemblies is beyond the scope of this European Standard.

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 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 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 doorsets and/or openable windows*