



NSAI
Standards

Irish Standard
I.S. EN 16864:2017

Building hardware - Mechatronic padlocks - Requirements and test methods

I.S. EN 16864:2017

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN 16864:2017

Published:

2017-09-20

This document was published under the authority of the NSAI and comes into effect on:

2017-10-09

ICS number:

91.190

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN 16864:2017 is the adopted Irish version of the European Document EN 16864:2017, Building hardware - Mechatronic padlocks - Requirements and test methods

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

For relationships with other publications refer to the NSAI web store.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD

EN 16864

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2017

ICS 91.190

English Version

Building hardware - Mechatronic padlocks - Requirements and test methods

Quincaillerie pour le bâtiment - Cadenas
mécatroniques - Exigences et méthodes d'essai

Schlösser und Baubeschläge - Mechatronische
Hangschlösser - Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 11 May 2017.

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, Serbia, 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.....	4
Introduction	5
1 Scope.....	6
2 Normative references.....	6
3 Terms, definitions and symbols.....	7
4 Requirements.....	10
Table 1 — Bump and vibration requirements.....	11
Table 2 — Environmental resistance MP.....	12
Table 3 — Environmental resistance of electronic key for MP.....	13
Table 4 — Mechanical codes.....	13
Table 5 — Code attack resistance.....	14
Table 6 — Audit trail and time zone.....	14
Table 7 — Security requirements.....	16
5 Testing, assessment and sampling methods.....	18
Figure 1 — Drill test rig.....	26
Figure 2 — Shackle twisting test.....	27
Figure 3 — Extraction of plug.....	28
Figure 4 — Torque test.....	29
Figure 5 — Shackle pulling arrangement.....	30
Figure 6 — Sawing test	31
Figure 7 — Shackle cutting test.....	32
Table 8 — Shackle attack requirements.....	32
Table 9 — Shackle dimensions.....	33
Figure 8 — Gauge for measuring shackle accessibility.....	33
Figure 9 — Impact on padlock body	34
Figure 10 — Impact on padlock shackle	34
Figure 11 — MP mounting arrangement	35
6 Classification system.....	37
Table 10 — Classification system	38
Table 11 — Examples of classification of MP	39
Table 12 — Examples of classification of electronic key	39
7 Marking.....	39

Annex A (normative) Tool sets for attack resistance tests	40
Table A.1.....	40
Table A.2.....	41
Table A.3.....	42
Annex B (normative) Table of test procedures.....	43
Table B.1 — Test procedures for MP	43
Table B.2 — Test procedures for electronic keys	44
Bibliography	45

European foreword

This document (EN 16864:2017) 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 March 2018, and conflicting national standards shall be withdrawn at the latest by March 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Mechanical padlocks have been used to provide security and control of external doors, cabinets and movable items. Increasing demand for the flexibility of master key systems, audit trail, copy control of keys, etc. has made it desirable to incorporate additional functions into such mechanical padlocks, and new technologies have made it possible to develop mechatronic padlocks. A mechatronic padlock uses either pure electrically operated means or combination of electrically operated and mechanical means to achieve security.

The test methods are specified in detail to ensure reproducibility at any testing establishment within Europe, and the acceptance criteria are defined objectively to ensure consistency of assessment.

Mechanical performance of the mechatronic padlock is based on EN 12320:2012.

It is assumed that mechatronic padlocks (MPs) will conform to the legal regulations i.e. of the Electromagnetic Compatibility (EMC) Directive 2014/30/EU, The Low Voltage (LV) Directive 2014/35/EU, Radio and Telecommunications Terminal Equipment (RTTED) - Directive 1999/5/EC and other relevant directives concerning electronic apparatus.

On occasions there may be a need for additional functions within the design of the padlock. Purchasers should satisfy themselves that the products are suitable for their intended use. This is particularly important when the operation of such additional functions is safety related. Accordingly, this European Standard includes assessment of such features when they are included in the padlock design.

1 Scope

This European Standard specifies requirements for performance and testing of mechatronic padlocks (MPs) and their keys and/or electronic keys.

It establishes categories of use based on performance tests and grades of security based on design requirements and on performance tests that simulate attack. If the design incorporates mechanical security means in addition to the mechatronic means, these are also tested.

This European Standard does not cover any other element of a security system, other than those directly involved in the control of a padlock.

This European Standard does not cover the physical testing of multi-function devices such as Smartphones that may be used as part of the control system.

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 12320:2012, *Building hardware - Padlocks and padlock fittings - Requirements and test methods*

EN 1670:2007, *Building hardware - Corrosion resistance - Requirements and test methods*

EN 60068-2-1, *Environmental testing - Part 2-1: Tests - Test A: Cold*

EN 60068-2-2, *Environmental testing - Part 2-2: Tests - Test B: Dry heat*

EN 60068-2-6:2008, *Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)*

EN 60068-2-27:2009, *Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock*

EN 60068-2-30:2005, *Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

EN 60529:1991, *Degrees of protection provided by enclosures (IP Code)*

EN 61000-4-2, *Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test*

EN ISO 10666:1999, *Drilling screws with tapping screw thread - Mechanical and functional properties (ISO 10666:1999)*

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*

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-