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Building hardware - Hardware for windows and door height windows - Requirements and test methods - Part 13: Sash balances

Baubeschläge - Beschläge für Fenster und Fenstertüren - Anforderungen und Prüfverfahren - Teil 13: Ausgleichgewichte für Vertikal Schiebefenster

Quincaillerie pour le bâtiment - Ferrures de fenêtres et portes-fenêtres - Partie 13 : Exigences et méthodes d'essai - Partie 13 : Contrepoids pour mécanismes à guillotine

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English Version

Building hardware - Hardware for windows and door height windows - Requirements and test methods - Part 13: Sash balances

Quincaillerie pour le bâtiment - Ferrures de fenêtres et portes-fenêtres - Partie 13 : Exigences et méthodes d'essai - Partie 13 : Contrepoids pour mécanismes à guillotine

Baubeschläge - Beschläge für Fenster und Fenstertüren - Anforderungen und Prüfverfahren - Teil 13: Ausgleichgewichte für Vertikal Schiebefenster

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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (prEN 13126-13:2020) 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 will supersede EN 13126-13:2012.

With regard to EN 13126-13:2012, the following significant changes were made:

— EN 13126-13 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 3.3 (sash width) and 3.4 (sash height);

— under 4.1 classification system changed completely;

  — former digit 1 (Category of use) changed into box 1 (Durability)

  — former digit 2 (Durability) changed into box 2 (Mass)

  — former digits 3, 4 and 5 deleted

  — former digit 6 (Corrosion resistance) changed into box 3 (Corrosion resistance)

  — former digits 7 deleted

  — former digit 8 (Application) changed into box 4 (Test sizes)

  — former digit 9 (Test sizes) changed into box 5 (Rating)

— 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 5.4 information regarding new grades for durability added;

— under 5.5 headline and grades in Table 3 modified;

— under 5.6 the wording changed and information regarding corrosion resistance added;

— under Clause 6 headline modified;

— under 6.2 wording modified; new sentence added at the beginning;

— under 7.1 wording modified;

— under 7.3 several changes in the structure and the wording;

— under 7.3.1 headline modified;

— under 7.3.2 new headline added for a new subclause with the acceptance criteria;

— under 7.5 new subclause added with information regarding corrosion resistance;

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

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

EN 13126 consists of the following parts:

— EN 13126-1, *Building hardware — Hardware for windows and door height windows — Requirements and test methods — Part 1: Requirements common to all types of hardware;*

— EN 13126-2, *Building hardware — Hardware for windows and door height windows — Requirements and test methods — Part 2: Window fastener handles;*

— EN 13126-3, *Building hardware — Hardware for windows and door-height windows — Requirements and test methods — Part 3: Handles, primarily for Tilt and Turn, Tilt-First and Turn-Only hardware;*

— EN 13126-4, *Building hardware — Requirements and test methods for windows and door height windows — Part 4: Espagnolettes;*

— EN 13126-5, *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;*

— EN 13126-6, *Building hardware — Hardware for windows and door height windows — Requirements and test methods — Part 6: Variable geometry stay hinges (with or without a friction stay);*

— EN 13126-7, *Building hardware — Requirements and test methods for windows and door height windows — Part 7: Finger catches;*

— EN 13126-8, *Building hardware — Hardware for windows and door height windows — Part 8: Requirements and test methods for tilt and turn, Tilt-First and Turn-Only hardware;*

— EN 13126-9, *Building hardware — Requirements and test methods for windows and door height windows — Part 9: Hardware for horizontal and vertical pivot windows;*

— EN 13126-10, *Building hardware — Requirements and test methods for windows and door height windows — Part 10: Arm-balancing systems;*

— EN 13126-11, *Building hardware — Requirements and test methods for windows and door height windows — Part 11: Top hung projecting reversible hardware;*

— EN 13126-12, *Building hardware — Requirements and test methods for windows and door height windows — Part 12: Side hung projecting reversible hardware;*

— EN 13126-13, *Building hardware — Hardware for windows and balcony door — Requirements and test methods — Part 13: Sash balances;*

— EN 13126-14, *Building hardware — Hardware for windows and door height windows — Requirements and test methods — Part 14: Sash fasteners;*

— EN 13126-15, *Building hardware — Hardware for windows and door height windows — Requirements and test methods — Part 15: Rollers for sliding and hardware for sliding folding windows;*

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

— EN 13126-17, *Building hardware — Hardware for windows and door height windows — Requirements and test methods — Part 17: Hardware for Tilt and Slide windows;*

— EN 13126-19, *Building hardware — Requirements and test methods for windows and door height windows — Part 19: Sliding Closing Devices*

1 Scope

This document specifies requirements and test methods for durability, strength, security and function of sash balances.

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 13126-5, *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*

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 https://www.iso.org/obp

3.1
sash balance
device, generally fitted in a pair and used to counter-balance the mass of a vertically moving sash throughout its full travel

3.2
manually applied force
externally applied vertical force required to cause movement of the sliding sash when the sash balances are mounted in the test specimen

3.3
sash width
total horizontal outer dimension of the sash

3.4
sash height
total vertical outer dimension of the sash

4 Classification

4.1 General

Sash balances shall be classified in accordance with the five box classification system (see Table 1).

Table 1 — Classification system of hardware

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

4.2 Durability (1 – first box)

The first box shall display the grade applied to the durability test in accordance with 5.4:

— grade H1: 5 000
— grade H2: 10 000
— grade H3: 20 000

4.3 Mass (2 – second box)

The second box shall display the maximum tested sash-mass (weight) in accordance with Table 2.

The mass of the test sash shall be determined in accordance with the claims made by the hardware manufacturer.

4.4 Corrosion resistance (3 – third box)

The third box shall display the grade regarding corrosion resistance in accordance with 5.6.

4.5 Test Sizes (4 – fourth box)

The fourth box shall display the test sizes which were used for testing the sash balances in accordance with Table 2:

SW = sash width in mm / SH = sash height in mm

EXAMPLE 1 100 SW x 1 200 SH

Table 2 — Test sash size and mass

Test size A	Test size B	Test size C
800 × 1 100	1 100 × 1 200	1 500 × 1 000
20 kg	30 kg	35 kg

4.6 Rating (5 – fifth box)

The fifth box shall display the grade representing the rating in accordance with Table 3 under 5.5.

4.7 Example of classification for sash balances

a) Alternative 1: Table with boxes

Standard	Box				
	1	2	3	4	5
EN 13126-13:YYYY	H3	030	3	1 100/1 200	5

In accordance with Clause 8 the information regarding the classification by using a table with boxes shall always be shown together with the number of this document, EN 13126-13.

b) Alternative 2: Alphanumerical

EN 13126-13:YYYY H3-030-3-1 100/ 200

This denotes sash balances, which have:

—	box 1	durability	grade H3 (20 000 cycles)
—	box 2	mass	30 kg
—	box3	corrosion resistance	grade 3
—	box 4	test sizes	SW = 1 100 mm, SH = 1 200 mm
—	box 5	rating	grade 5 (>30 %) in accordance with Table 3

5 Requirements

5.1 Dangerous substances

Materials in products should not release any dangerous substances in excess of the maximum levels specified in the European material standards and any national regulations.

5.2 Integrated maximum opening stop

Where sash balances are fitted with an integrated maximum opening stop, the opening stop shall also be tested in accordance with EN 13126-5.

5.3 Free movement test

The test specified in 7.2 shall be used to ensure the sash balances may support the mass of the sash.

Upon completion of the free movement test in accordance with 7.2, the maximum travel distance shall not exceed 25 mm.

5.4 Durability

The test specified in 7.3 shall be used to ensure the sash balances are capable of continued operation after cycling in accordance with one of the 3 grades specified following, and with regard given to normal maintenance.

The manufacturer specifies one of the following 3 grades for the number of cycles, with which the durability test shall be carried out:

- grade H1: 5 000 (+1 %) cycles
- grade H2: 10 000 (+1 %) cycles
- grade H3: 20 000 (+1 %) cycles

Upon completion of the durability test in accordance with 7.3, the sash balances shall continue to function normally.

5.5 Rating – Resistance to manually applied load test

The test specified in 7.4 shall be used to ensure the sash balances are graded in relation to the ease of sash movement.

Upon completion of the manually applied load test in accordance with 7.4, the manually applied force shall not exceed the value given in Table 3.