

AXOR

RC1-RC2

**VANDAL PROOF
TECHNOLOGY**



Breaking into Statistics

Do you know how much time an experienced burglar needs to break out a regular PVC window? **15** seconds! Only a quarter of a minute — and a malefactor is already at your place ... Let's look at the statistics to find out in what way attackers most often penetrate into homes and what are there broken into most often.



What is broken into more often in private homes?

- 48%** balcony doors
- 32%** windows
- 13%** entrance doors
- 7%** basement



What is broken into more often in apartments?

- 47%** entrance doors
- 32%** balcony doors
- 21%** windows



How to break into windows?

- 81%** press out the sash
- 10%** the sash was in the "tilt" mode
- 8%** break a sealed double glazed unit
- 1%** other

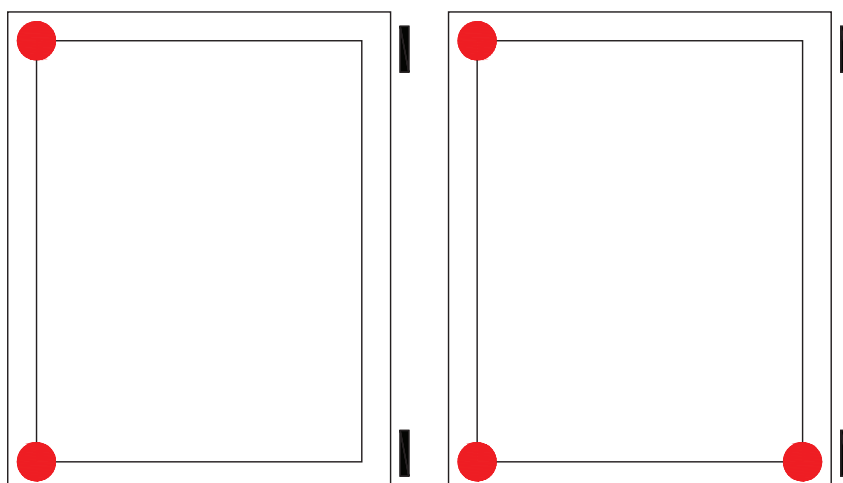


AXOR

provides security ...



Basic Security –
tests were not carried out, there is no level of resistance to breaking



This type of protection is provided for inexperienced thieves and random vandals.

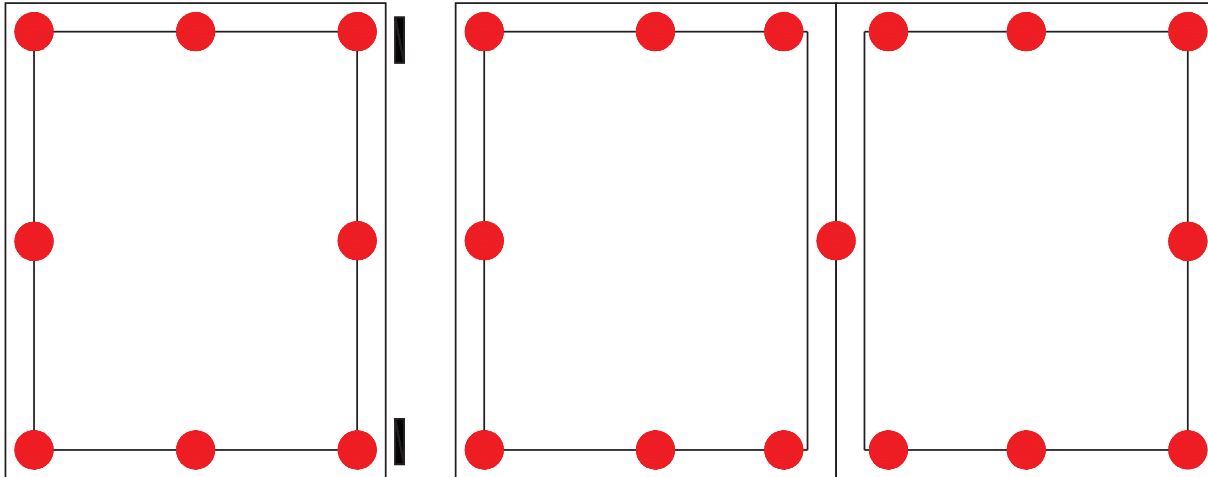
Individual corners (points) are protected, there are not special requirements for windows and accessories.

Many windows already have one or two anti-burglar points as standard (for example, from the bottom in a corner transmission or closer to the bottom hinge).

Safety,

which you can offer to your customers

EN 1627-1630 - Standardized Safety

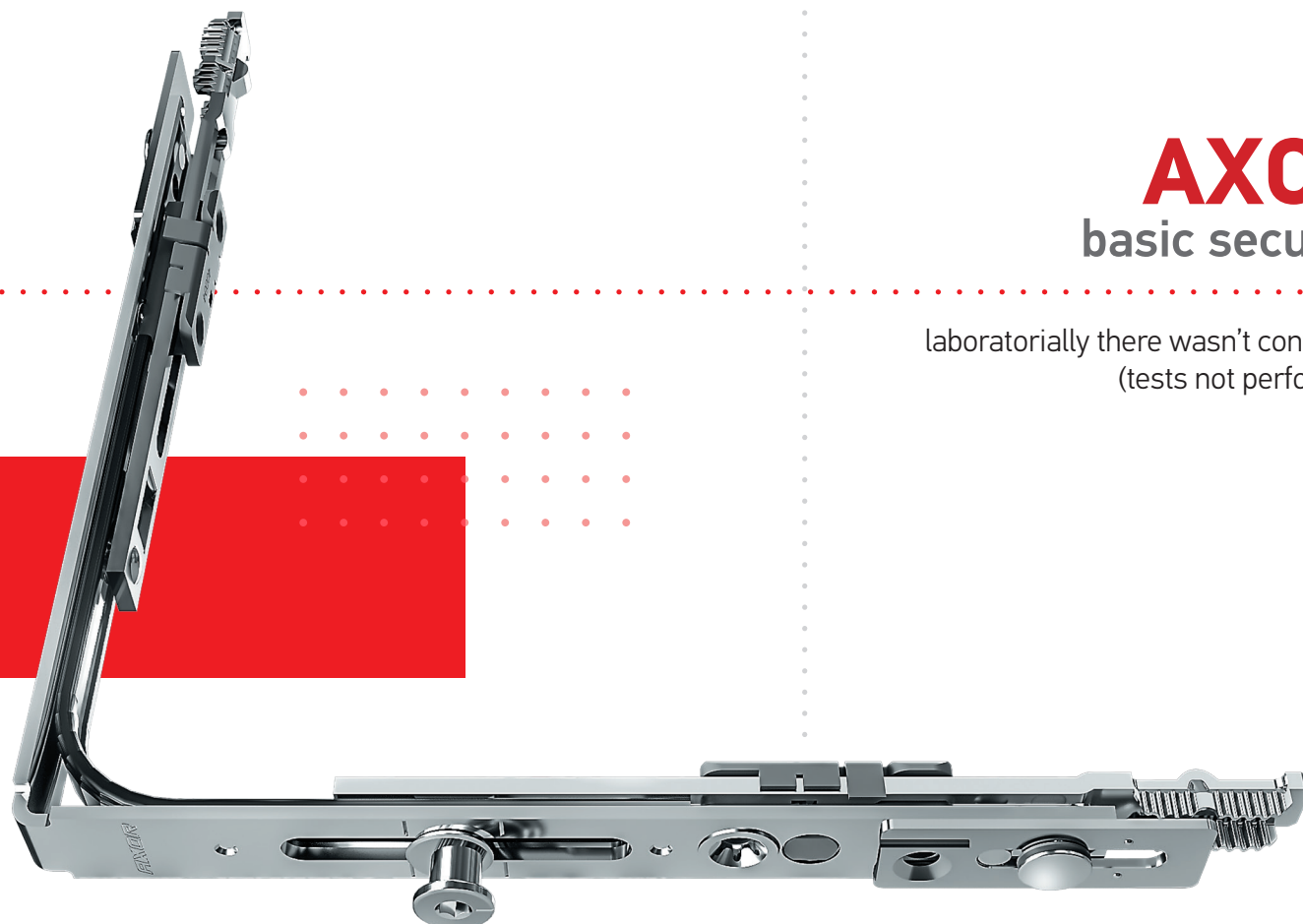


- ✓ Depending on the specific resistance class (RC), windows are made according to EN 1627-1630, reinforced protection is recommended to withstand inexperienced or experienced thieves.
- ✓ EN 1627 - 1630 classifies six resistance classes (RC). This makes sense for single-sash and French windows and also balcony doors up to protection class RC3 and it is appropriate in cases for the application area to classes RC1 - RC3.
- ✓ Above class RC4, only special designs.
- ✓ EN 1627 - 1630 applies in many countries (e.g. Germany, Switzerland, Holland, Belgium and Austria) as a national standard.
- ✓ Test certificates are intended not only for the applicant (manufacturer of accessories or manufacturer of windows), but can also be transferred in the form of licenses, according to the conditions of data transfer for the product family. The applicant for the test certificates is a window manufacturer.
- ✓ RC means resistance class.

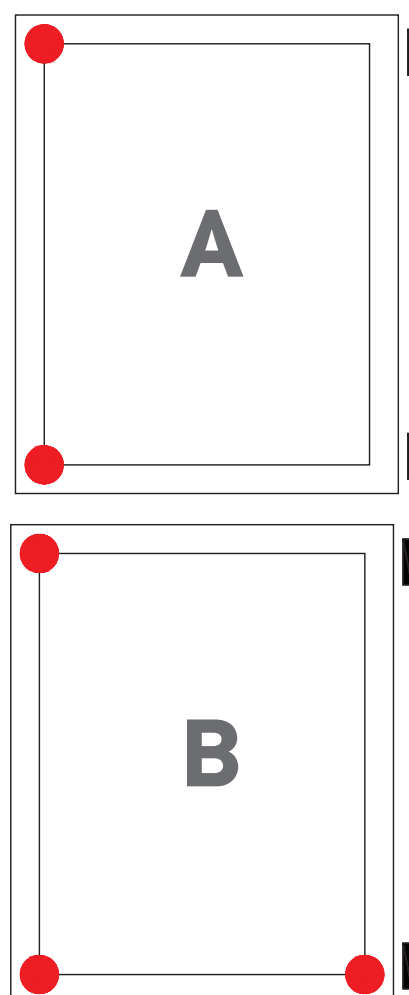
AXOR

basic security

laboratorially there wasn't confirmed
(tests not performed)



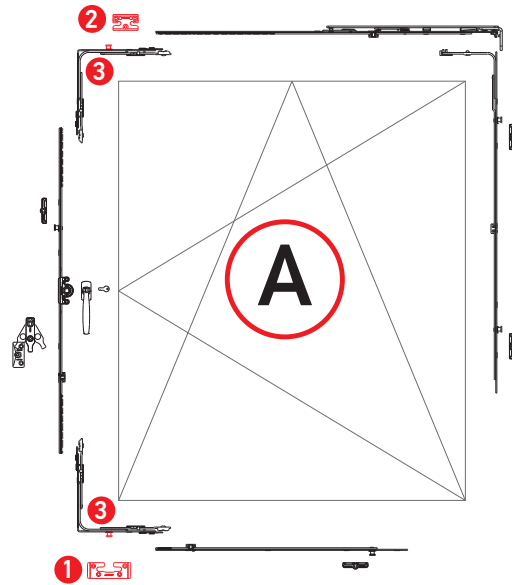
Levels:	A B
Application:	Main living area
Resistance:	against vandalism (without using tools)
Valuation:	low protection, as it is provided only at certain points
Test procedure:	no
Design features:	standard window designs
Glazing:	not required
Window handle:	lockable window handles with a lock button or cylinder lock
Wall mounting:	standard installation



Basic security A

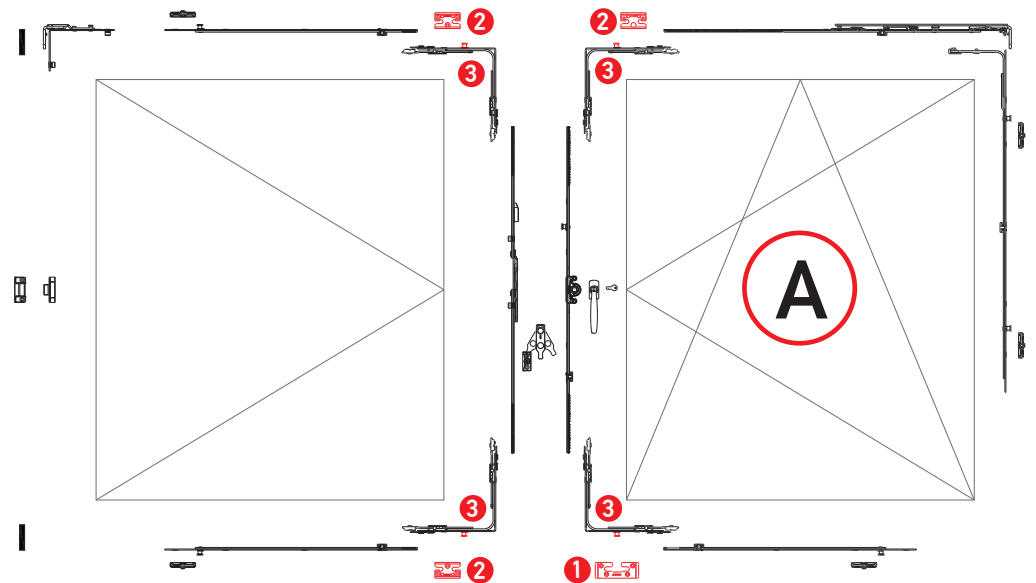
All safety related components are marked in red!

The hardware combinations on this page are AXOR recommendations!



Single-sash window:

- 1** 1 security tilt locking plate;
- 2** 1 burglar resistant usual locking plate;
- 3** 2 corner transmissions with mushroom security cams.

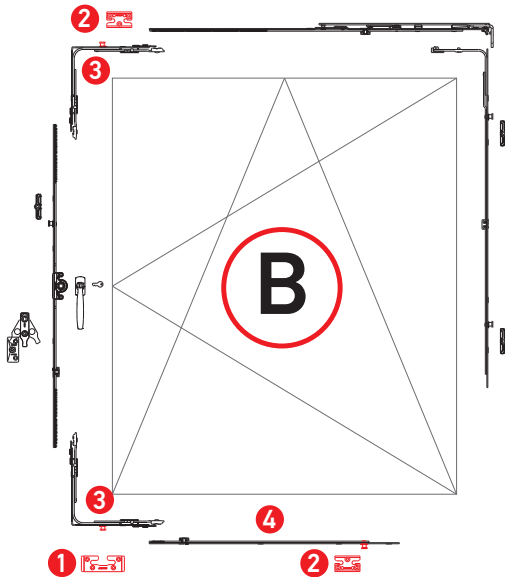


Double-sash window (french window unit):

- 1** 1 security tilt locking plate;
- 2** 3 burglar resistant usual locking plates;
- 3** 4 corner transmissions with mushroom security cams.

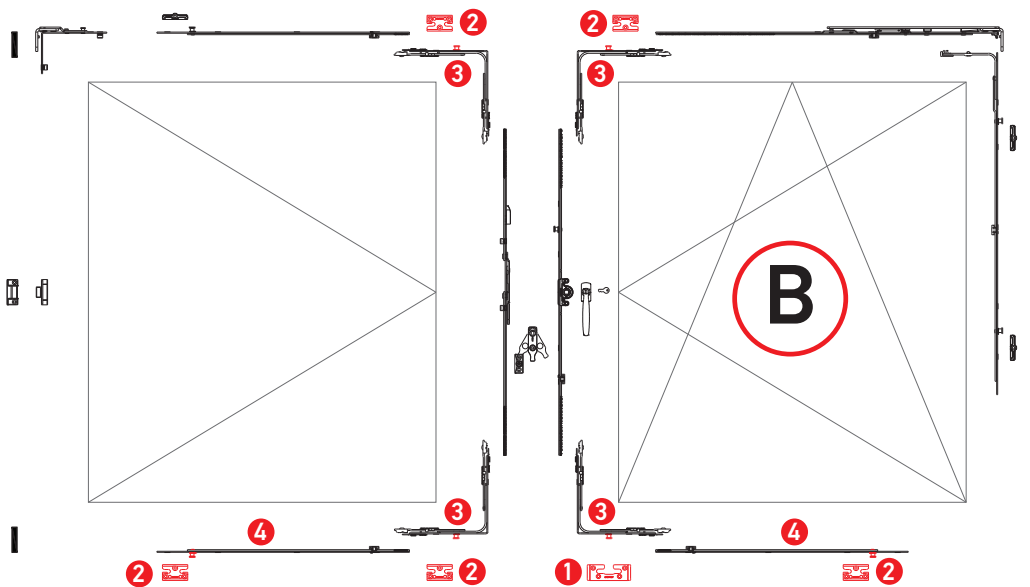
Basic security B

All safety related components are marked in **red**!
The hardware combinations on this page are AXOR recommendations!



Single-sash window:

- 1** 1 security tilt locking plate;
- 2** 2 burglar resistant usual locking plates;
- 3** 2 corner transmissions with mushroom security cams;
- 4** 1 extension of corner transmission with security cam.



Double-sash window (french window unit):

- 1** 1 security tilt locking plate;
- 2** 5 burglar resistant usual locking plates;
- 3** 4 corner transmissions with mushroom security cams;
- 4** 2 extensions of corner transmission with security cams.

EN 1627 – 1630

European standardized safety



National standards for:

Germany:	DIN EN 1627 – 1630
Austria:	ÖNORM EN 1627 – 1630, ÖNORM B 5338
Switzerland:	SN EN 1627 – 1630

Tools

for manual breaking attempts EN 1627 – 1630

Tool kit A1 for RC 1 - 6



Multiple slip joint gripping pliers, maximum length (250 ± 10) mm;

Screwdriver, total length (260 ± 20) mm, shaft diameter of (8 ± 2) mm and blade width (10 ± 1) mm;

Set of small screwdrivers, with different blade forms, shaft diameter max. (6 ± 2) mm and total maximum length 250 mm;

Hexagonal allen keys, maximum length 120 mm;

Spanners, maximum length 180 mm;

Engineer pliers; maximum length 200 mm;

Tweezer;

Knife, maximum length of blade 120 mm;

Torch;

Hooks;

Steel wire;

Adhesive tape;

String;

Rubber mallet shore hardness (90 ± 10) shore; weight: head (100 ± 20) g, total (145 ± 20) g, length (260 ± 20)mm;

Universal lock key.

Tool kit A2 for RC 2 (optional to A1)



1 Screwdriver: length (365 ± 25) mm, blade width (16 ± 2) mm;

1 Pipe wrench: length (240 ± 20) mm;

Plastic wedges (2 pcs.): length (200 ± 25) mm, width (80 ± 10) mm, height (40 ± 5) mm;

Wood wedges (2 pcs.): length (200 ± 25) mm, width (80 ± 10) mm, height (40 ± 5) mm;

Compass saw: 2 blades (bimetal or HSS metal cutting), length (370 ± 25) mm;

Pad saw: 2 blades (bimetal or HSS metal cutting), length (330 ± 25) mm.

All tools shown have to be used correctly only!

EN 1627 - 1630

European standardized safety

The revision of predecessor standard **EN V 1627: 1999** led to following changes in the current version. The reason of revision for series of standards was alignment with the current level of technology and improvement of test methodology. What's new is the new designation "**RC**" for any resistance class to replace German abbreviation "**WK**". Nothing has changed for the **6 resistance classes**.

Resistance class EN 1627 : 2011	Resistance class EN V 1627 : 1999
RC 1 N	—
RC 2 N	—
RC 2	WK 2
RC 3	WK 3
RC 4	WK 4
RC 5	WK 5
RC 6	WK 5

The table above shows that the **RC 2** was divided into two different resistance classes. The addition of "**N**" for resistance classes **RC 1 N** and **RC 2 N** means "normal". It is understood that ordinary glass can be used here without burglar-resistant characteristics. This classifies standardized class 2 without glazing requirements.

Test reports in accordance with **DIN V ENV 1627** are still valid; this is governed by the last sentence in Section 4 of the current successor to **DIN EN 1627: 2011-09**.

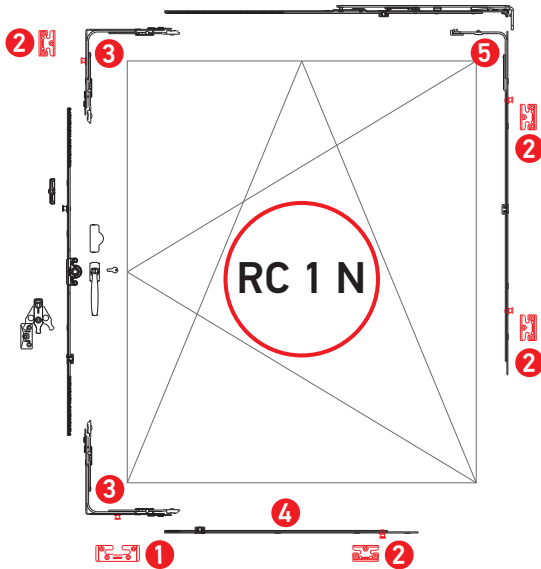
Regarding the use of historical test results, it can be assumed that products are classified in accordance with **EN V 1627: 1999** in classes 2-6, correspond to the same classes of this standard.

Depending on the resistance class, windows manufactured in accordance with **EN** provide improved protection that can prevent random burglars or experienced thieves who use simple lever tools.

!!! Tests in accordance with these standards are individual tests, conducted on finished windows and must be requested by a window manufacturer and performed at an approved (accredited) testing center or institute. At the national level, it is also possible, under certain conditions, according to the license agreement, to use primary test certificates or expert conclusion from manufacturers of PVC profiles or window hardware with confirmation of an independent testing center or laboratory. The standard is divided into six classes from **RC 1 to RC 6** with different requirements for each element. Window tests make sense in classes **RC 1 to RC 3**. Application: high-risk residential and office space. Products for classes **RC4-RC6** must be made to special order using special accessories. In this article, such constructions are not provided.

Your **AXOR technical consultant** will be happy to assist you in choosing a burglar resistance class and give you tips on completing units for window construction.

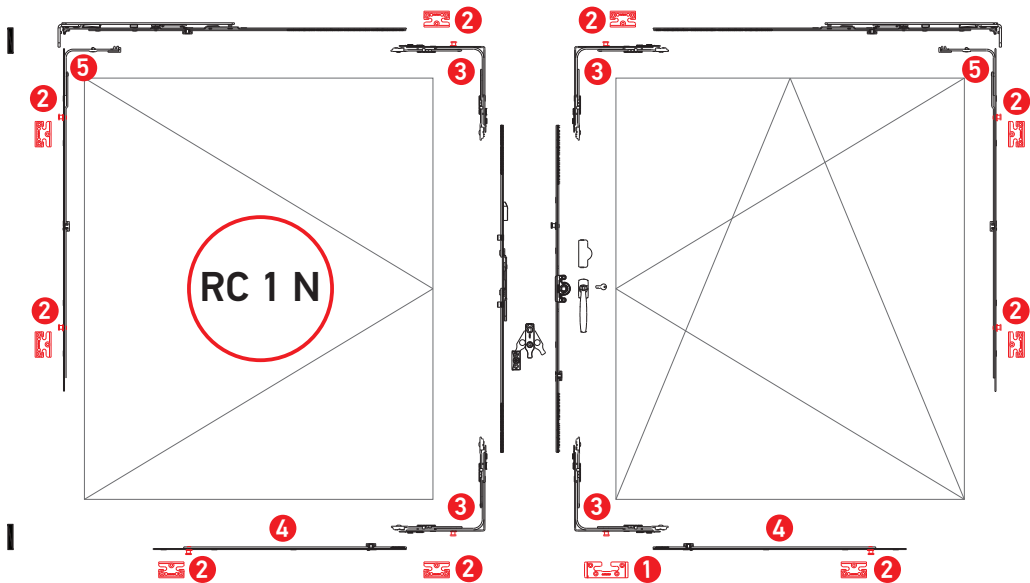
Burglar resistance class RC 1 N



Single-sash window:

- 1** 1 security tilt locking plate;
- 2** 3-4 burglar resistant usual locking plates;
- 3** 2 corner transmissions with mushroom security cams;
- 4** 1 extension of corner transmission with security cam;
- 5** 1 vertical middle lock with mushroom security cam (or with an additional cam).

The number of locking points depends of window size!

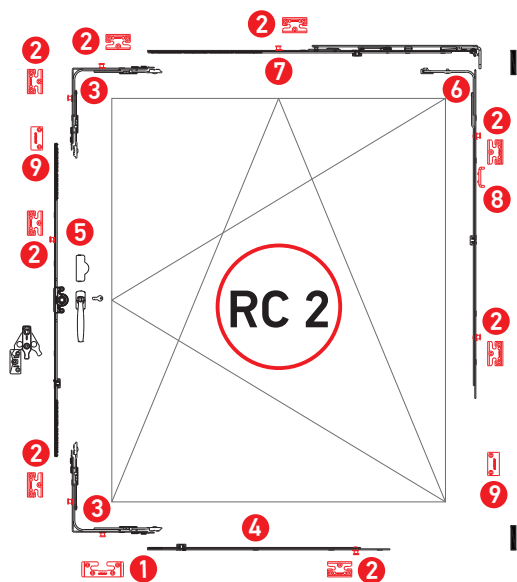


Double-sash window (french window unit):

- 1** 1 security tilt locking plate;
- 2** 7-9 burglar resistant usual locking plates;
- 3** 4 corner transmissions with mushroom security cams
- 4** 2 extensions of corner transmission with security cams;
- 5** 2 vertical middle locks with mushroom security cams (or with an additional cam).

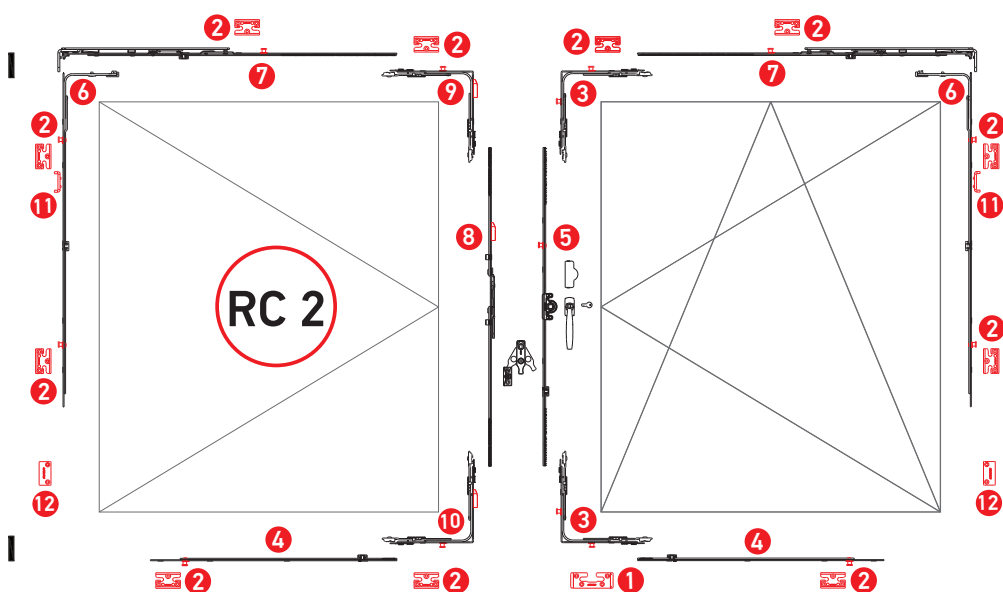
Standardized Safety EN 1627 – 1630

All safety related components are marked in **red**!



- 1** 1 security tilt locking plate;
- 2** 8 burglar resistant usual locking plates;
- 3** 2 corner transmissions with two mushroom security cams;
- 4** 1 extension of corner transmission with security cam;
- 5** 1 tilt and turn gear with security cam(s);
- 6** 1 middle lock with mushroom security cam(s);
- 7** 1 stay arm with security cam;
- 8** 1 anti-lifting device;
- 9** 2 anti-moving elements.

The number of locking plates, including anti-burglary, depends of the window's size!



- 1** 1 security tilt locking plate;
- 2** 11 burglar resistant usual locking plates;
- 3** 2 corner transmissions with two mushroom security cams;
- 4** 2 extensions of corner transmission with security cams;
- 5** 1 tilt and turn gear with security cam(s);
- 6** 2 middle locks with mushroom security cam(s);
- 7** 2 stay arm with security cam;
- 8** 1 double sash window gear with anti-burglary locking plate;
- 9** 1 top corner transmission with security locking plate for double sash window;
- 10** 1 bottom corner transmission with security locking plate for double sash window;
- 11** 2 anti-lifting devices;
- 12** 2 anti-moving elements.

Resistance class RC 1 N

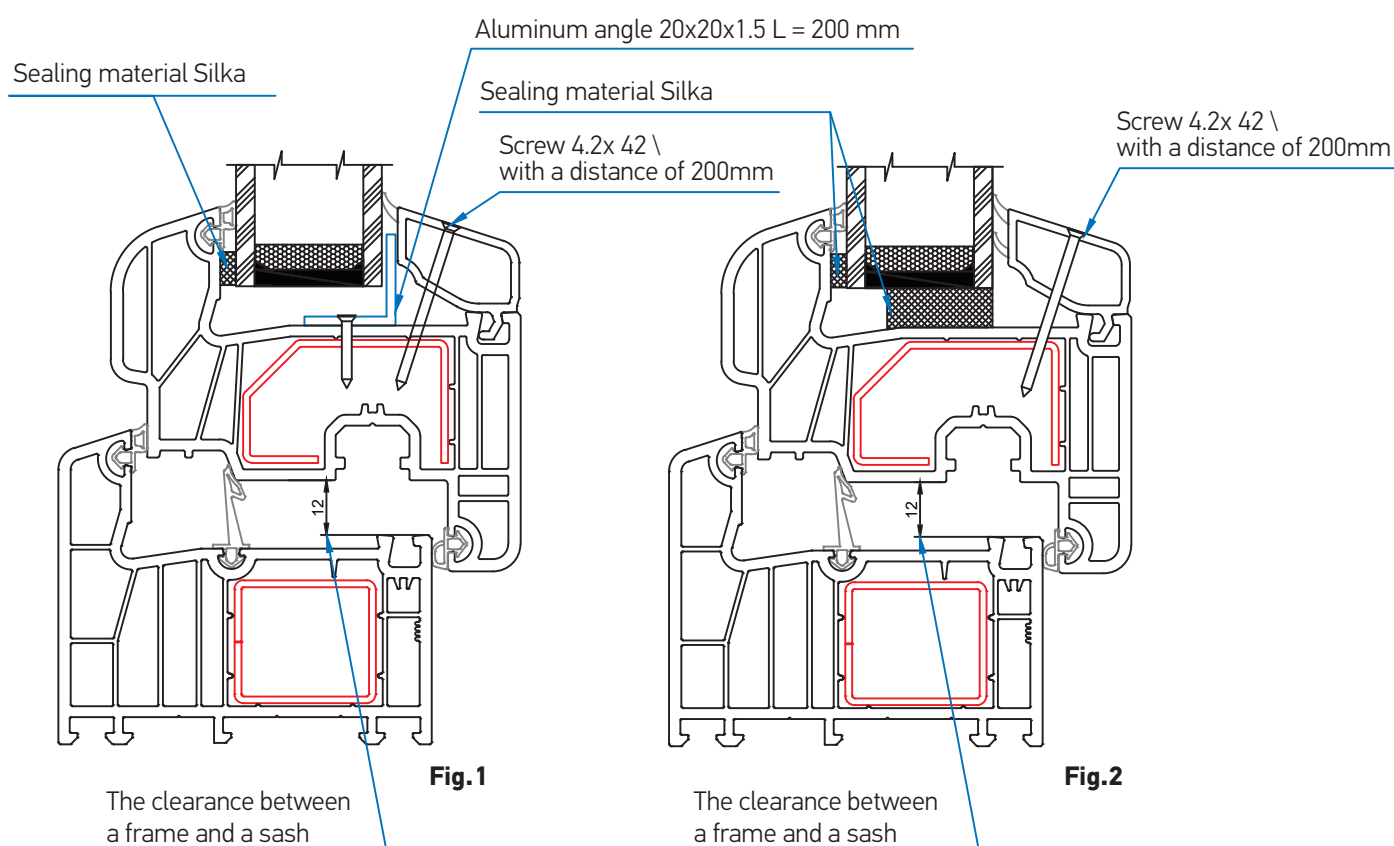
Application:	Residential premises such as ground floor and easily accessible balconies;
Type of offender:	Not an experienced intruder;
Resistance:	Against brute force, without using tools;
Rating:	Medium protection, each corner is protected;
Testing procedure:	Static test (cylinder pressure around the perimeter) with additional load against the direction of blocking. Dynamic testing using a double tire (50 kg blow by soft body) and 3-minute preparation time with A1 tool kit (all parts on the attack side can be unscrewed, removed or disassembled). P4A glazing according to EN 356 for class RC1. Tool kit A1 is used only to identify weaknesses on the penetration side upon further break-in attempt with a kick or shoulder.
Processing:	Maintain accurate the clearance between a frame and a sash and also weld temperature for stiffness of corner joints;
Glazing:	Standard glazing is used for class RC 1 N.
Window handle:	Lockable window handles with a lock button or with a locking cylinder. Attention: the lock button is only for break-resistant double-glazed units!
Drilling protection:	Minimum surface hardness 60 HRC is necessary, hardness depth 0.5 mm.
Window hardware:	Refer to the matrix of hardware sets, take the advice of AXOR specialists.
Mounting into the wall:	No requirements.

Resistance class RC 2/ RC 2 N

Application:	High-risk residential premises and business centers.
Type of offender:	An experienced attacker who uses tools.
Resistance:	Against simple lever tools such as screwdrivers and wedges.
Rating:	Good protection, since all points of possible penetration are protected.
Testing procedure:	Static test (cylinder pressure around the perimeter) and dynamic test using a double tire (50 kg blow by soft body). Manual breaking-in (tool kit A2) with preliminary analysis of weak points and a basic test duration 3 minutes to each selected weak point. For testing RC 2 and RC 2 N, P4A glazing is in accordance with EN 356.
Design features:	Standard windows and window structures.
Processing:	Maintain accurate clearance between a frame and a sash and also weld temperature for stiff corner joints.
Glazing:	For RC2, use P4A glazing, EN 356. For RC2N, standard glazing can be used (country-specific regulations).
Window handle:	Lockable window handles with a locking cylinder or lock button with a resistance of 100 Nm (for tearing and breaking).
Drilling protection:	Minimum surface hardness 60 HRC, hardness depth 0.5 mm.
Window hardware:	Refer to the matrix of hardware sets, take the advice of AXOR specialists.
Mounting into the wall:	The detailed installation instructions with information about the surrounding wall, screws and cladding, which are included in each test certificate, must be followed.

RC2 / EN 1627 - 1630

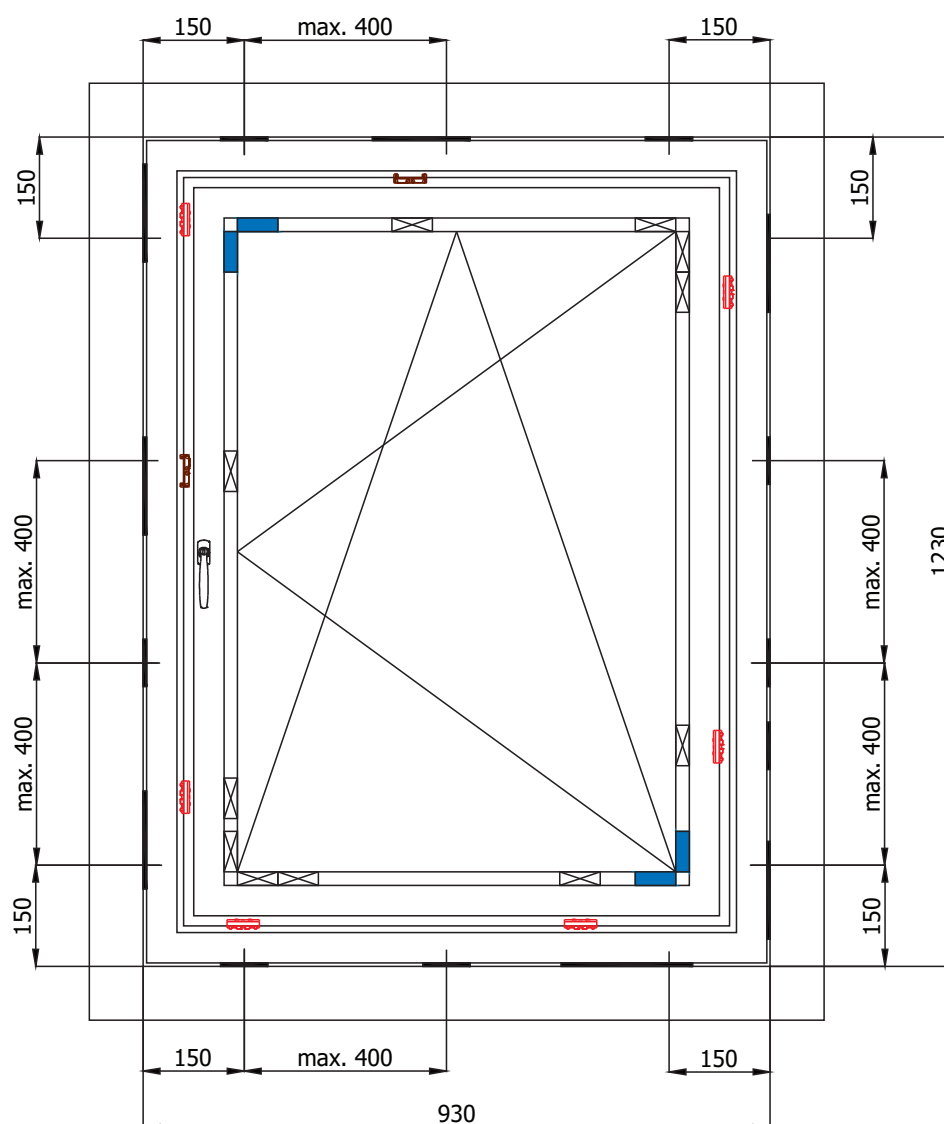
Recommendations for installing of a double-glazed unit








- 1** Observe the precise 12mm clearance between a frame and a sash.
- 1a** Fix the double-glazed unit, for this an aluminum corner 20x20x2 is used, fastening with screws through the reinforcement profile of a sash. (fig. 1)
- 1b** Glue-in a double-glazed unit to the inward sash rebate (place for basis of a glass window panel) herewith use a special two-component adhesive, for example, Silkasil WT-48). (fig. 2)
- 1c** The glazing bead is glued with two-component adhesive or fastened with screws in a reinforcement profile of a sash.
- 2** Double-glazed unit is P4A. The test report from a manufacturer is required.
- 3** Window hardware is fastened through frame reinforcement and PVC sash profile! Frame reinforcement is square shaped, reinforcement thickness min. 2 mm.

Centering and installation of stand (lining) profiles around of a sash perimeter **for RC1 – RC2**

Base blocks and shock-proof linings



-  Pressure resistant perimeter lining;
-  Spacer lining;
-  Centering;
-  Burglar-resistant (security) locking plate;
-  Standard locking plate.



AXOR

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