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Stavbno okovje - Okovje za okna in zastekljena vrata - Zahteve in preskusne metode - 15. del: Valji za navpično drsna okna in okovje za zgibno drsna okna

Building hardware - Hardware for windows and door height windows - Requirements and test methods - Part 15: Rollers for horizontal sliding and hardware for sliding folding windows

Baubeschläge - Beschläge für Fenster und Fenstertüren - Anforderungen und Prüfverfahren - Teil 15: Laufwagen für Horizontalschiebe- und Beschläge für Faltschiebe-Fenster

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Quincaillerie pour le bâtiment - Ferrures de fenêtres et portes-fenêtres - Exigences et méthodes d'essai - Partie 15 : Roulements pour fenêtres coulissantes à l'horizontale et ferrures pour fenêtres coulissantes en accordéon

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Building hardware - Hardware for windows and door height windows - Requirements and test methods - Part 15: Rollers for horizontal sliding and hardware for sliding folding windows

Quincaillerie pour le bâtiment - Ferrures de fenêtres et portes-fenêtres - Exigences et méthodes d'essai - Partie 15 : Roulements pour fenêtres coulissantes à l'horizontale et ferrures pour fenêtres coulissantes en accordéon

Baubeschläge - Beschläge für Fenster und Fenstertüren - Anforderungen und Prüfverfahren - Teil 15: Laufwagen für Horizontalschiebe- und Beschläge für Faltschiebe-Fenster

This European Standard was approved by CEN on 8 March 2019.

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.

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

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EN 13126-15:2019 (E)**European foreword**

This document (EN 13126-15:2019) 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 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 2019, and conflicting national standards shall be withdrawn at the latest by October 2019.

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.

This document supersedes EN 13126-15:2008.

With regard to EN 13126-15:2008, the following significant changes were made:

- EN 13126-15 now is independent from EN 13126-1; all necessary information is included without the need of any further information from EN 13126-1;
- several editorial changes in the wording for a better understanding;
- new terms and definitions added under 3.6 - 3.11;
- under 4.1 classification system changed completely; former digits 1 (Category of use), 4 (Fire resistance), 5 (Safety in use) and 7 (Security) deleted; former digit 2 changed into box 1 (Durability), former digit 3 changed into box 2 (Mass), former digit 6 changed into box 3 (Corrosion resistance), former digit 9 changed into box 4 (Test sizes) and former digit 8 (application) transferred into box 5 (application);
- under 4.2 new grades for the number of cycles defined; H1 (5 000), H2 (10 000) and H3 (20 000);
- under 4.7 new example of classification added in accordance with the new classification system; 2 alternative ways (table or alphanumerical) to show the classification defined;
- under 5.2.1 and 7.3.1 for hardware for window type N travel length changed from 800 mm to 1 000 mm
- under Clause 6 “Test equipment and preparation for the test” additional information added for the test rig (6.1), the specimen (6.2) and the mounting of the specimen (6.3);
- under 6.2 “Specimen” the use of gaskets added in the description;
- under 7.2 “Procedure” new subclause 7.2.1 “General”, 7.2.2 “Adjusting the test mass ” and 7.2.3 “Lubrication and adjustment of hardware” added with additional information, mainly from the current version of part 1;
- under 7.3 “Durability test” procedure modified to ensure better correlation with the test procedure described in EN 1191:2012;
- under 7.3.2.3 procedure for “locking cycles” added

- under 8 new clause added regarding marking with information from the current version of EN 13126-1;

This European standard is one of a series of European standards for building hardware products for windows and door height windows. This European standard is independent of EN 13126-1.

EN 13126 consists of the following parts:

- *Building hardware — Hardware for windows and door height windows — Requirements and test methods — Part 1: Requirements common to all types of hardware;*
- *Building hardware — Requirements and test methods for windows and doors height windows — Part 2: Window fastener handles;*
- *Building hardware — Hardware for windows and door-height windows — Requirements and test methods — Part 3: Handles, primarily for Tilt&Turn, Tilt-First and Turn-Only hardware;*
- *Building hardware — Requirements and test methods for windows and doors height windows — Part 4: Espagnolettes;*
- *Building hardware — Hardware for windows and door height windows — Requirements and test methods — Part 5: Devices that restrict the opening of windows and door height windows;*
- *Building hardware — Requirements and test methods for windows and doors height windows — Part 6: Variable geometry stay hinges (with or without a friction stay);*
- *Building hardware — Requirements and test methods for windows and door height windows — Part 7: Finger catches;*
- *Building hardware — Hardware for windows and door height windows — Requirements and test methods for Tilt and Turn, Tilt-First and Turn-Only hardware;*
- *Building hardware — Requirements and test methods for windows and door height windows — Part 9: Hardware for horizontal and vertical pivot windows;*
- *Building hardware — Requirements and test methods for windows and doors height windows — Part 10: Arm-balancing systems;*
- *Building hardware — Requirements and test methods for windows and doors height windows — Part 11: Top hung projecting reversible hardware;*
- *Building hardware — Requirements and test methods for windows and doors height windows — Part 12: Side hung projecting reversible hardware;*
- *Building hardware — Hardware for windows and balcony doors — Requirements and test methods — Part 13: Sash balances;*
- *Building hardware — Hardware for windows and balcony doors — Requirements and test methods — Part 14: Sash fasteners;*
- *Building hardware — Hardware for windows and doors height windows — Requirements and test methods — Part 15: Rollers for horizontal sliding and hardware for sliding folding windows;*

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- *Building hardware — Hardware for windows and doors height windows — Requirements and test methods — Part 16: Hardware for Lift and Slide windows;*
- *Building hardware — Hardware for windows and doors height windows — Requirements and test methods — Part 17: Hardware for Tilt and Slide windows;*
- *Building hardware — Requirements and test methods for windows and door height windows — Part 19: Sliding Closing Devices.*

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

A full contribution to the preparation of this European standard has been made by the European manufacturer's organization 'ARGE' and National Standards institutions.

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.

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1 Scope

This document specifies requirements and test methods for durability, strength, security and function of rollers for horizontal sliding and hardware for inward or outward sliding folding windows and door height windows in accordance with common application as shown in Figures C.1 to C.7 in informative Annex C. This document is applicable to rollers irrespective of whether they are adjustable or not and irrespective of the method or type of fixing or if they are used independently, or in multiples or combinations.

All components of the hardware (e.g. guide tracks, lateral guides, rails, hinges) used while testing the rollers for sliding folding windows and door height windows (window types Q, R and S) are considered to be part of the complete sliding folding hardware set.

2 Normative references

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 1670, *Building hardware — Corrosion resistance — Requirements and test methods*

EN 13126-16, *Building hardware — Requirements and test methods for windows and doors height windows — Part 16: Hardware for Lift&Slide windows and doors*

3 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 <http://www.iso.org/obp>

The following terms and definitions apply to horizontal sliding and sliding folding windows and door height windows made of timber, PVC, aluminium or steel and their appropriate material combinations.

3.1

roller

assembly of one or more rolls in a single, or multiple, casing, which supports horizontal sliding windows, or sliding folding windows and door height windows, which may be aligned in a straight line or rotate about an axis for sliding folding windows and door height windows (otherwise known as a bogey)

3.2

roll

singular wheel in a roller

3.3

lateral guide

hardware component, which guides the lateral movement of horizontal sliding and sliding folding windows and door height windows

3.4

guide track

track fixed on the top (top guide track) or bottom (bottom guide track) in which a guide runs

EN 13126-15:2019 (E)**3.5****rail**

rail fixed on the top (top rail) or bottom (bottom rail) on which rollers run

3.6**sample**

actual hardware components which are due to be tested

3.7**specimen**

window with gaskets to accommodate hardware components (samples) for testing

3.8**test rig**

testing device onto which the specimen is mounted

3.9**test equipment**

series of various testing rigs, devices and machinery enabling testing to be carried out

3.10**supporting sub frame**

supplementary fixing frame surrounding the specimen enabling it to be mounted on the test rig while testing

Note 1 to entry: For example, wood, steel or aluminium could be used.

3.11**rest time**

time in seconds of a stationary period between the different steps

Note 1 to entry: A stationary period is between the following steps:

- between a change of direction of the moving of the sash;
- between the completion of a moving of the sash and the subsequent operating of the hardware;
- between the completion of the operation of the hardware and the subsequent moving of the sash;
- between two cycles

4 Classification**4.1 General**

Rollers for horizontal sliding and hardware for sliding folding windows and door height windows shall be classified in accordance with the five box coding system (see Table 1).

Table 1 — Classification system of hardware

box	1	2	3	4	5
	Durability	Mass	Corrosion resistance	Test sizes	Application

4.2 Durability (1 – first box)

The first box shall display the grade applied to the durability test in accordance with 5.2:

- grade H1: 5 000;
- grade H2: 10 000;
- grade H3: 20 000.

4.3 Mass (2 – second box)

The mass range starts from 30 kg and varies in steps of 10 kg. An unlimited number of grades are identified, whereby 030 is the lowest (see Table 2).

Table 2 — Tested sash-mass

Grade	030	040	050	060	070	080	090	100	110	120	...
Mass (kg)	30	40	50	60	70	80	90	100	110	120	...

Rollers for use in horizontal sliding windows and door height windows (window type N) should be tested with half of the maximum sash mass, as long as the hardware manufacturer specifies a minimum of two rollers per sash. For example if the roller is specified by the hardware manufacturer for a maximum sash mass of 40 kg, the roller should be tested with $40 \text{ kg} / 2 = 20 \text{ kg}$ in accordance with 7.3.1.

4.4 Corrosion resistance (3 – third box)

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The third box shall display the grade regarding corrosion resistance in accordance with 5.5.

4.5 Test sizes (4 – fourth box)

The fourth box shall display the test sizes (active sash) which were used for testing the rollers for horizontal sliding and hardware for sliding folding windows as follows: SRW¹ in mm / SRH² in mm – tolerance $\pm 10 \text{ mm}$.

- no test size is required for this category (for window type N - grade 1 in fifth box);
- (SRW) 900 mm x (SRH) 1 900 mm (for window types Q, R and S –grade 2 and 3 in fifth box).

NOTE In most product designs of window type Q and R a smaller width is necessary for the second sash in comparison to the first and the third one (see Figure B.1 to identify sash 2). In this case the width of the second sash could be smaller than the defined 900 mm.

The specified sizes are test sizes only. They do not relate to the maximum or minimum sizes to which a window may be fabricated.

The manufacturer shall ensure, in accordance with the appropriate product documentation, that with the application of the tested hardware in window sizes deviating from the test sizes (smaller or larger), the forces on the hardware do not exceed those during the durability test.

¹ SRW = sash rebate width.

² SRH = sash rebate height.

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In the case of not being capable of manufacturing the specified test size due to the fact that the hardware field of application is smaller than these specified test sizes, smaller test sizes shall be used. In this case the window shall be tested in accordance with the largest possible SRW (or SRH) as specified by the hardware manufacturers appropriate documentation and a SRH (or SRW) in a ratio of 1 900/900 (factor approximately 2,111).

This means that if the specified test sizes are larger than those which can be manufactured, the test specimens shall be tested using the largest possible SRW or SRH in accordance with the manufacturer's documentation and using a SRH to SRW ratio of 1 900/900 (factor approximately 2,111).

EXAMPLE 1 largest possible SRW = 700 mm = SRW of the test specimen

$$700 \text{ mm} \times 1\,900/900 = 1\,478 \text{ mm} = \text{SRH of the test specimen}$$

EXAMPLE 2 largest possible SRH = 1 600 mm = SRH of the test specimen

$$1\,600 \text{ mm} \times 900/1\,900 = 758 \text{ mm} = \text{SRW of the test specimen}$$

The missing dimensions in each case (SRH or SRW) should be calculated in accordance with example 1 or 2 with the objective of establishing the maximum test-format, which lies within the hardware manufacturer's application range.

4.6 Application (5 - fifth box)

The fifth box shall display a number (grade) indicating the kind of hardware in accordance with the foreseen application in the appropriate type of window.

- grade 1: for use on horizontal sliding windows and door height windows (type N);
- grade 2: for use on centre pivot sliding folding windows and door height windows (type Q);
- grade 3: for use on corner pivot sliding folding windows and door height windows (type R and/or S).