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

*Baubeschläge — Beschläge für Fenster und Fenstertüren - Anforderungen und Prüfverfahren — Teil 1: Gemeinsame Anforderungen an alle Arten von Beschlägen*

*Quincaillerie pour le bâtiment — Ferrures de fenêtres et portes-fenêtres - Exigences et méthodes d'essai — Partie 1 : Exigences communes à tous les types de ferrures*

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## **European foreword**

This document (prEN 13126-1:2020) 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.

A full contribution to the preparation of this European Standard has been made by the European manufacturers’ organization "ARGE" and national standards bodies.

This European Standard is one of a series of European Standards dedicated to building hardware products. It is divided into many parts: the first part being common to the other parts of this Standards series, which have been published prior to November 2017, incorporating all types of hardware for windows and door height windows. All other parts of this series, which have been published from November 2017 onwards, are independent of this part 1.

Annex A (informative) lists the titles of all parts of this European Standard and provides examples to their different window opening-type applications.

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.

With regard to EN 13126-1:2011, the following significant changes were made:

- under the European foreword several adjustments in the wording made in order to consider the already revised and thus independent parts of this series of standards; only the parts published before November 2017 are still to be considered dependent on this part 1;
- under 1 'Scope' adjustments in the wording in the last subclause made; Note 1 and Note 2 deleted;
- under 2 'Normative references' adjustments made;
- under 4.1 'General' (first subclause) and 4.3 'Durability' (last sentence) additional information added to consider the already revised and thus independent parts of this series of standards; term code (coding system) changed into classification (classification system);
- under 4.11 'Example of classification...' the example shown changed;
- under 5.3 'Durability' Note 2 added
- under 5.4 'Mass' new wording 'I not specified otherwise in the individual parts;' added in the first sentence of the second subclause;
- under 5.5 'Fire resistance' all sentences and Notes deleted;
- under 5.7 'Corrosion resistance' wording in the second subclause modified; last bullet point added;
- under 5.9 'Applicable part' second subclause modified

- under 6.4.2, 6.4.3 and 6.4.4 'Test specimen...' in each section the last sentence modified to 'Unless otherwise specified in the individual parts, a gasket shall not be applied to the specimen.';
- under 7.1 "General" rules modified for Sample C (Note 2 modified);
- under 8.2 'Durability' new wording 'I not specified otherwise in the individual parts;" added in the first sentence

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:

- 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*

## Introduction

EN 13126 is a multipart product standard which enables the testing of hardware components or sets. The components or sets are tested on a standard test frame independently of the windows to which they should be fitted. The standard test frame is intended to eliminate any test-result inconsistencies that may arise through the variability between different constructions of windows.

NOTE 1 In some cases where the hardware components or sets are tested directly on a test rig or window; a standard test frame is not necessary. The applicable test specifications are listed in the individual parts of this Standards series.

Throughout this European Standard all references to windows mean both windows and door height windows where appropriate.

This European Standard applies only to hardware that connects a movable sash to its fixed frame or controls the opening and closing of the movable sash. It does not take fixing devices into account that are used to assemble or install a fixed window or permanently fix a complete window into a building structure.

Where possible, test methods have been unified to accommodate a wide range of window opening-types and hardware. In particular, the following are unified for movable sashes:

- a) size of the sash;
- b) mass of the sash;
- c) frequency and total number of test cycles;
- d) range of operations during each test cycle.

This European Standard excludes hardware for sliding doors and folding doors in accordance with EN 1527, door and window bolts in accordance with EN 12051, single axis hinges in accordance with EN 1935 and multi-axis hinges (WI 0033579).



## 1 Scope

This European Standard specifies performance requirements for the strength and durability of hardware for the operation of movable sashes of windows and door height windows including requirements and test methods common to all hardware.

This European Standard is applicable to the hardware suitable for windows and door height windows in Table 1, whatever the material used for the construction of the window.

**Table 1 — Window opening-types**

<b>Window opening-type</b>	<b>Description</b> <i>Description refers to EN 12519</i>	<b>Number of Figure in Annex B</b>
A	Side-hung window inward opening <i>single (and double) side-hung casement, opening inwards</i>	B.1
B	Side-hung window outward opening <i>single (and double) side-hung casement, opening outwards</i>	B.1
C	Bottom-hung window inward opening and outward opening <i>bottom-hung casement, opening inwards or outwards</i>	B.2
D	Top-hung window inward opening and outward opening <i>top-hung casement, opening inwards or outwards</i>	B.2
E	Tilt and Turn, Tilt-First <i>tilt and turn windows</i>	B.3
F	Horizontal pivot window <i>horizontal pivot casement, centre or off-centre</i>	B.4
G	Vertical pivot window <i>vertical pivot casement, centre or off-centre</i>	B.4
H	Projecting top-hung inward and outward opening window <i>sliding projecting, top-hung casement, opening inwards or outwards</i>	B.5
J	Projecting bottom-hung inward and outward opening window <i>this type is not separately described in EN 12519</i>	B.5
K	Projecting reversible top-hung window <i>this type is not separately described in EN 12519</i>	B.6
L	Projecting reversible side-hung window <i>sliding projecting, side-hung casement, open out</i>	B.7
M	Vertical sliding sash <i>vertical sliding sash</i>	B.8
N	Horizontal sliding sash <i>horizontal sliding sash</i>	B.9
P	Lifting sliding sash <i>lifting sliding sash</i>	B.10
Q	Folding window (centre pivot) <i>this type is not separately described in EN 12519</i>	B.11
R	Folding outward opening window (corner pivot) <i>sliding folding window</i>	B.12
S	Folding inward opening window (corner pivot) <i>sliding folding window</i>	B.12
T	Tilting sliding sash <i>double tilting sliding sash</i>	B.13

U	Top-hung inward opening window multi-light <i>this type is not separately described in EN 12519</i>	B.14
V	Bottom-hung inward opening window multi-light <i>this type is not separately described in EN 12519</i>	B.14
W	Horizontal balanced window <i>this type is not separately described in EN 12519</i>	B.15

This European Standard does not apply to the following:

- Fusible links,
- hardware for lifting side-hung windows,
- fixing devices that are used to assemble or install a fixed window,
- devices that are used for the permanent fixing of a complete window into a building structure,
- mechanisms for the pneumatic or hydraulic remote operation of windows,
- single axis hinges (other than those, which provide a pivot-function for windows),
- single axis hinges as covered in EN 1935,
- hardware for sliding doors and folding doors as covered in EN 1527
- door and window bolts as covered in EN 12051.

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

## 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>

### 3.1

#### **sample**

actual hardware components

### 3.2

#### **specimen**

mock-up window or pieces of fictive frame/sashes (i.e. profile pieces) to accommodate hardware components for testing

### 3.3

#### **test-rig**

testing device onto which a sample can be mounted directly, without the need of a specimen

### 3.4

#### **test equipment**

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

### 3.5

#### **supporting sub frame**

supplementary fixing frame surrounding the specimen enabling it to be clamped or screwed while testing

## **4 Classification**

### **4.1 General**

For the purpose of this European Standard, hardware for windows and door height windows shall be classified in accordance with the nine digit classification system as shown in Table 2, exclusively for all the parts of this series, which have been published prior to November 2017.

This classification system should be used for hardware components or sets, for example a complete set of Tilt and Turn hardware.

**Table 2 — Classification of hardware for windows and door height windows**

1	2	3	4	5	6	7	8	9
Category of use	Durability	Mass	Fire	Safety in use	Corrosion	Security	Applicable part	Test sizes

### **4.2 Category of use (1 – first digit)**

No marking is required for the category of use in accordance with 5.2.

NOTE For special applications, additional requirements may be specified in the other individual parts of this Standards series.

### **4.3 Durability (2 – second digit)**

Three grades shall be identified, as follows, in accordance with 5.3.

NOTE For special applications, further information regarding the marking of durability is specified in other individual parts of this Standards series.

- grade 3: 10 000 cycles;
- grade 4: 15 000 cycles;
- grade 5: 25 000 cycles.

In all parts, which have been published from November 2017 onwards deviating grades are specified; for the specifications please see the individual parts.

#### 4.4 Mass (3 – third digit)

The third digit shall display the maximum tested sash-mass (weight), unless otherwise defined in the individual parts of this Standards series in accordance with 5.4, for example as follows:

EXAMPLE A sash mass of 15 kg should be 015 and a sash mass of 120 kg should be 120.

#### 4.5 Fire resistance (4 – fourth digit)

One grade shall be identified in accordance with 5.5.

— grade 0 : no requirements.

#### 4.6 Safety in use (5 – fifth digit)

One grade shall be identified in accordance with 5.6.

— grade 1: the product shall conform to the safety in use.

#### 4.7 Corrosion resistance (6 – sixth digit)

Grades shall be identified in accordance with 5.7.

#### 4.8 Security (7 – seventh digit)

No marking is required for the category of security in accordance with 5.8.

NOTE For special applications, additional requirements may be specified in other individual parts of this Standards series.

#### 4.9 Applicable part (8 – eighth digit)

The eighth digit refers to the specific part of this European Standard, which was used for testing the hardware components or sets according to 5.9.

NOTE For special applications, further information regarding marking the applicable part is specified in other individual parts of this Standards series.

#### 4.10 Test sizes (9 – ninth digit)

The ninth digit shows the test sizes in accordance with 5.10 for example as follows: SRW (sash rebate width) in mm / SRH (sash rebate height) in mm.

#### 4.11 Example of classification hardware in accordance with EN 13126-9

1	2	3	4	5	6	7	8	9
-	4	120	0	1	4	-	9/1	1 600/1 400

This denotes hardware for horizontal and vertical pivot windows, which have:

Digit 1 category of use - (no requirements)

Digit 2	durability	grade 4 (15 000 cycles)
Digit 3	mass	120 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	grade 9/1 (hardware for horizontal pivot windows with braking function)
Digit 9	test sizes	SRW = 1 600 mm, SRH = 1 400 mm

## **5 Requirements common to all types of hardware**

### **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 Category of use (1 – first digit)**

No requirements for the category of use.

NOTE For special applications, additional requirements may be specified in the other individual parts of this Standards series.

### **5.3 Durability (2 – second digit)**

The following grades apply to the durability test:

- grade 3: 10 000 (+ 1 %) cycles;
- grade 4: 15 000 (+ 1 %) cycles;
- grade 5: 25 000 (+ 1 %) cycles.

NOTE 1 In the event of products being available for both left- and right-handed operation, it is only necessary for one version to be tested. Hardware components, which are used in pairs, i.e. pivots, should be tested in pairs.

NOTE 2 In all parts, which have been published from November 2017 onwards deviating grades are specified; for the specifications please see the individual parts.

### **5.4 Mass (3 – third digit)**

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

If not specified otherwise in the individual parts, the mass range starts from 10 kg and varies unlimited in steps of 5 kg. An unlimited number of grades are identified, whereby 010 is the lowest from Table 3.

**Table 3 — Total mass of movable window**

<b>Grade</b>	010	015	020	025	030	035	040	045	050	055	060	065	...
<b>Mass (kg)</b>	10	15	20	25	30	35	40	45	50	55	60	65	...

The specimen is to be loaded ensuring that the mass is equally distributed around the centre point.

### **5.5 Fire resistance (4 – fourth digit)**

No requirements for the category of fire resistance.

### **5.6 Safety in use (5 – fifth digit)**

All window hardware shall conform to the requirements of this part and the relevant part of this Standards series

### **5.7 Corrosion resistance (6 – sixth digit)**

Hardware shall conform to the grades listed in EN 1670, whereby grade 2 is the minimum requirement.

Unless already stated with a test report by the manufacturer, the hardware shall be tested in accordance with EN 1670.

NOTE The evaluation of the corrosion resistance is limited to the essential areas (as a rule, the visible surfaces of the installed hardware).

Exempt from the corrosion resistance evaluation are:

- rivet locations;
- locations of later processing (for example: cleaved surfaces that result from cropping the hardware components, millings etc.);
- non surface-treated parts/surfaces, provided they are not in the visible vicinity of the hardware (for example: screw guide-holes made of zinc die-cast etc.);
- welding joints and their immediate surroundings,
- areas of corrosion as a result of contact corrosion.

### **5.8 Security (7 – seventh digit)**

There are no requirements for the category of security.

NOTE For special applications, additional requirements may be specified in other individual parts of this Standards series.

### **5.9 Applicable part (8 – eighth digits)**

Hardware components or sets for different window opening-types (see Table 1 and Annex A) shall conform to the relevant parts of this Standards series.

Informative Annex A displays on an exemplary basis, for which window opening-type(s) the tested hardware component or set is suitable.

The eighth digit refers to the specific part of this standard, used for testing the hardware components or sets.

**NOTE** In all parts, which have been published from November 2017 onwards deviating stipulations are specified; for the specifications please see the individual parts.

### **5.10 Test sizes (9 – ninth digits)**

Hardware components, or sets, for different window opening-types shall be tested at different test sizes in accordance with the relevant parts of this Standards series.

### **5.11 Mechanical strength**

All hardware shall conform to the relevant parts of this Standards series.

## **6 Test equipment**

### **6.1 General**

The specimen for the test rig shall be in-filled with a  $(19 \pm 1)$  mm chipboard or similar; this would take the place of the glazing. The test rig shall be capable of accommodating movable test sashes that appropriately simulate the design of any of the window opening-types in accordance with Table 1. It shall be capable of accommodating either left-hand or right-hand operation, or/and inward or outward opening hardware, suitable for the hardware being tested.

**NOTE** In some cases the samples (hardware components or sets) are tested directly on a test rig or window; a specimen is not necessary. The applicable test specifications are listed in the individual parts of this Standards series.

The general tolerance in this standard is + 5 % unless otherwise specified in the individual parts of this Standards series.

### **6.2 Mounting of specimen**

The test rig shall be so rigid that any deformation during the tests shall have no influence on the results. The specimen to which the samples may be fastened during the test, shall be fixed to the test rig. The mounting of the specimen on the test rig shall represent a typical application and not impair its performance in the durability and mechanical strength tests.

The specimen or the test rig shall incorporate provision for the application of the test forces.

### **6.3 Test sizes**

The specimen's active-sash for the test rig shall be tested at different sizes (to a tolerance of  $\pm 10$  mm) in accordance with the relevant parts of this Standards series.

### **6.4 Profile and material of test windows and door height windows**

#### **6.4.1 General**

The specimen shall simulate the profile and material for which the hardware is intended.

#### **6.4.2 Test specimen for hardware on timber windows and door height windows**

Hardware for timber windows shall be installed in timber test-windows.

NOTE Unless otherwise specified the manufacturer may select timber quality and profile dimensions, provided they are within the scope of this European Standard and that normal fixing and operating instructions are applicable.

The test report shall describe the following:

- a) profile cross-section;
- b) timber quality;
- c) glazing centre position in relation to the pivot point;
- d) hardware fixing screw sizes;
- e) any special features.

Unless otherwise specified in the individual parts, a gasket shall not be applied to the specimen.

#### **6.4.3 Test specimen for hardware on PVC-U profile windows and door height windows**

Hardware for PVC-U windows shall be installed in PVC-U test-windows.

NOTE Unless otherwise specified in this standard the manufacturer may select the PVC-U profile provided it is within the scope of this European Standard.

The test report shall describe the following:

- a) profile cross-section;
- b) profile reinforcement;
- c) wall thickness;
- d) chamber quantity;
- e) glazing centre position in relation to the pivot point;
- f) hardware fixing screw sizes;
- g) any special features.

Unless otherwise specified in the individual parts, a gasket shall not be applied to the specimen.

#### **6.4.4 Test specimen for hardware used on aluminium or steel windows and door height windows**

Hardware for aluminium or metal windows shall be installed in aluminium or steel test-windows.

NOTE Unless otherwise specified in this European Standard the manufacturer may select the aluminium or steel profile provided it is within the scope of this European Standard and normal fixing and operating instructions are applicable.



The test report shall describe the following:

- a) profile cross-section;
- b) thermal insulation;
- c) wall thickness;
- d) chamber quantity;
- e) centre position in relation to the pivot point;
- f) hardware fixing screw sizes; and
- g) any special features.

Unless otherwise specified in the individual parts, agasket shall not be applied to the specimen.

#### **6.4.5 Clamping the specimen into the test-rig**

To prevent forces exerted while clamping the specimen into the test-rig, fix the specimen onto a (19 ±1) mm chipboard or similar or be fixed into a rigid sub frame to ensure that it is inserted squarely.

Clamp the chipboard or sub frame securely in those areas where hardware is subjected to strain.

### **7 Test methods**

#### **7.1 General**

The hardware shall be installed in the specimen or test rig in accordance with the manufacturer's published installation instructions. The fixings specified by the manufacturer shall be applied wherever deemed practicable. In the event of the manufacturer's specified fixings being deemed not practicable, the hardware shall be securely fixed to the specimen or test rig by suitable mechanical means using the normal fixing holes provided in the hardware.

Unless stated otherwise in the individual parts of this Standards series, three samples of each hardware component or set shall be used for testing to this European Standard as follows.

sample A – performance testing;

sample B – corrosion testing;

sample C – retained for reference control.

**NOTE 1** Sample B should only be necessary if no test report can be supplied from the manufacturer regarding the testing of the hardware component or set in accordance with EN 1670.

**NOTE 2** Sample C should be retained by the test institute for the duration of the validity of the test report. Alternatively, the test institute should substitute sample C by a comprehensive documentation (description, photos etc.) of all tested components.

#### **7.2 Lubrication of hardware**

Hardware shall be lubricated in accordance with the manufacturer's installation and maintenance instructions. If no lubrication is specified, the hardware shall be tested without lubrication.

Upon completion of every 5 000 cycles, all moving and locking parts shall be lubricated, unless the hardware is claimed to be maintenance-free.

### **7.3 Sash-mass**

#### **7.3.1 Adjusting the sash-mass**

Additional weights, for example steel plates, shall be mounted to reach the sash-mass in accordance with 5.4. The additional plates are mounted uniformly on the outside and inside of the chipboard or similar so that the centre of gravity is maintained. The sash-mass should be checked in the testing institute. To reach the precise mass per unit as specified in 5.4, weights can still be mounted in the centre of the specimen. The allowed tolerance with test weights is + 1 %.

#### **7.3.2 Selecting the sash-mass**

The sash-mass shall conform to the values specified in 5.4.

### **7.4 Resistance to corrosion**

If no test report in accordance with EN 1670 can be supplied by the manufacturer, a test is necessary.

All corrosion tests shall be carried out on original new samples (i.e. Tilt and Turn hardware, espagnolettes etc.). Any frangible positioning lugs holding components together (i.e. for cam centre-positioning) shall be broken.

## **8 Test procedures**

### **8.1 General**

Install the sample in accordance with 7.1.

Test room ambient temperature from 15°C to 30°C

### **8.2 Durability test**

Unless otherwise specified in the individual parts, the durability tests shall be performed at a rate of (250 +25) cycles per h, except that in the case of a manufacturer choosing the option of specifying a lower testing speed, i.e. to avoid any friction-material overheating. In this case the test report shall state the testing-speed and the reasons for using the lower speed.

Number of cycles in accordance with 5.3.

### **8.3 Additional test requirements**

Should the hardware-manufacturers specify additional requirements, which are approved by the test report, the necessary tests should be performed and reported in the test report.

### **8.4 Acceptance criteria**

Upon completion of the tests, there shall be no breakage of any function related component. The specific acceptance criteria are specified in the relevant parts of this Standards series.

## **9 Marking**

The product and/or its literature, packaging etc., shall be marked with the following:

- a) manufacturer's name or trademark, or other means of positive identification.
- b) product model identification.
- c) number of the specific part of this series of European Standards and the year of publishing.
- d) year and calendar-week of production.

NOTE The information for d) may be in a coded form.

The classification of Clause 4 shall be quoted using one or more of the following methods:

- hardware manufacturer's catalogue;
- accompanying documents;
- on the product label or packaging;
- by marking the product itself.

## Annex A

(informative)

### List of parts and titles and their reference to the relevant window types

<b>13126 Part:</b>	<b>Titles</b>	<b>Relevant for window-types</b>
1	Requirements common to all types of hardware	All types of windows
2	Window fastener handles	A, B, C, D, F, G, H, J, K, L, N, Q, R, S, U, V, W
3	Handles, primarily for Tilt and Turn, Tilt-First and Turn-Only hardware	All Types of Windows
4	Espagnolettes	A, B, C, D, F, G, H, J, K, L, M, N, Q, R, S, U, V, W
5	Devices that restrict the opening of windows	A, B, C, D, E, F, G, H, J, K, L, U, V, W
6	Variable geometry stay hinges with or without friction systems	A, B, C, D, H, J, U, V
7	Finger catches	C, D, F, G, H, J, U, V, W
8	Tilt and Turn, Tilt-First and Turn-Only hardware	A, B, E
9	Hardware for horizontal and vertical pivot windows	F, G
10	Arm balancing systems	H, J, U, V
11	Top-hung projecting reversible hardware	K
12	Side-hung projecting reversible hardware	L
13	Sash balances	M
14	Sash fasteners	M, N
15	Rollers for horizontal sliding and sliding folding windows and doors	N, Q, R, S
16	Hardware for Lift and Slide windows and doors	P, T
17	Hardware for Tilt and Slide windows and doors	T
19	Sliding Closing Devices	M, N

## Annex B (informative)

### Window types

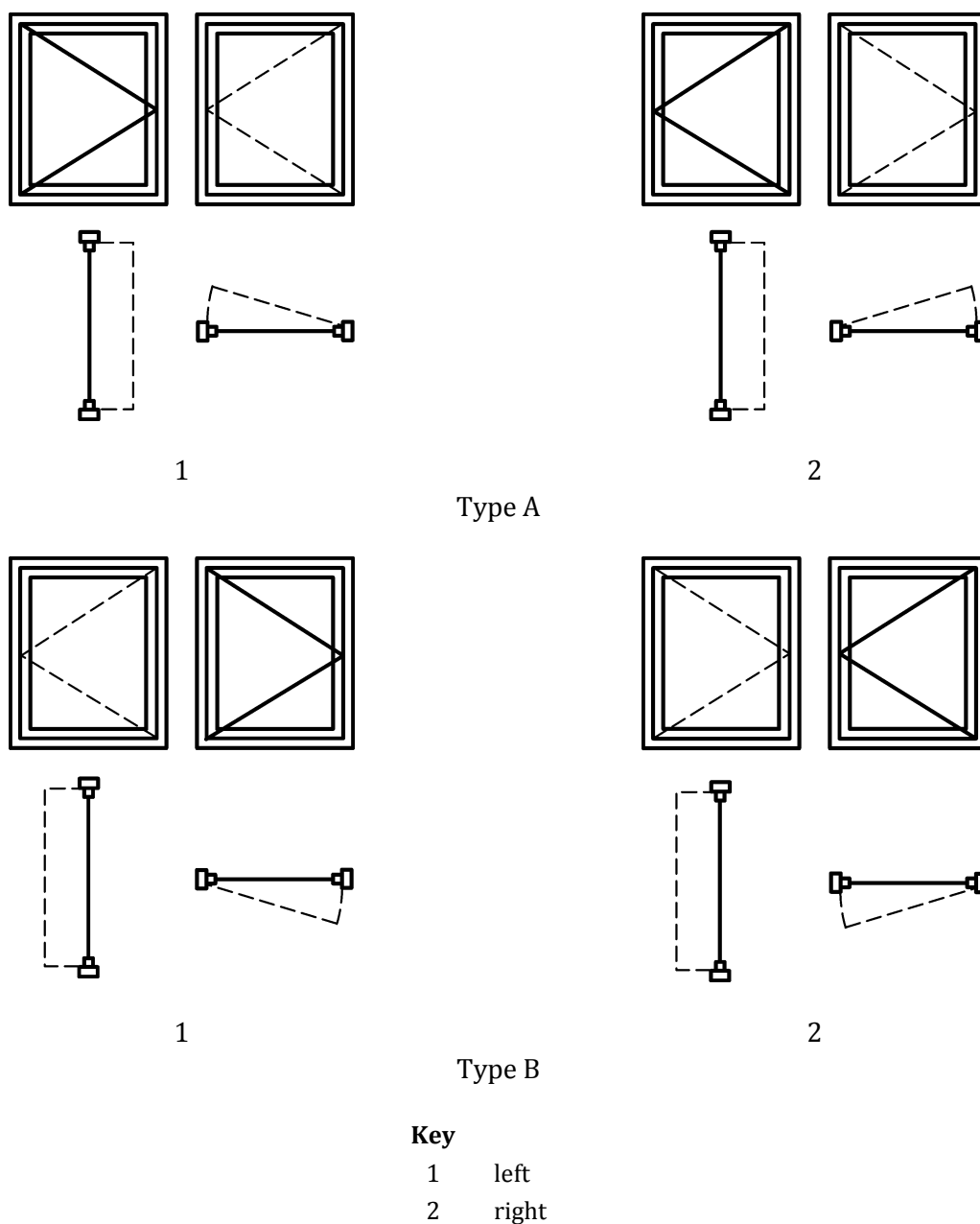


Figure B.1 — Type 'A' (inward opening) and type 'B' (outward opening) side-hung windows  
(including projecting side-hung windows)

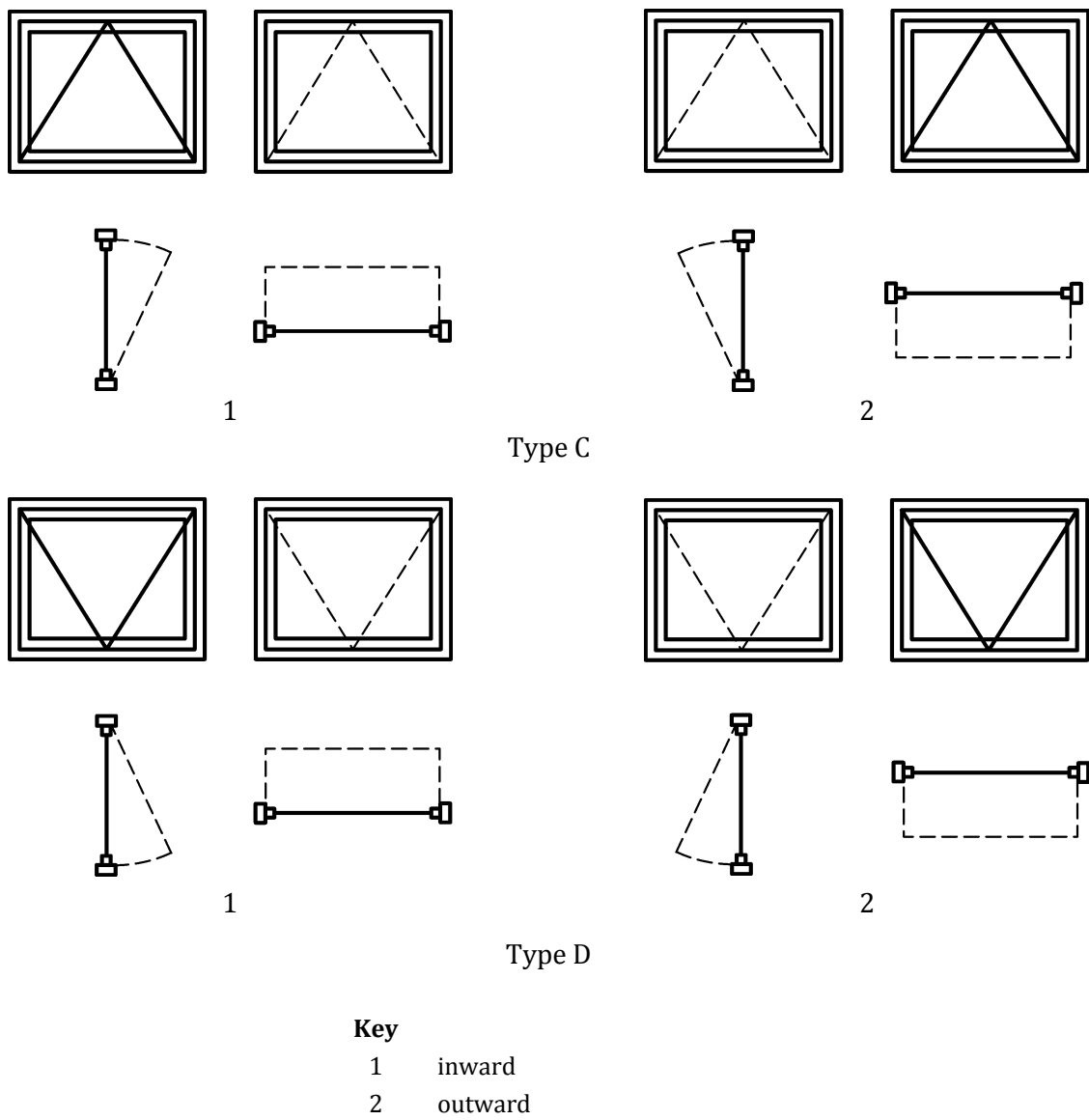
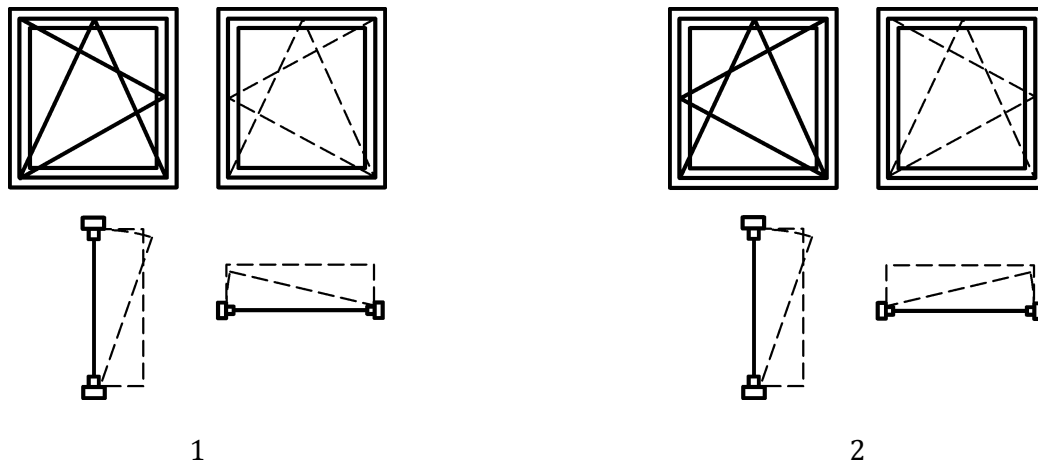


Figure B.2 — Type ‘C’ (bottom hung) and type ‘D’ (top hung) inward and outward opening windows



**Key**  
1 left  
2 right

**Figure B.3 — Type 'E' Tilt and Turn / Tilt-First windows**

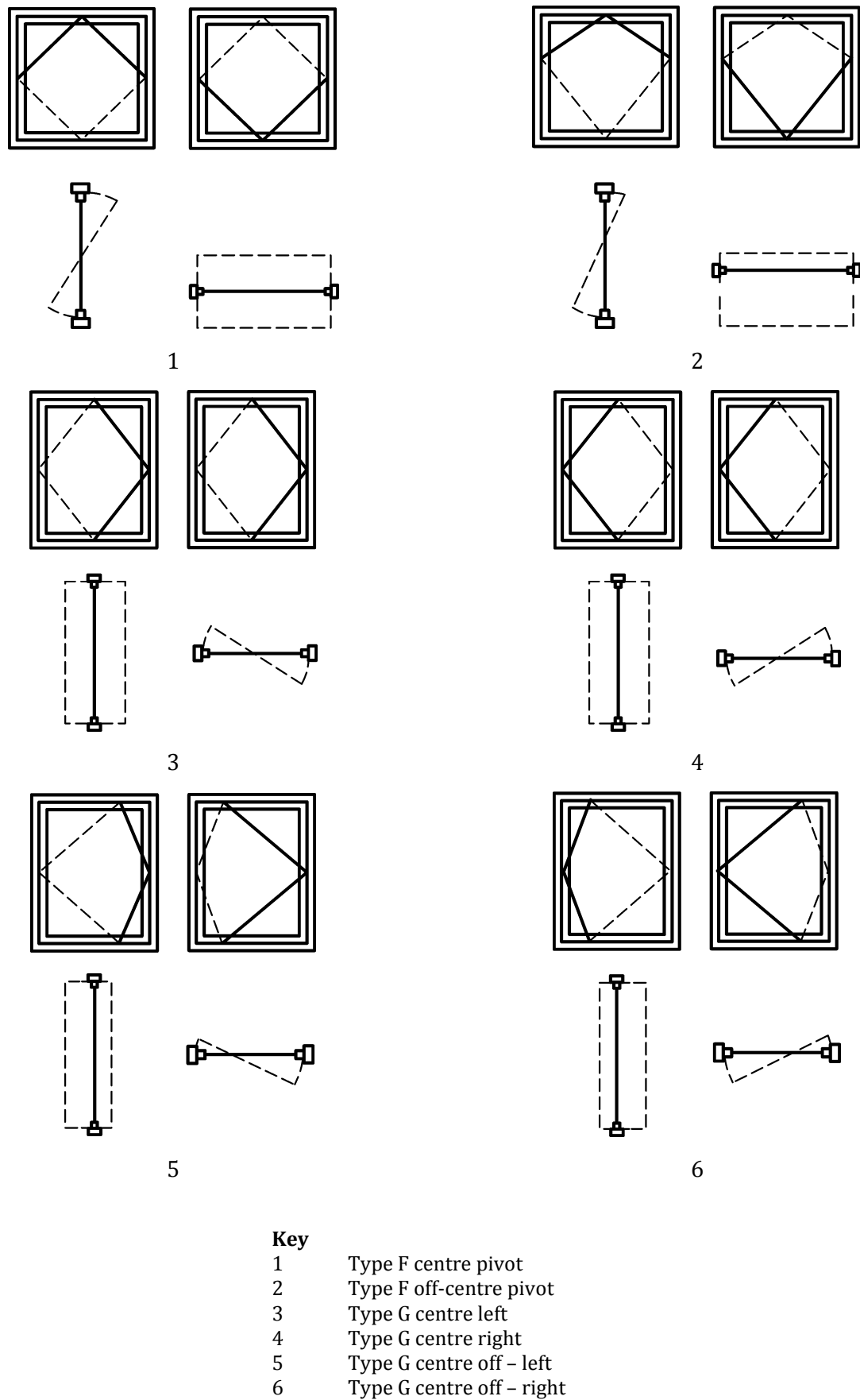
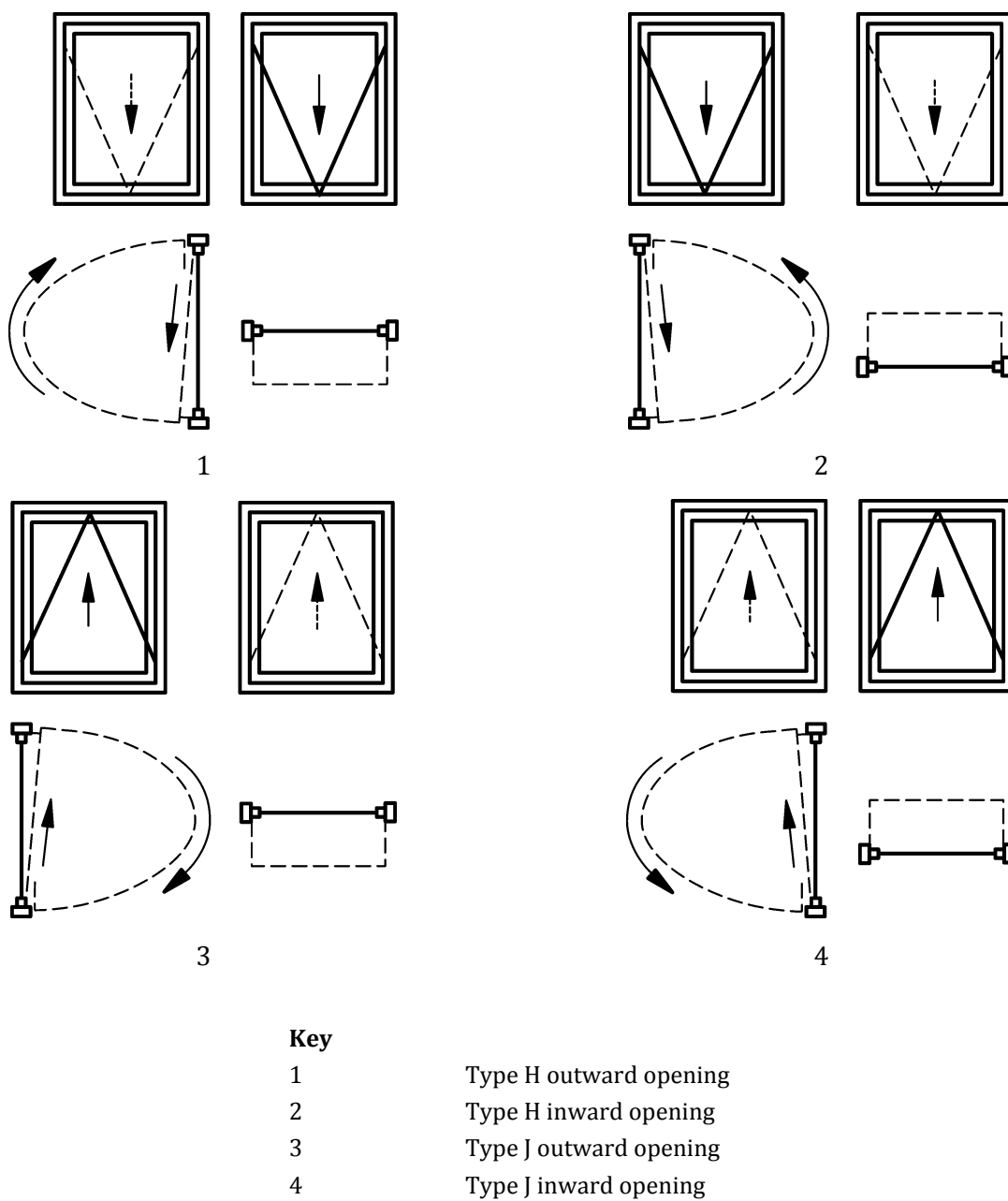
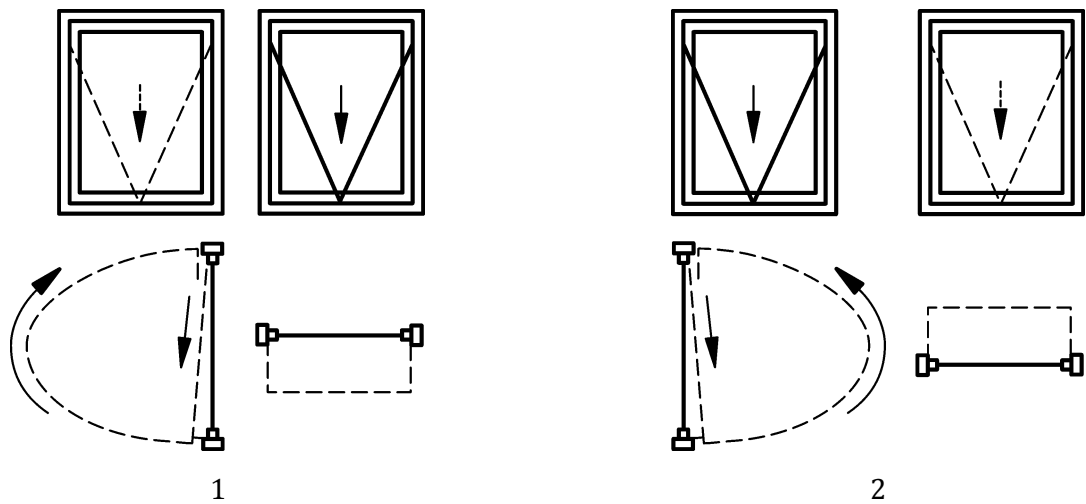


Figure B.4 — Type 'F' (horizontal pivot) and type G (vertical pivot) windows





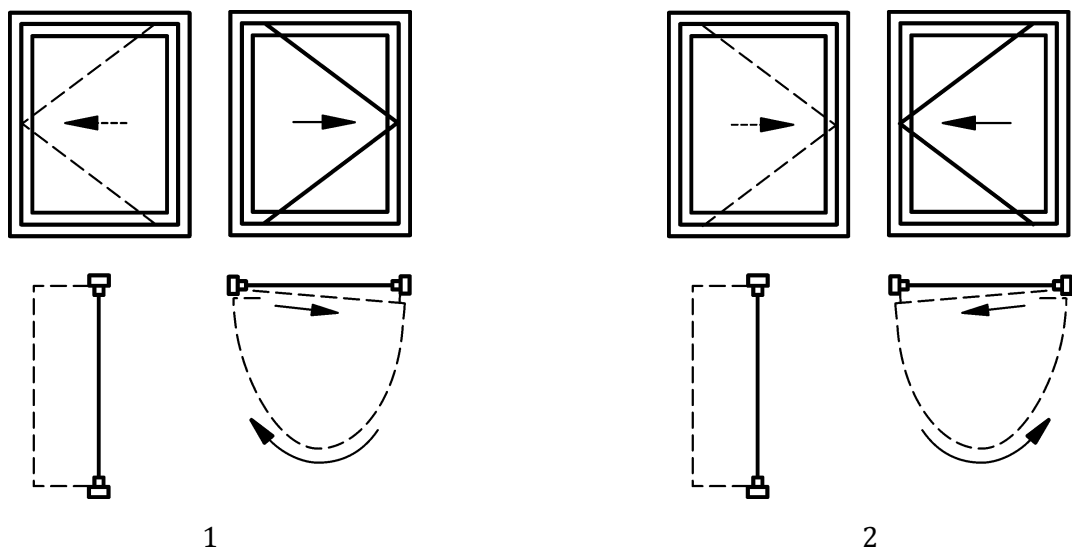
**Figure B.5 — Type 'H' (top-hung) and type 'J' (bottom-hung) projecting windows**



**Key**

- 1 Type K outward opening (like B.5 key 1:Type H – but fully reversible)
- 2 Type K inward opening (like B.5 key 2:Type H – but fully reversible)

**Figure B.6 — Type 'K' top-hung projecting reversible windows**



**Key**

- 1 left
- 2 right

**Figure B.7 — Type 'L' side-hung projecting reversible windows**

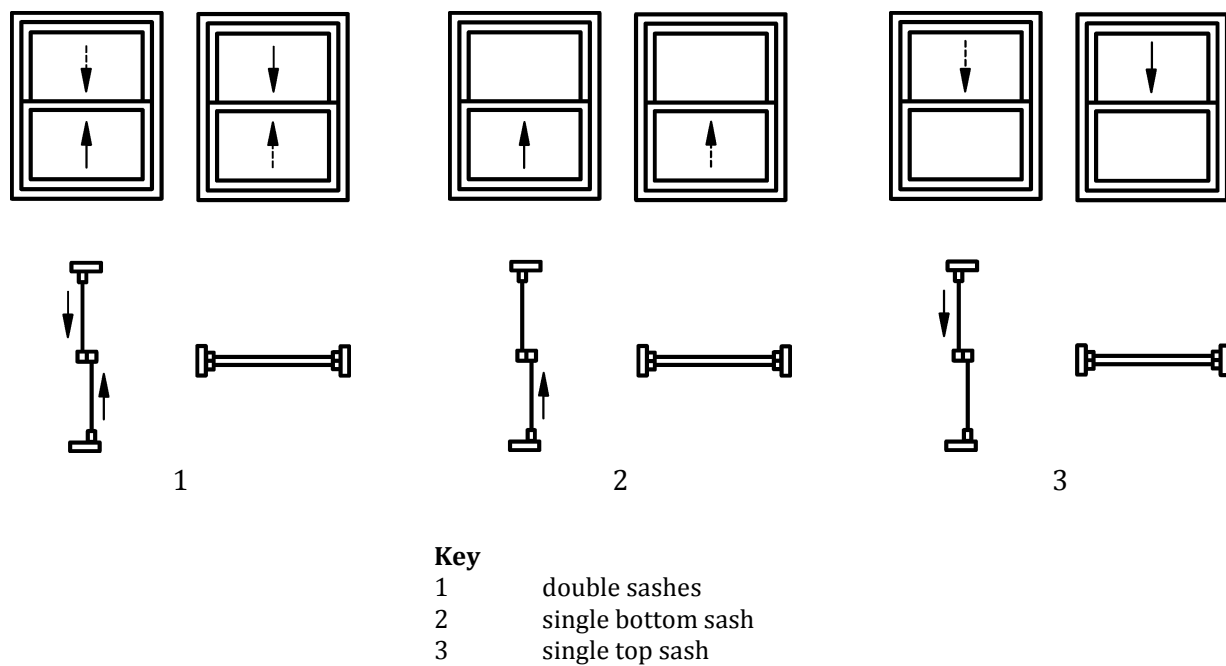


Figure B.8 — Type 'M' vertical sliding sashes

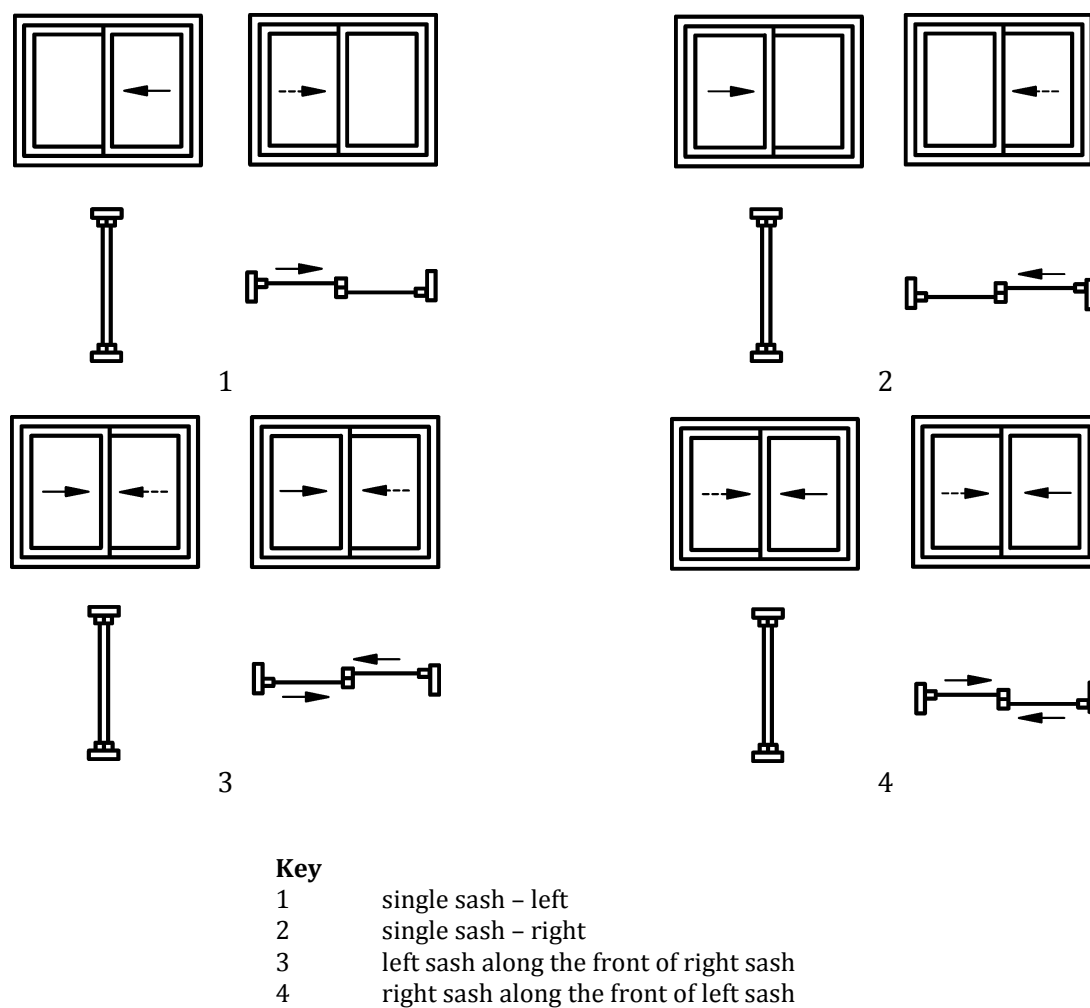
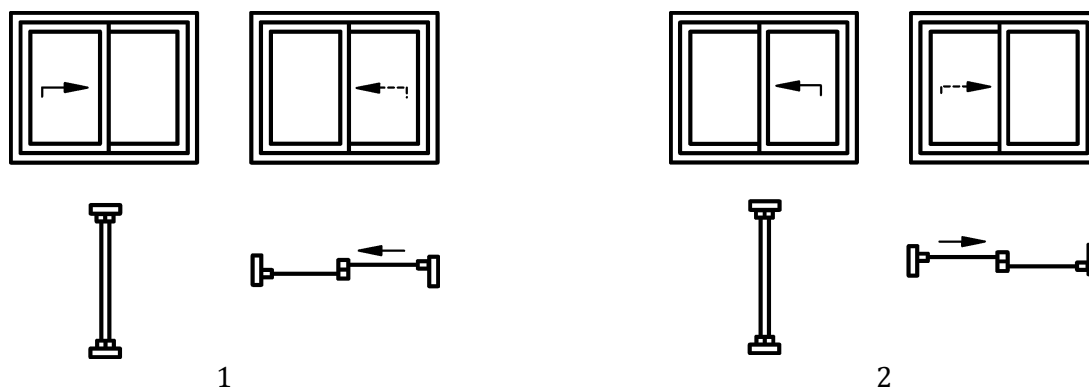


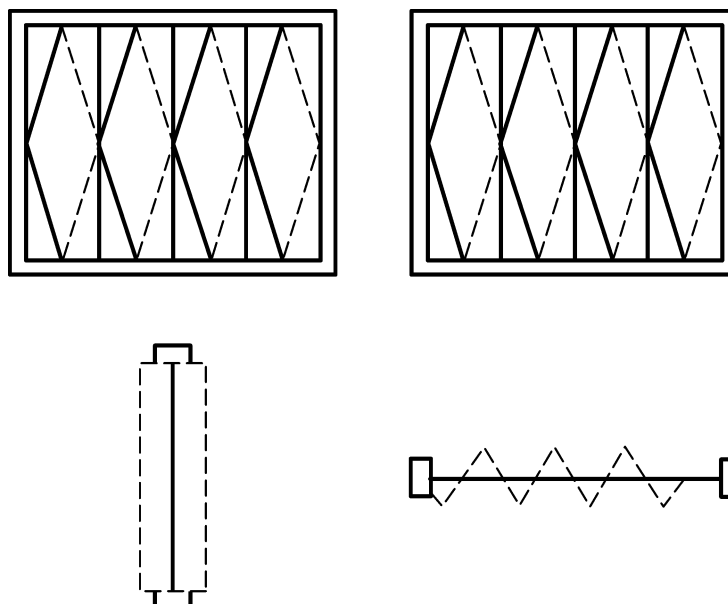
Figure B.9 — Type 'N' horizontal sliding sashes



**Key**

- 1 active sash sliding to the right
- 2 active sash sliding to the left

**Figure B.10 — Type 'P' lifting sliding sashes**



**Figure B.11 — Type 'Q' folding (centre pivot) windows**

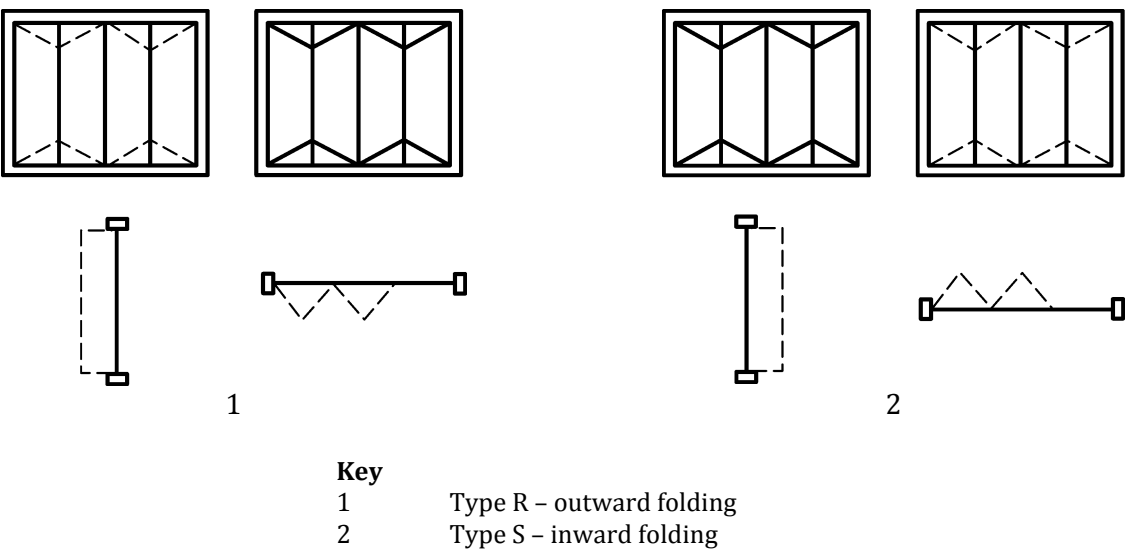


Figure B.12 — Type ‘R’ (outward folding) and type ‘S’ (inward folding) corner pivot windows

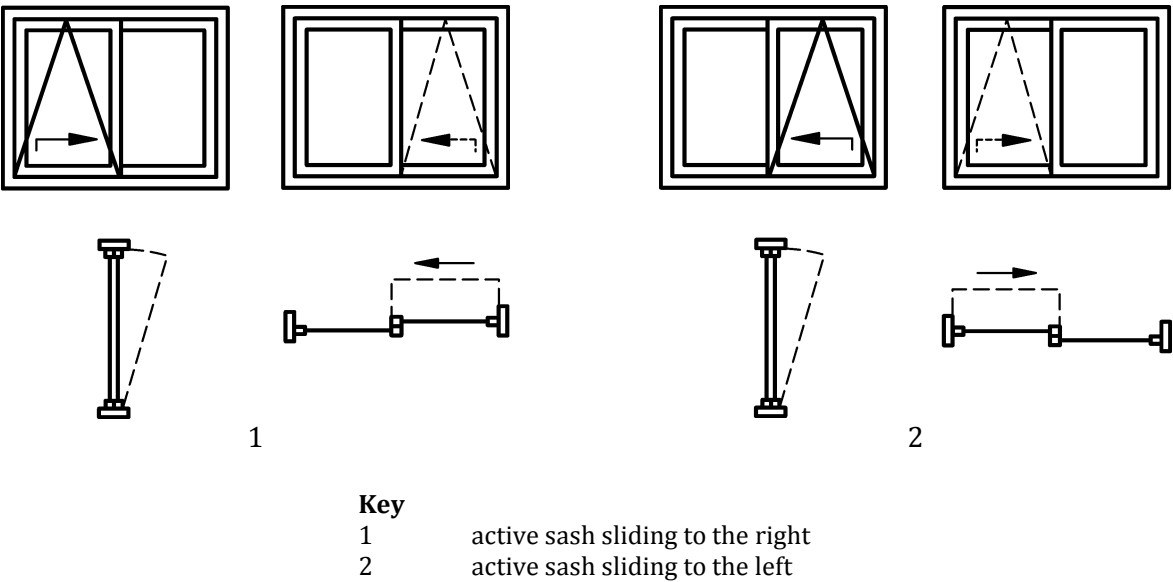
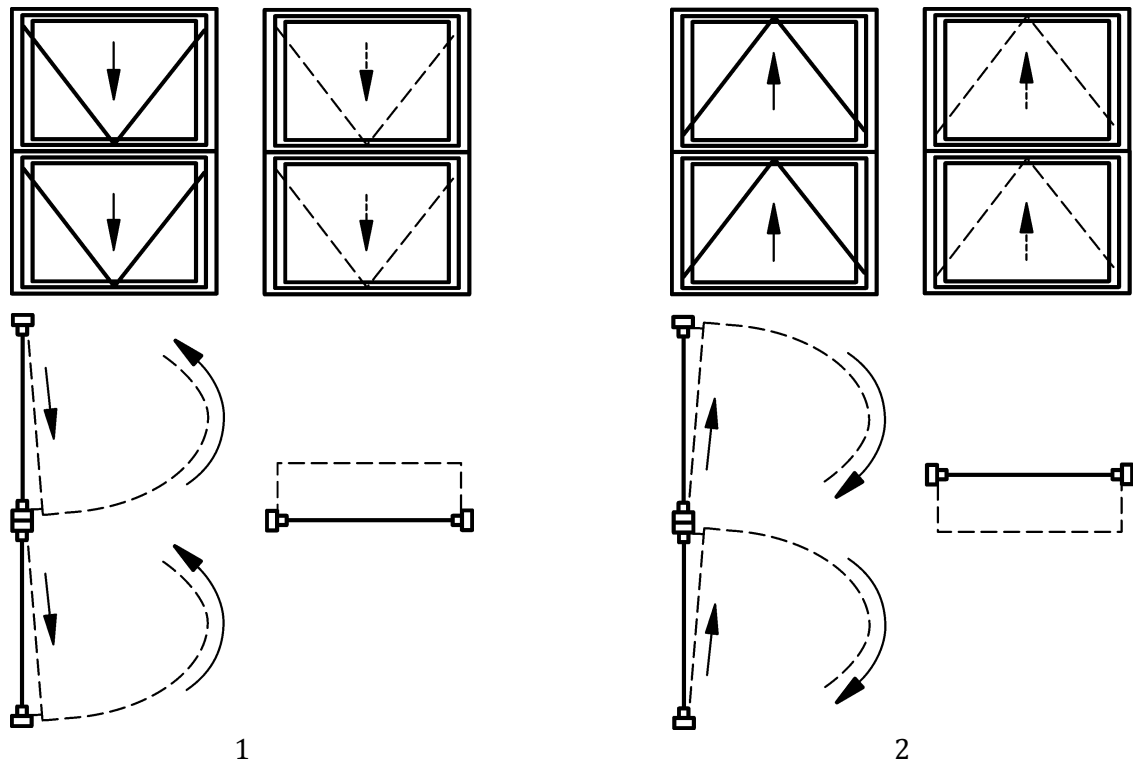


Figure B.13 — Type ‘T’ tilting sliding sashes



**Key**  
 1 Typ U  
 2 Typ V

**Figure B.14 — Type ‘U’ (top-hung) and type ‘V’ (bottom-hung) inward opening (multi-light) projecting windows**

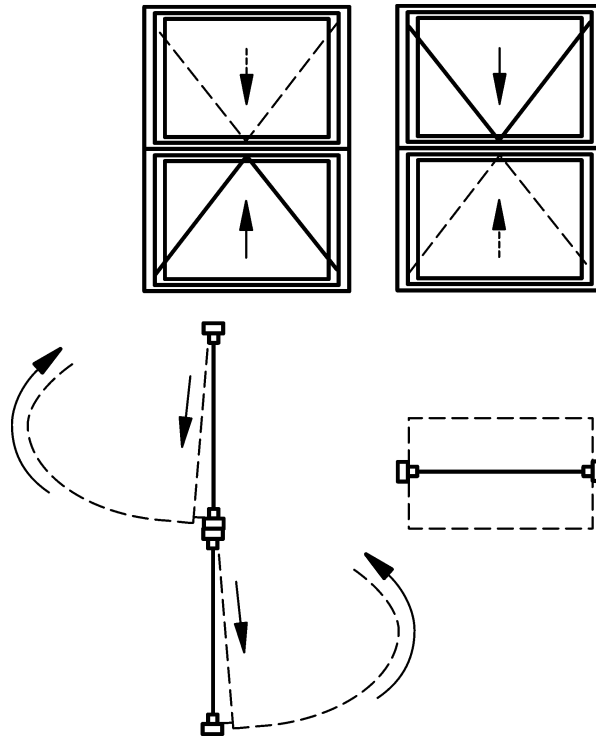


Figure B.15 — Type 'W' horizontal balanced windows

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- [3] EN 1627, *Pedestrian doorsets, windows, curtain walling, grilles and shutters — Burglar resistance — Requirements and classification*
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