



SLOVENSKI STANDARD

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Stavbno okovje - Okovje za okna in balkonska vrata - Zahteve in preskusne metode - 16. del: Okovje za dvizno-drsna okna in vrata

Building hardware - Hardware for windows and balcony doors - Requirements and test methods - Part 16: Hardware for Lift&Slide windows and doors

Baubeschläge - Beschläge für Fenster und Fenstertüren - Anforderungen und Prüfverfahren - Teil 16: Beschläge für Hebeschiebe-Fenster und -Fenster Türen

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Quincaillerie pour le bâtiment - Ferrures pour fenetres et portes-fenetres - Exigences et méthodes d'essai - Partie 16 : Ferrures pour portes-fenetres et fenetres coulissantes a levage

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English Version

Building hardware - Requirements and test methods for windows
and doors height windows - Part 16: Hardware for Lift&Slide
windows and doors

Quincaillerie pour le bâtiment - Exigences et méthodes
d'essai des ferrures de fenêtres et portes-fenêtres - Partie
16 : Ferrures pour portes-fenêtres et fenêtres coulissantes
à levage

Baubeschläge - Beschläge für Fenster und Fenstertüren -
Anforderungen und Prüfverfahren - Teil 16: Beschläge für
Hebeschiebe-Fenster und -Fenstertüren

This European Standard was approved by CEN on 5 December 2007.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document (EN 13126-16:2008) 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of an identical text or by endorsement, at the latest by July 2008, and conflicting national standards shall be withdrawn at the latest by July 2008.

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 CEN/TS 13126-16:2004.

A full contribution to the preparation of this European Standard has been made by the European manufacturer’s organisation ‘ARGE’ and National Standards institutions.

This European Standard is one of a series of European Standards dedicated to building hardware products. It is divided into seventeen parts to incorporate all types of windows and door height windows.

Informative Annex A of EN 13126-1:2006 depicts the “list of parts and titles and their reference to the relevant window types” of the seventeen parts of this European Standard.

Normative Annex B of EN 13126-1:2006 gives schedules of the elements of components used on the 21 types of window opening functions.

Normative and informative annexes to all parts of this European Standard are indicated in the content of the several parts.

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 throughout CEN Member States.

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 EC Directive(s).

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

1 Scope

This part of EN 13126 provides requirements and test methods for durability, strength, security and function of hardware for Lift&Slide windows and door height windows, regardless of whether the hardware enables an additional tilt position.

NOTE This Standard is also applicable to hardware systems, whereby the sash itself is not lifted but a gasket mechanism is moved.

2 Normative references

The following referenced documents are indispensable for the application 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 12519:2004, *Windows and pedestrian doors – Terminology*

EN 13126-1:2006, *Building hardware - Requirements and test methods for windows and doors height windows - Part 1: Requirements common to all types of hardware*

ISO 4520, *Chromate conversion coatings on electroplated zinc and cadmium coatings*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13126-1:2006 and EN 12519:2004 and the following apply.

NOTE The following terms and definitions apply to Lift&Slide windows and door height windows made of timber, PVC-U, 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 Lift&Slide windows and door height windows. These may be aligned in a straight line or rotate about an axis for Lift&Slide 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 the Lift&Slide windows and door height windows

3.4

guide track

track fixed on the top (top guide track) or bottom (bottom guide track) which enables a lateral guide to run

3.5

rail

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

3.6**positive control**

sash operation via the hardware which enables the sash to be moved from the closed position into the tilted position, and from the tilted position into the closed position

NOTE The sliding position can also be reached by means of operating the hardware.

3.7**locked closed position**

position in which the active sash is in the lowered position, the espagnolette side rests up against the frame, and the hardware is locked

3.8**lifting action**

action in which the active sash is raised from the lowered position into the lifted position via the hardware

NOTE During this action the sash can be moved a limited distance away from the frame in the direction of the opening position.

3.9**closed position**

position in which the active sash is forced into the raised position by the lifting action, and the hardware is unlocked

3.10**tilted position**

position in which the rollers on the bottom of the active sash rest on the roller track. The top area is held in the final tilt position by means of the projecting mechanisms

3.11**sliding position**

position in which the active sash is lifted, so that it can be moved in-line

3.12**opening position**

position in which the active sash is at the end of the sliding position (the largest possible opening width)

4 Classification**4.1 General**

The classification of hardware for Lift&Slide windows and door height windows shall be in accordance with the requirements of clause 4 EN 13126-1:2006.

4.2 Category of use (1 – first digit)

No marking is required for the category of use in accordance with 4.2 of EN 13126-1:2006.

4.3 Durability (2 – second digit)

Grades shall be in accordance with 4.3 of EN 13126-1:2006.

4.4 Mass (3 – third digit)

Grades shall be in accordance with 4.4 of EN 13126-1:2006.

4.5 Fire resistance (4 – fourth digit)

One grade shall be identified in accordance with 4.5 of EN 13126-1:2006.

— grade 0: no requirements.

4.6 Safety in use (5 – fifth digit)

One grade is identified in accordance with 4.6 of EN 13126-1:2006.

— grade 1: The hardware shall conform to the requirements of part 1 and part 16 of this standard.

4.7 Corrosion resistance (6 – sixth digit)

Grades shall conform to EN 1670, whereby grade 3 is the minimum requirement.

4.8 Security (7 – seventh digit)

No marking is required for the category of security in accordance with 4.8 of EN 13126-1:2006.

4.9 Application (8 – eighth digit)

The eighth digit shows “16” indicating the part of the standard which was used for testing the hardware for Lift&Slide windows and door height windows in accordance with 4.9 of EN 13126-1:2006.

4.10 Test Sizes (9 – ninth digit)

The ninth digit shows the test sizes (active sash) in accordance with 4.10 of EN 13126-1:2006 as follows:

S.W.¹⁾ in mm / S.H.²⁾ in mm – tolerance ± 5 mm.

— 1 200 mm S.W.¹⁾ x 2 000 mm S.H.²⁾

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

NOTE 1 The manufacturer’s product-documentation should advise that in daily use windows, smaller or larger than those tested, should not be subjected to stronger forces than those for the specified test size.

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 S.W.¹⁾ (or S.H.²⁾) as specified by the hardware manufacturers appropriate documentation and a S.H.²⁾ (or S.W.¹⁾) in a ratio of 2 000/1 200 mm (factor $\approx 1,67$).

NOTE 2 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 S.W.¹⁾ or S.H.²⁾ in accordance with the manufacturer’s documentation and using a S.H.²⁾ to S.W.¹⁾ ratio of 2 000/1 200 mm (factor $\approx 1,67$).

Example 1	largest possible S.W. ¹⁾	=	800 mm	=	S.W. ¹⁾ of the test specimen
	800 mm X 2 000/1 200	=	1 333 mm		
	S.H. ²⁾	=	1 333 mm	=	S.H. ²⁾ of the test specimen

Example 2 largest possible S.H.¹⁾ = 1 600 mm = S.H.¹⁾ of the test specimen
 1 600 mm X 1 200/2 000 = 960 mm
 S.W.²⁾ = 960 mm = S.W.²⁾ of the test specimen

¹⁾ S.W. = sash width

²⁾ S.H. = sash height

NOTE 3 The missing dimensions in each case (S.H.¹⁾ or S.W.²⁾ should be calculated in accordance with example 1 or example 2 with the objective of establishing the maximum test-format, which lies within the hardware manufacturers application range.

4.11 Example of classification for hardware for Lift&Slide windows and doors

Table 1 – Example of classification for hardware for Lift&Slide windows and doors

1	2	3	4	5	6	7	8	9
-	4	250	0	1	4	-	16	1 200 / 2 000

This denotes hardware for Lift&Slide windows and door height windows, which have:

Digit 1 category of use (no requirements)
 Digit 2 durability grade 4 (15 000 cycles)
 Digit 3 mass 250 kg
 Digit 4 fire resistance grade 0 (no requirements)
 Digit 5 safety in use grade 1
 Digit 6 corrosion resistance grade 4
 Digit 7 security - (no requirements)
 Digit 8 applicable part tested according to part 16 of this standard
 Digit 9 test sizes S.W.¹⁾ = 1 200 mm, S.H.²⁾ = 2 000 mm

¹⁾ S.W. = sash width

²⁾ S.H. = sash height

5 Requirements

5.1 General

Hardware for Lift&Slide windows and door height windows shall conform to clause 5 of EN 13126-1:2006.

5.2 Additional requirements

5.2.1 Handle operation tolerance

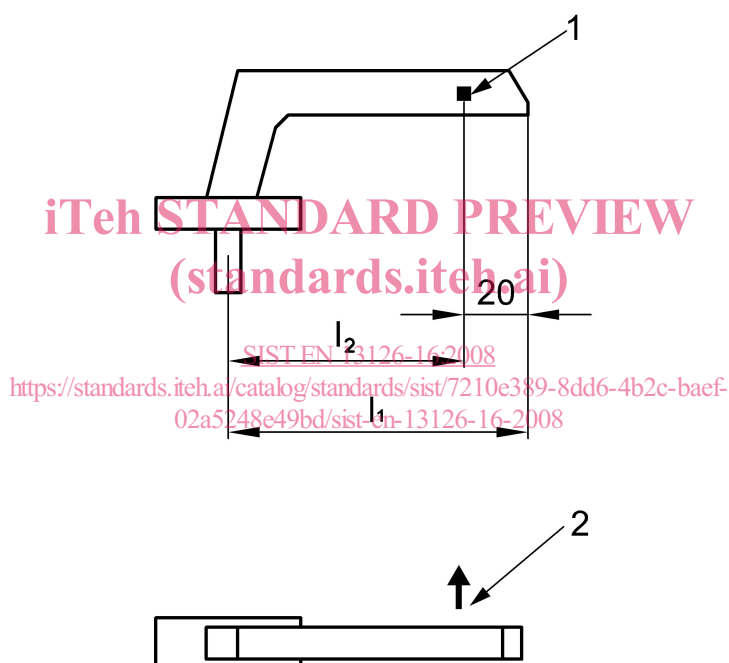
The maximum torque T_h , which is the result of a force of 100 N applied at a distance of 20 mm from the end point of the handle, shall not be exceeded.

NOTE 1 The length of the handle used during the test or the length of the handle intended for the hardware set shown in the hardware manufacturer's documentation shall be recorded in the test report.

NOTE 2 The torque T_h resulting from the length of the used handle (key 3 in Figure 1 minus 20 mm) and the force of 100 N shall be calculated and recorded in the test report.

For example: length of the handle	= 250 mm
operative length (key 4, Figure 1)	= 250 mm – 20 mm = 230 mm
torque T_h = operative length X force F	= 230 mm X 100 N = 23 Nm

Dimensions in millimetres



Key

- | | |
|-------|------------------------|
| 1 | location for the force |
| l_1 | length of the handle |
| l_2 | operative length |
| 2 | force $F = 100$ N |

Figure 1 — Handle length

5.2.2 Sliding operation crash-tests

After the sliding operation crash, test in accordance with 7.4.1 and 7.4.2:

- active sash shall not drop and shall still be constrained by its fixings;
- active sash shall function correctly.

NOTE After the sliding operation crash-test all adjustment possibilities may be used to operate the sash.

5.2.3 Minimum closing device resistance

5.2.3.1 Hardware without tilt function

The closing device shall withstand a torque T_{hr} , which is the threefold torque T_h as calculated and recorded in accordance with 5.2.1.

For example:	length of the handle	= 220 mm	
	operative length (key 4, Figure 1)	= 220 mm – 20 mm	= 200 mm
	torque T_h = operative length X force F	= 200 mm X 100 N	= 20 Nm
	torque T_{hr} = 3 X T_h	= 3 X 20 Nm	= 60 Nm

NOTE Hardware with tilt function without positive control should also conform to this requirement.

Upon completion of the test in accordance with 7.5.1, the closing device shall operate.

5.2.3.2 Hardware with tilt function and with positive control

The hardware shall withstand a torque T_{hr} , which is the threefold torque T_h as calculated and recorded in accordance with 5.2.1.

For example:	length of the handle	= 220 mm	
	operative length (key 4, Figure 1)	= 220 mm – 20 mm	= 200 mm
	torque T_h = operative length X force F	= 200 mm X 100 N	= 20 Nm
	torque T_{hr} = 3 X T_h	= 3 X 20 Nm	= 60 Nm

Upon completion of the test in accordance with 7.5.2.1 and 7.5.2.2, the closing device shall operate.

5.2.4 Resistance to additional loading

After the additional loading test in accordance with 7.6 the active sash shall not drop and shall still be constrained by its fixings.

NOTE It is not necessary for the sash to operate during and after the additional loading test.

5.2.5 Static endurance test at ambient temperature

An additional endurance test at ambient temperature in accordance with 7.7 is required.

Before and upon completion of the endurance test in accordance with 7.7, no roll shall deviate by more than 0,5 % of its initial diameter.

6 Test equipment

6.1 General

The specimen shall be installed in a test rig for testing as specified in Figure A.1 in accordance with the manufacturer's fixing instructions.

All tolerances shall be $^{+3}_{-0}$ % unless otherwise specified.