



SLIDING OPERATION MANUAL

Roto Patio Lift

Standard hardware for large Lift&Slide doors up to 300 kg

Installation, maintenance and operation instructions
for Veka, Schüco, Inoutic / Deceuninck PVC profiles



Imprint

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This manual contains important information, instructions and application diagrams (maximum sash sizes and sash weights) as well as installation instructions regarding the further work of the hardware.

Also, this manual contains binding guidelines to ensure the duty to instruct through to the end-user.

The information and instructions in this manual refer to the products of the Roto Patio hardware system.

Apart from these installation, maintenance and operation instructions, the following documents apply:

- Directives of the Quality Assurance Association: Locks and Hardware (Richtlinie der Gütegemeinschaft Schlösser und Beschläge e. V.)
- Directives VHBE of the Quality Assurance Association: Locks and Hardware (Richtlinie VHBE der Gütegemeinschaft Schlösser und Beschläge e. V.)

This manual should be stored in such a manner that it can be quickly used, if needed.

Additional markings

To highlight handling directives, results, lists, references and other elements, the following signs are used in this manual:

Marking	Explanation
	Sash
	Frame
	Drill holes
①	Hardware components
1.	Action steps
[A]	Action sequence
■	First level of hierarchy in a list
—	Unordered list (second level of the hierarchy)
→ p. 12	(Cross) reference in tables
Refer to page 12	(Cross) reference in the text
Abbreviation	Explanation
W	Width
BE	Backset espagnolette
SW	Sash width
S.kg	Sash weight
SH	Sash height
HH	Handle height
H	Height
L	Length
WL	With logo
N	Groove depth profile-related
PC	Profile cylinder
FEW	Frame external width

All dimensions stated in mm.

Protection of copyright

The contents of this manual are protected by copyright. In the framework of the hardware manufacturing, the use of the contents is allowed. Any other or further use is not permitted without written permission of the manufacturer.

The information in this document is aimed at the following target groups:

Hardware dealers

The “hardware dealers” target group includes all companies/persons who purchase hardware from the hardware manufacturer to resell it without the hardware being modified or subject to further work.

Manufacturers of windows and balcony doors

The “manufacturers of windows and balcony doors” target group includes all companies/persons who purchase hardware from the hardware manufacturer or the hardware dealer and build it into windows and balcony doors.

Building element dealers/Installation company

The “building element dealers” target group includes all companies/persons who purchase windows and balcony doors from the manufacturer of windows and balcony doors in order to sell these on and to install them into a building development, without the windows or balcony doors being modified.

The “installation company” target group includes all companies/persons who purchase windows and balcony doors from the manufacturer of windows and balcony doors, or from a building element dealer, in order to sell these and to install them into a building development, without the windows or balcony doors being modified.

Builder

The “builder” target group includes all companies/persons who order windows and/or balcony doors for installation into their building project.

End-users

The “end-users” target group includes all persons who operate the installed windows and/or balcony doors.

**NOTE!**

Every target group must fully comply with its instruction obligation. Unless defined otherwise in the following, the documents and information may be transmitted e.g. as printed documents, CD-ROM, or via Internet access.

Responsibility of the hardware dealer

The hardware dealer must transmit the following documents to the manufacturer of windows and balcony doors:

- Catalogue
- Installation, maintenance and operation instructions
- Guidelines/advice on the product and on liability (VHBH)
- Guidelines/advice for end-users (VHBE)

Responsibility of the manufacturer of windows and balcony doors

The manufacturer of windows and balcony doors must transmit the following documents to the building element dealer or to the builder, even when a subcontractor (installation operation) is acting as an intermediary:

- Installation, maintenance and operation instructions
- Guidelines/advice on the product and on liability (VHBH)
- Guidelines/advice for end-users (VHBE)

He must ensure that the end-user is provided with the documents and information intended for him, in printed format.

Responsibility of the building element dealer/installation company

The building element dealer must transmit the following documents to the builder, even when a subcontractor (installation company) is acting as an intermediary:

- Maintenance and operating instructions (with the focus on hardware)
- Guidelines/advice on the product and on liability (VHBH)
- Guidelines/advice for end-users (VHBE)

Responsibility of the builder

The builder must transmit the following documents to the end-user:

- Maintenance and operating instructions (with the focus on hardware)
- Guidelines/advice for end-users (VHBE)

In this instructions, safety information is indicated by a symbol. The safety information is introduced by a key word that indicates the severity of the danger.

**DANGER!**

This symbol in conjunction with the signal word indicates an imminently hazardous situation, which could result in death or serious damage to health if it is not avoided.

**WARNING!**

This symbol in conjunction with the signal word indicates a potentially dangerous situation, which could result in death or serious damage to health if it is not avoided.

**CAUTION!**

This symbol in conjunction with the signal word indicates a potentially dangerous situation, which may lead to minor or light injuries if it is not avoided.

**NOTE!**

This symbol in conjunction with the signal word indicates a potentially dangerous situation, which may lead to property or environmental damage if it is not avoided.

All details and instructions in this document were compiled taking into account the relevant standards and regulations, the state of the art, and also many years of knowledge and experience.

The hardware manufacturer accepts no liability for damages resulting from:

- Failure to comply with this document and all product-specific documents and related applicable directives (refer to the chapters Security, Stipulated use).
- Operation other than that stipulated use / misuse (refer to the chapters Security, Stipulated use).
- Insufficient invitation to tender, failure to adhere to the installation instructions or application drawings.
- Increased soiling.

Claims by third parties against the hardware manufacturer on the ground of damages resulting from misuse or failure to follow the instruction obligation on the part of the hardware dealer, the manufacturer of windows and balcony doors, and of the building element dealer or the builder are transferred accordingly.

The undertakings agreed in the delivery contract, the general conditions of business and the delivery conditions of the hardware manufacturer, and the legal regulations applicable at the time of concluding a contract are effective.

The warranty covers only original Roto components.

The right to technical modifications for the improvement of performance characteristics and for further development is reserved.

Sliding hardware is hardware for sliding sashes for windows and balcony doors that are mainly used as glazed exterior structures.

In combination with the sliding sashes, fixed-glazing-units and/or further sashes can be situated in a window element.

Sliding hardware is equipped with a locking mechanism that fastens the sliding sash. Sliding hardware is equipped with rollers that are mainly located on the bottom horizontal plane of the sliding sash.

Sliding hardware is used solely for further processing of vertically installed windows and balcony door sashes made of timber, PVC, aluminium or steel, and their corresponding material combinations.

**NOTE!**

Depending on the outside temperature, relative air humidity of the ambient air, as well as the application location of the sliding element, a temporary formation of condensation water on the aluminium tracks on the inside may occur. This is particularly promoted when the air circulation is hindered; for example due to deep reveals, curtains as well as unfavourable radiator positioning and the like.

Correct use also includes adhering to all the specifications in the product-specific documents, such as:

- These installation, maintenance and operation instructions
- Product catalogues
- Information and specifications of the profile manufacturer (e.g. PVC or light metal profiles etc.)
- The valid national laws and directives

Any type of use that goes beyond or differs from the defined correct use shall be regarded as misuse.

**WARNING!****Danger from misuse!**

Misuse and incorrect installation of hardware can result in hazardous situations.

- Never use hardware combinations that have not been approved by the hardware manufacturer.
- Never use accessories that are not original products or that have not been approved by the hardware manufacturer.



On windows or balcony doors with sliding hardware the sashes can be moved horizontally or vertically by operating a 'hand-lever' (handle). On special constructions the sashes additionally can be folded by sliding (like an accordion – Fold&Slide windows). When a sash is closed and the hardware is locked, the resistance of a gas-ket usually needs to be overcome.

**WARNING!****Danger of injury and material damage from incorrect closing and opening the sash!**

Incorrect closing and opening of sashes can result in serious injuries and significant material damage.

Therefore:

- Ensure that when opening or closing the sash, it does not collide with the frame or with another sash.
- Ensure that the sash is guided slowly by hand throughout the entire range of movement as far as the fully opened or closed position, and that it is brought very slowly towards the frame, the opening restrictor or another sash (technical value – maximum reference speed of the closing edge $v \leq 0.2 \text{ m/s}$).

Any use beyond or other than the stipulated application and installation of the products is deemed to be misuse and can result in dangerous circumstances.

**WARNING!****Danger from misuse!**

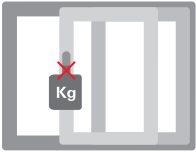
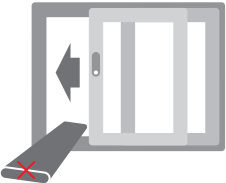
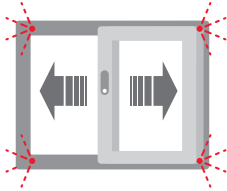
Misuse of windows and balcony doors can result in dangerous circumstances.

In particular, avoid the following applications:

- insertion of obstacles in the opening area between the frame and the window or balcony door sashes,
- the deliberate or negligent application of excessive loads on windows and balcony doors,
- deliberate or uncontrolled slamming or pushing of windows and balcony doors against the window reveal. This can destroy the hardware, frame materials, or other individual components of the windows or balcony doors.

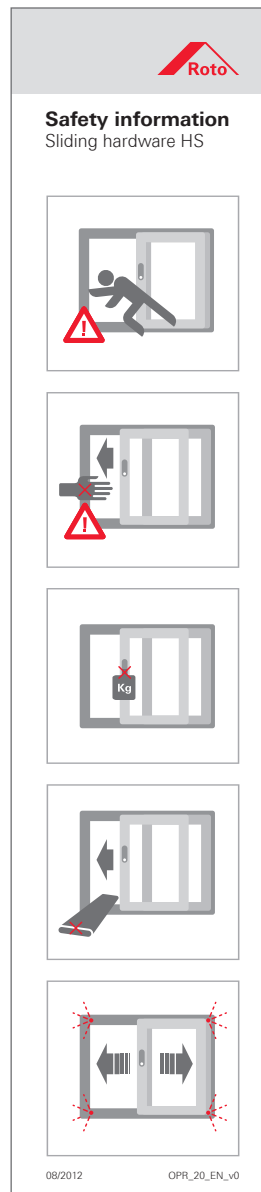
Claims for damages of any type whatsoever resulting of operation other than that stipulated are excluded.

Comply with the following symbols and their meanings in order to avoid accidents, injuries and material damage.

Symbol	Meaning
	DANGER! Danger of injury from falling through open windows and balcony doors – Behave with care near to open windows and balcony doors. – Keep children and people who cannot estimate the dangers away from the point of danger.
	WARNING! Danger of injury through trapping of body parts in the opening gap between sash and frame – When closing windows and balcony doors, never reach between sash and frame, and always act with care. – Keep children and people who cannot estimate the dangers away from the point of danger.
	WARNING! Danger of injury and material damage from overloading the sash – Do not overload the sash.
	CAUTION! Danger of injury and material damage from insertion of obstructions into the opening gap between sash and frame – Do not insert obstructions into the opening gap between sash and frame.
	CAUTION! Injury and property damage from uncontrolled opening and closing of the sash – Ensure that the sash is guided slowly by hand throughout the entire range of movement as far as the fully opened or closed position.



The following symbols can be used on windows and balcony doors to protect the end-user. Always keep these symbols in a clearly legible state. Please order stickers separately (OPR_20_EN).



Maximum sash sizes and weights

The technical data, application diagrams, and component classifications in the product-specific documentation of the hardware manufacturer give instructions on the maximum permitted sash sizes and weights. Here, the component with the smallest permitted load bearing capacity decides the maximum permitted sash weight.

- Check compliance of the technical data, application diagrams, and component classifications before the use of electronic data sets, and especially their use in fenestration programmes.
- The maximum permitted sash sizes and weights must never be exceeded. In the case of uncertainty contact the hardware manufacturer.

The hardware manufacturer is not liable for malfunctions or damage to the hardware and to the windows or balcony-doors equipped with the hardware, if any such malfunctions or damage has been caused by inadequate tendering procedures or failure to adhere to the installation instructions and application drawings.

Dimensioning of hardware components

Only via Roto profile assessment (dimensional control), the correct dimensioning of the hardware components can be ensured.

Please ask your local Roto sales representative for profile assessment.

Material selection

Safety and functioning of the hardware components depends on the used materials and trail types.

The window manufacturer has to apply materials and trail types necessary for safety and operativeness of the hardware.

Overlapping of the profiles

By using sufficient sash coverage, the window manufacturer has to ensure that mishandling of the window or the hardware components cannot lead to a breaking out of the sash.

Guidelines from the profile manufacturer

The manufacturer of windows and/or balcony doors must comply with all specified system-related dimensions (e.g. gasket gap dimensions or locking-point distances). Furthermore, he must check these regularly and make certain of them, especially on the first use of new hardware components, during manufacture, in an ongoing manner up to and including the window installation.



NOTE!

The hardware components should in principle be designed in such a manner, that the system-related dimensions can be adjusted to the extent that they are affected by the hardware. If a deviation from these dimensions is noticed only after the installation of the windows, the hardware manufacturer is not responsible for any possible additional work arising.



Composition of hardware

Burglary inhibiting windows and balcony doors require hardware which fulfils particular requirements.

Windows and balcony doors for damp rooms, and those for use in environments with aggressive and corrosive air components require hardware which fulfils particular requirements.

The resistance of windows and balcony doors to wind loads when closed and locked depends on the actual designs of the windows and balcony doors. Wind loads prescribed by law and standards (e.g. as per EN 12210 – especially test pressure P3) can be dissipated by the hardware system.

The hardware combinations and installations appropriate for windows and balcony doors in the previously mentioned areas should be specifically selected and agreed with the hardware manufacturer and the profile manufacturer.



NOTE!

The guidelines of the hardware manufacturer relating to the combination of the hardware (e.g. the use of additional stay arms, the design of hardware for burglary-inhibiting sashes for windows and balcony doors, etc.) are binding.



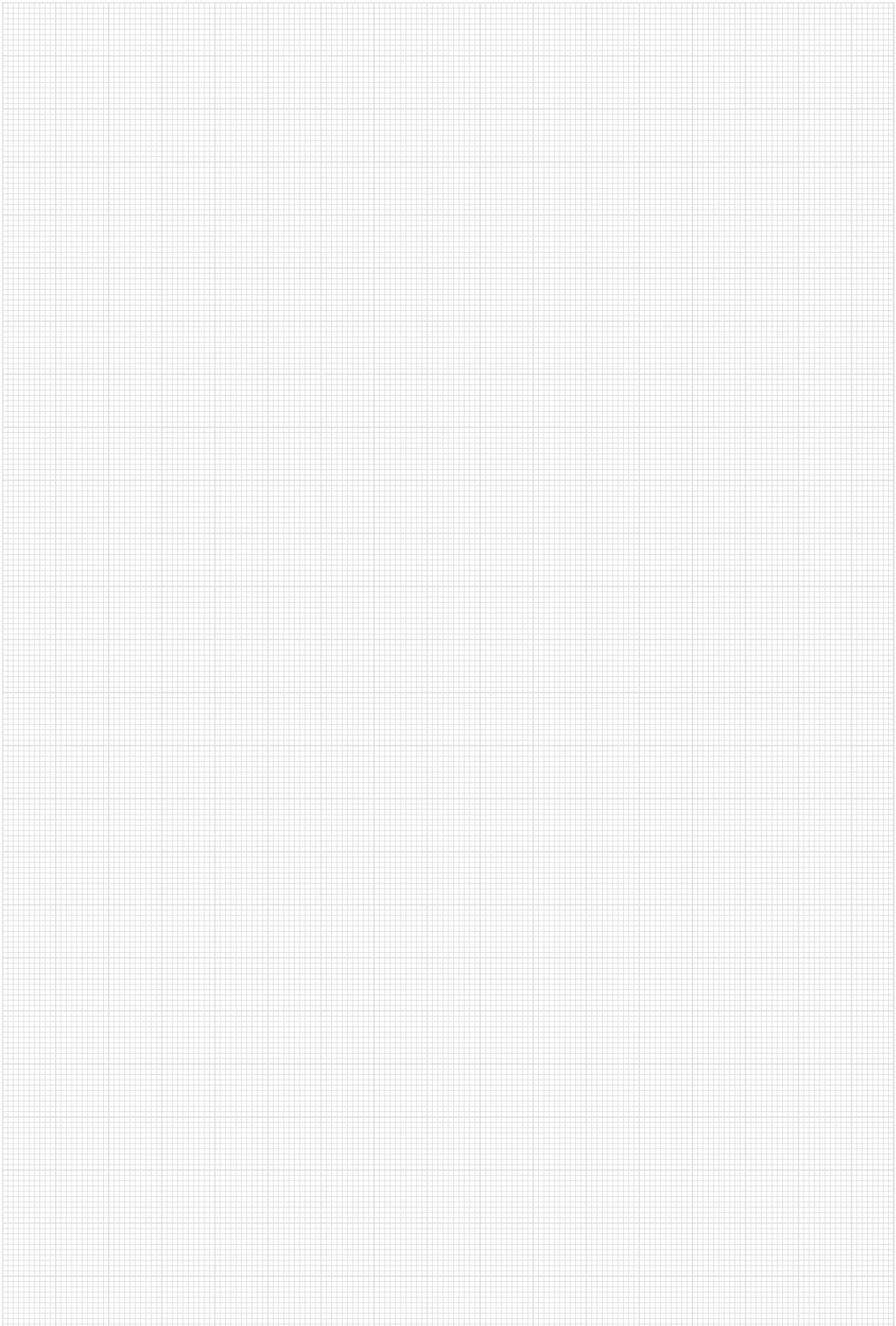
DANGER!

Danger to life from incorrectly installed and threaded hardware components!

Incorrect installation and threading of hardware components can result in dangerous circumstances and cause severe accidents, even including death.

Therefore:

- For installation and especially for threaded components, observe the product-specific documentation and the information of the hardware manufacturer.
 - The window fabricator must ensure adequate fixing of the hardware components and correct load transfer.
-



General hardware characteristics

- Sash width: 720 mm – 3000 mm
- Sash height: 1000 mm – 3000 mm
- Sash weight: max. 300 kg

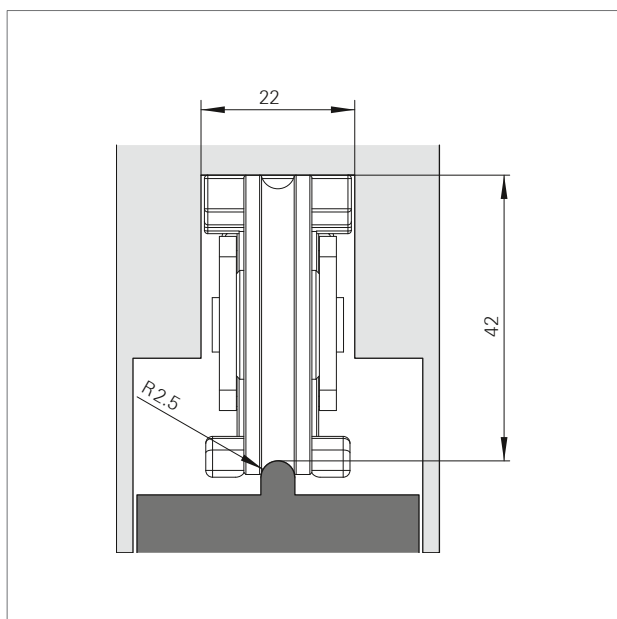
- Functions: Lifting, sliding, lowering, locking
- Diagram A, C, D, G, K
- Convenient operation due to functional components that are precisely tailored to each other
- Maximum smoothness and excellent running properties due to high-quality bogie technology:
 - Ball-bearing rollers
 - Low-noise bogies with rollers made of high-quality PVC
- Durability due to the use of extremely robust materials
 - Rollers made of top-quality PVC
 - Bogie housings made of stainless steel
- Espagnolettes designed for profile cylinders as standard
- Handles in attractive Roto Line design available in the colours white, black, silver and raw (for individual coating).
- Optional locking components allow night ventilation
- Accessories: Info clip for individual branding

Profile-specific installation instructions shall be obtained also for tested systems.

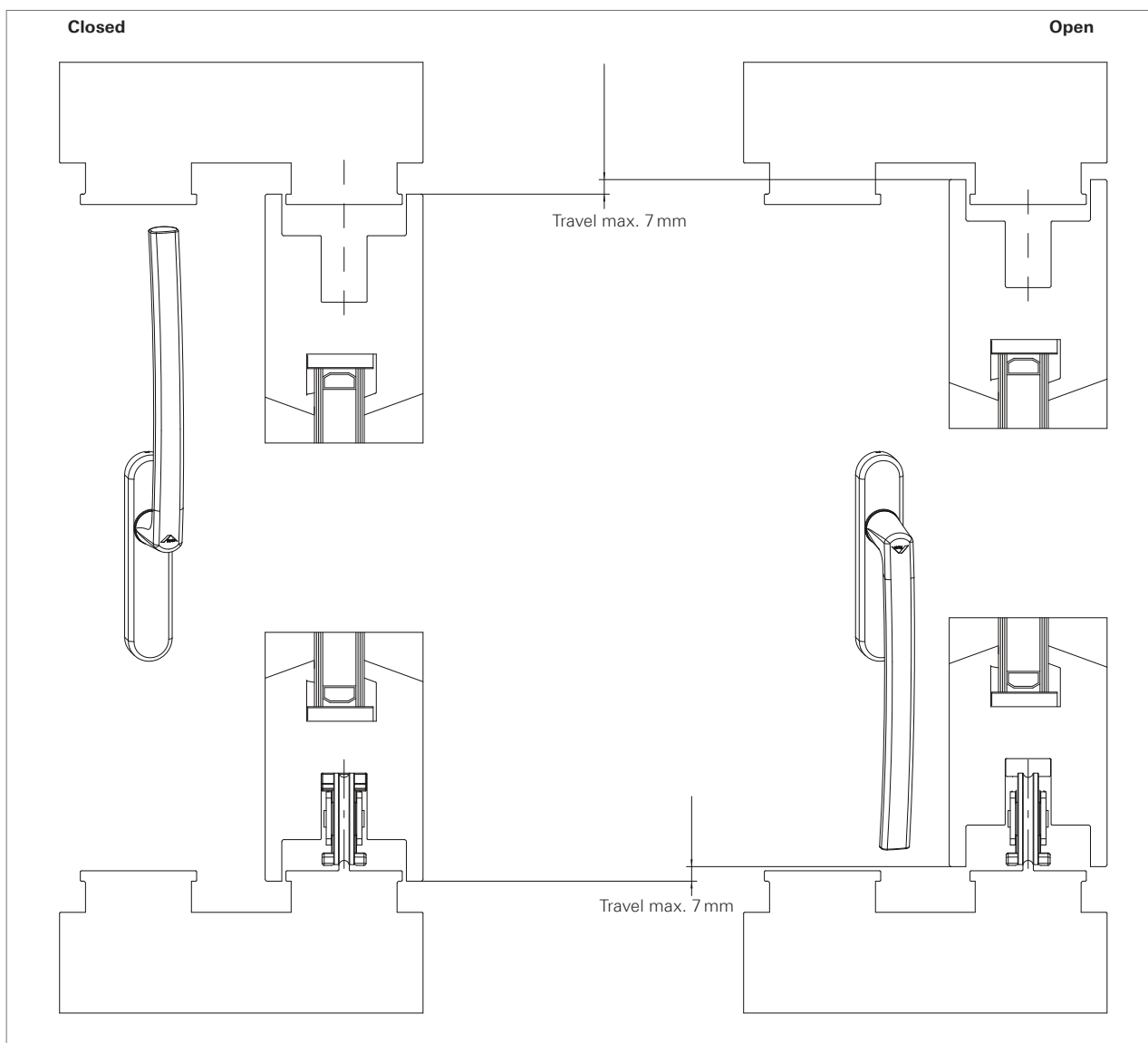
Tested systems:

- Vekaslide 70
- Vekaslide 82
- Schüco C70
- Inoutic / Deceuninck HST 76 Prestige

Further profiles are available upon request.



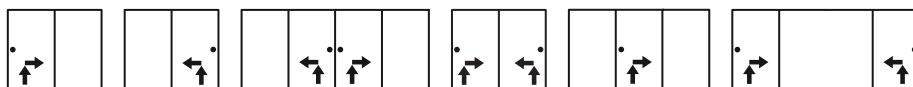
Preconditions for the groove width and the bogie height in closed state.



Application diagram

Patio Lift sliding system

up to 300 kg



Limitation of sash formats depending on the glass thickness

Application range

Sash width **SW** 720–3000 mm

Sash height **SH** 1000–3000 mm

Frame external width **FEW** max. 6000 mm

Sash weight **S.kg** max. 300 kg

SH : SW = max. 2.5 : 1

 = Impermissible application range

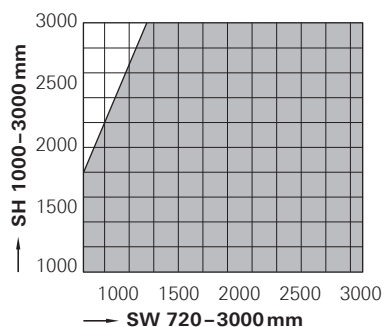


Diagram A

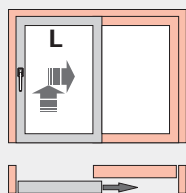


Diagram A, DIN left

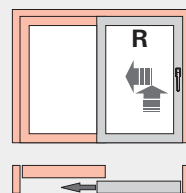


Diagram A, DIN right

Diagram C

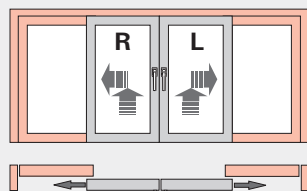


Diagram C

Diagram D

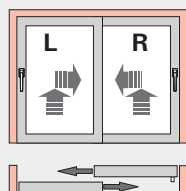


Diagram D

Diagram G

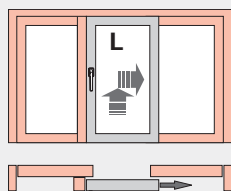


Diagram G2

Diagram K

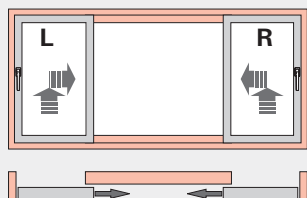


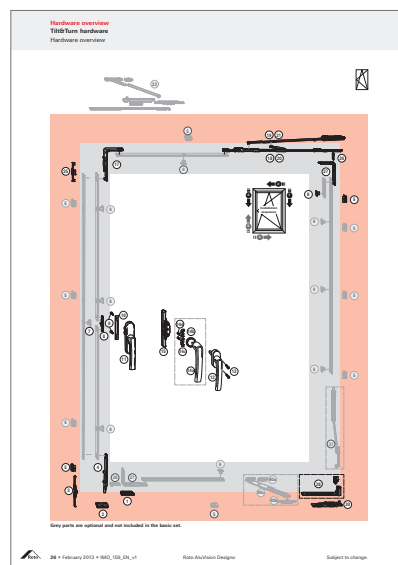
Diagram K

Explanation on the hardware overview chapter

The hardware overviews on the following pages are recommendations of Roto Frank AG.

The hardware overview chapter shows first the single hardware components of the different diagrams in the hardware overview followed by the universal parts list.

Position numbers in surrounding circles allow the allocation between hardware overview and parts list.



Hardware overview 1700 Turn hardware Parts list

Application range

Seal width BW	500 - 1600 mm
Seal height SH	100 - 2400 mm
Seal weight SLg	max. 100/150 kg

Clearance CL	11.5 - 12 mm
Overlap width OW	21.5 - 32 mm

Basic parts

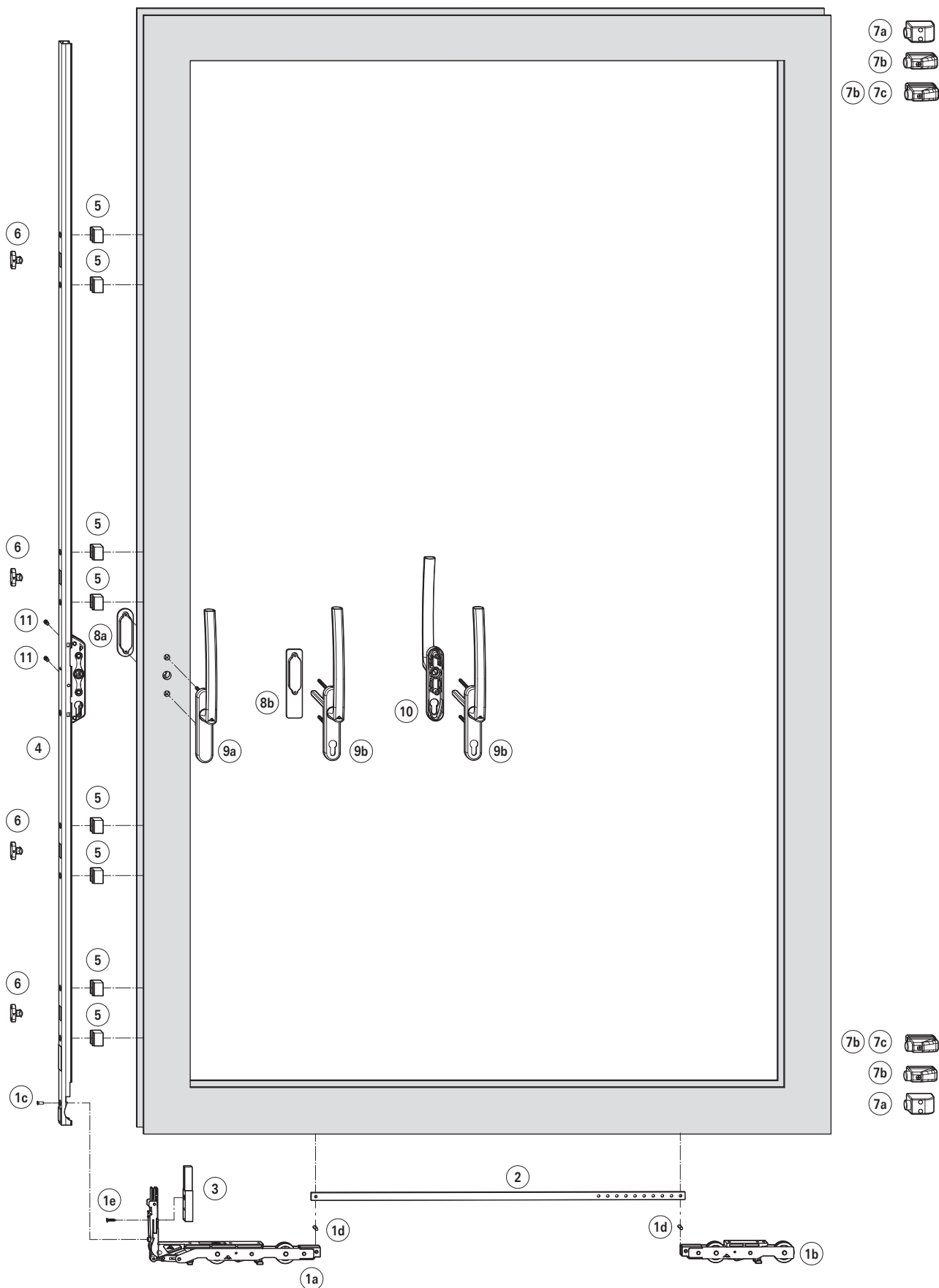
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1 Loading components V01	10 221288
1 Loading components V02	10 221289
1 Corner plate CL set V01	20 221688
1 Corner plate CL set V02	20 221689
1 Seal strip 750 mm, 1	10 424847
1 Seal strip 750 mm, 2	10 424848
1 Seal strip 750 mm, 3	10 424849
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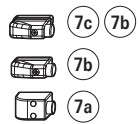
Basic parts

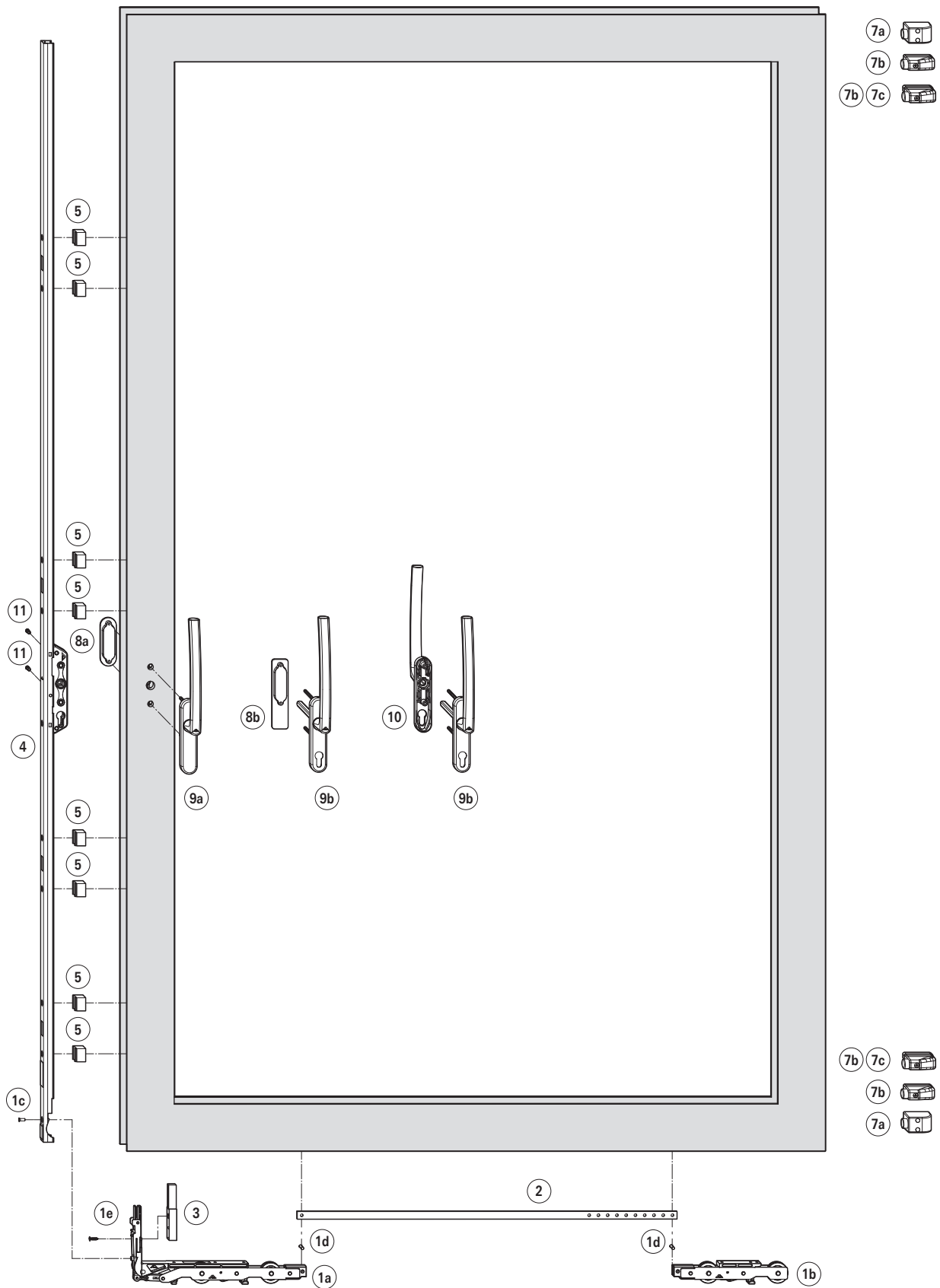
Qty. description	Qty. description
1 Return block	100 220098
1 To back block	100 220098
1 Alignment plate	100 221722
1 Roller	100 221722
1 Rollers device V01	100 220100
1 Rollers device V02	100 220100
1 Rollers device V03	100 220100
1 Rollers device V04	100 220100
1 Rollers device V05	100 220100
1 Rollers device V06	100 220100
1 Rollers device V07	100 220100
1 Rollers device V08	100 220100
1 Rollers device V09	100 220100
1 Rollers device V10	100 220100
1 Rollers device V11	100 220100
1 Rollers device V12	100 220100
1 Rollers device V13	100 220100
1 Rollers device V14	100 220100
1 Rollers device V15	100 220100
1 Rollers device V16	100 220100
1 Rollers device V17	100 220100
1 Rollers device V18	100 220100
1 Rollers device V19	100 220100
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1 Rollers device V200	100 220100

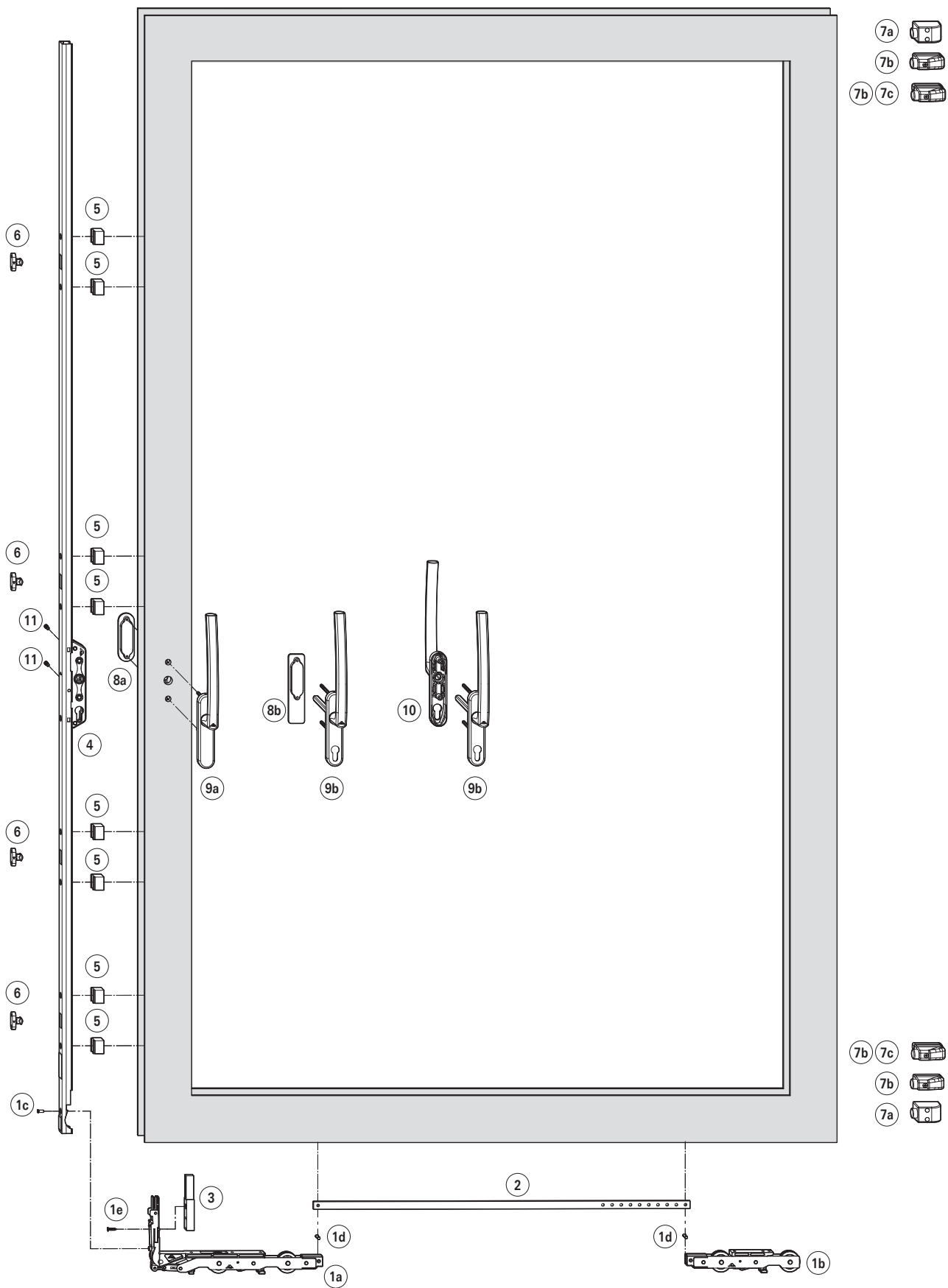
Loading components

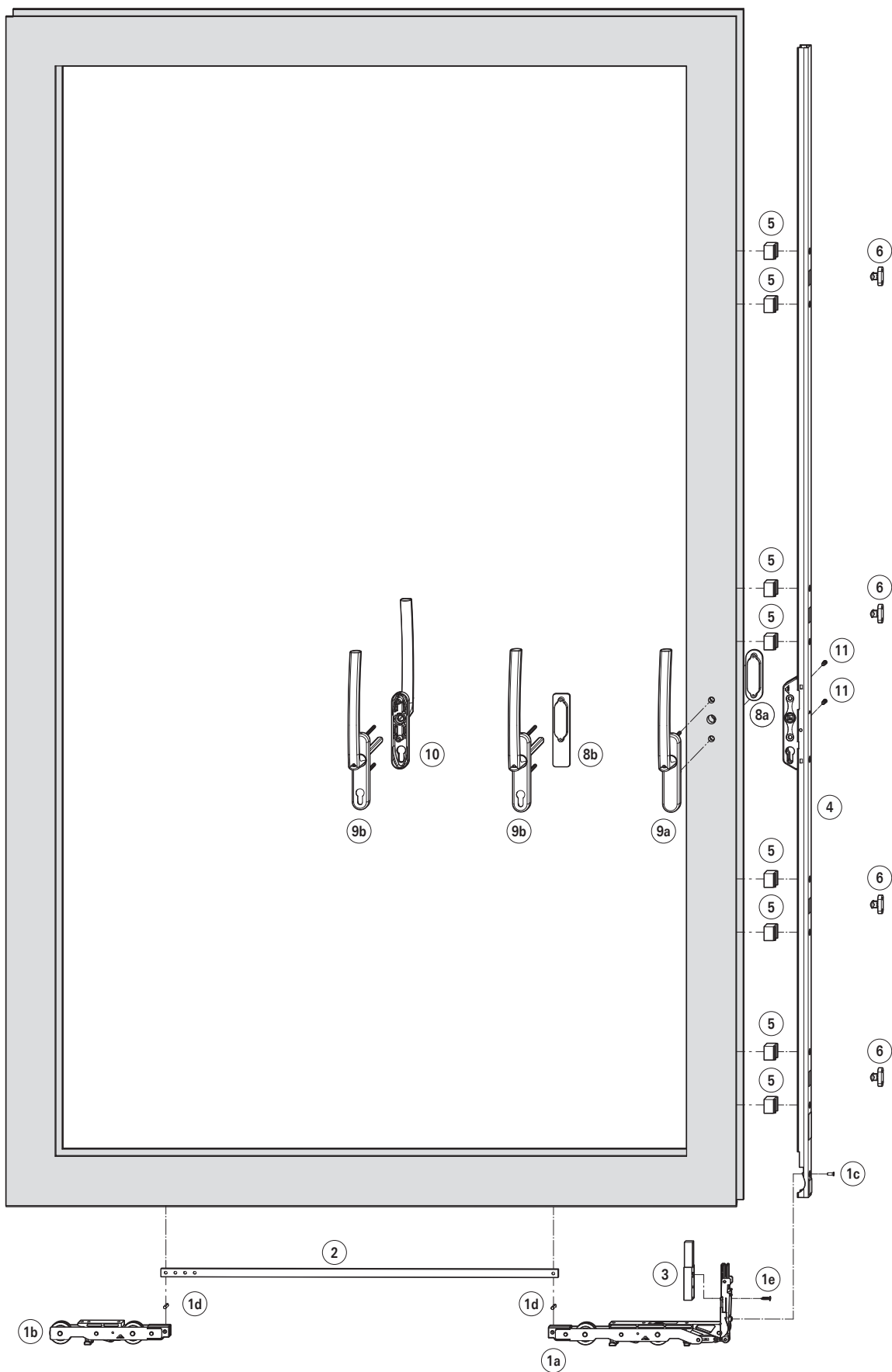
Qty. description	Qty. description
1 Loading components V01	10 221288
1 Loading components V02	10 221289
1 Corner plate CL set V01	20 221688
1 Corner plate CL set V02	20 221689
1 Seal strip 75	











Patio Lift

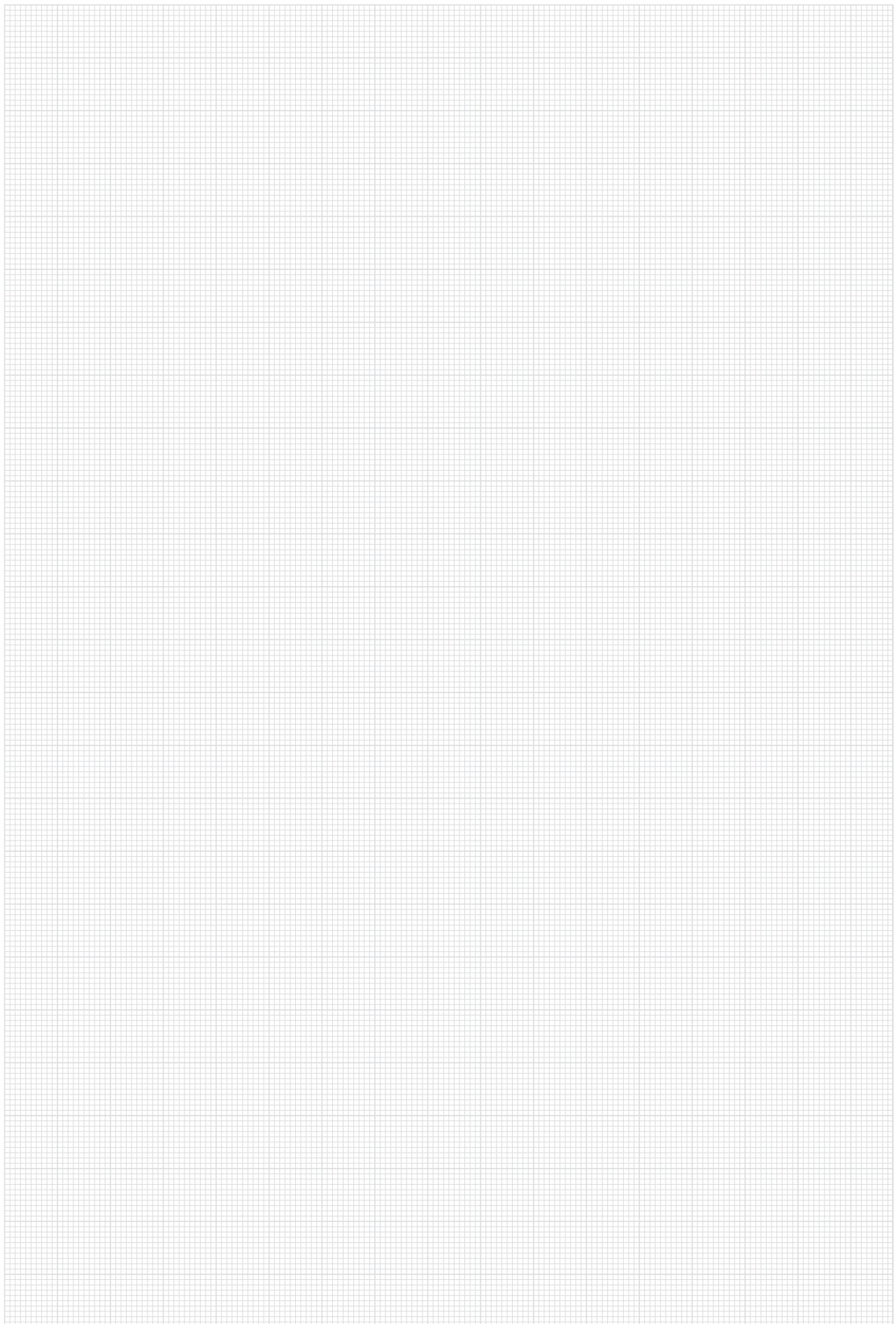
Parts list

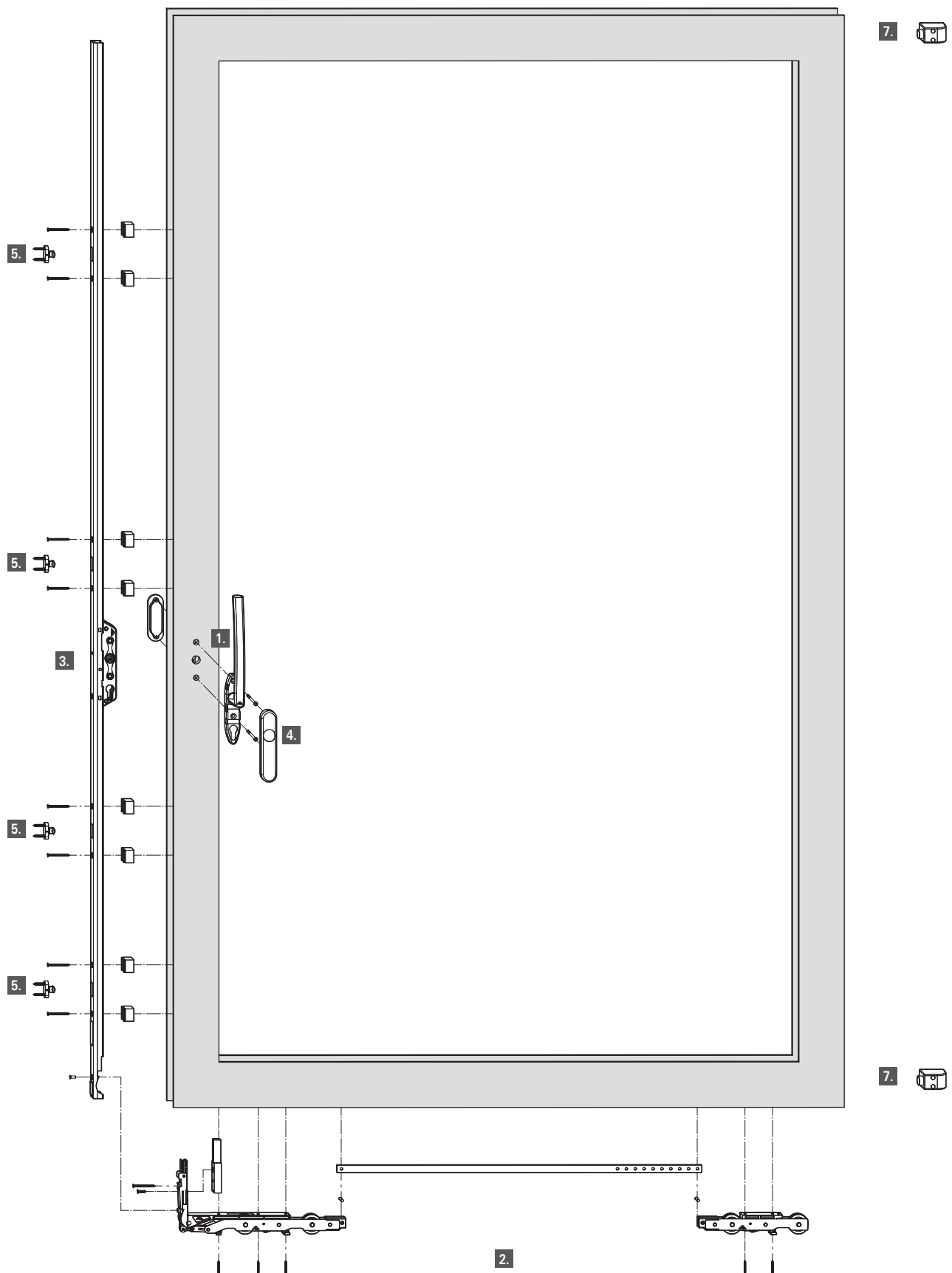
Application range

Sash width **SW** 720–3000 mmSash height **SH** 1000–3000 mmSash weight **S.kg** max. 300 kg

1 Basic carton Patio Lift for up to 300 kg	
Roto Patio Lift Bogie 300	634700
Content:	
1a 1 corner bogie	
1b 1 bogie	
1c 1 screw M5 x 13	
1d 2 connecting pins	
1e 1 screw Ø 4.8 x 16	
2 Patio Lift connecting rod	
Roto Patio Lift Connecting rod 895 mm	634852
SW 720–1600	
Roto Patio Lift Connecting rod 1200 mm	595649
SW 1601–1900	
Roto Patio Lift Connecting rod 1500 mm	634853
SW 1901–2200	
Roto Patio Lift Connecting rod 1800 mm	606712
SW 2201–2500	
Roto Patio Lift Connecting rod 2300 mm	634854
SW 2501–3000	
3 Patio Lift bogie packer	
Roto Patio Lift Bogie packer 16 mm	595653
Roto Patio Lift Bogie packer 19 mm	600510
Roto Patio Lift Bogie packer 25 mm	636528
Roto Patio Lift Bogie packer 30 mm	606767
4 Patio Lift espagnolettes	
Patio Lift espagnolette 300 up to 300 kg	
Roto Patio Lift Espagnolette 300, SH 1000–1800	635127
Roto Patio Lift Espagnolette 300, SH 1801–2200	Upon request
Roto Patio Lift Espagnolette 300, SH 2201–2600	Upon request
Roto Patio Lift Espagnolette 300, SH 2601–3000	Upon request
Patio Lift espagnolette 300, lockable, up to 300 kg	
Roto Patio Lift Espagnolette 300, PC, SH 1000–1800	Upon request
Roto Patio Lift Espagnolette 300, PC, SH 1801–2200	634849
Roto Patio Lift Espagnolette 300, PC, SH 2201–2600	634850
Roto Patio Lift Espagnolette 300, PC, SH 2601–3000	634851
5 Patio Lift espagnolette packer	
Roto Patio Lift Espagnolette packer 16 mm (8 pieces)	595654
Roto Patio Lift Espagnolette packer 19 mm (8 pieces)	600513
Roto Patio Lift Espagnolette packer 25 mm (8 pieces)	636526
Roto Patio Lift Espagnolette packer 30 mm (8 pieces)	606766
6 Patio Lift locking pin	
Roto Patio Lift Locking pin 15 mm	595650
Roto Patio Lift Locking pin 16 mm	635126
Roto Patio Lift Locking pin 17 mm	635128
Roto Patio Lift Locking pin 22 mm	600508
Roto Patio Lift Locking pin with night ventilation 15 mm	595651
Roto Patio Lift Locking pin 9/11 mm	595652
Patio Lift end stop	
7a Patio Lift end stop bag, 27	634866
7b Patio Lift end stop bag, 29.5	349600
7c Patio Lift end stop packer, 9.5	477263

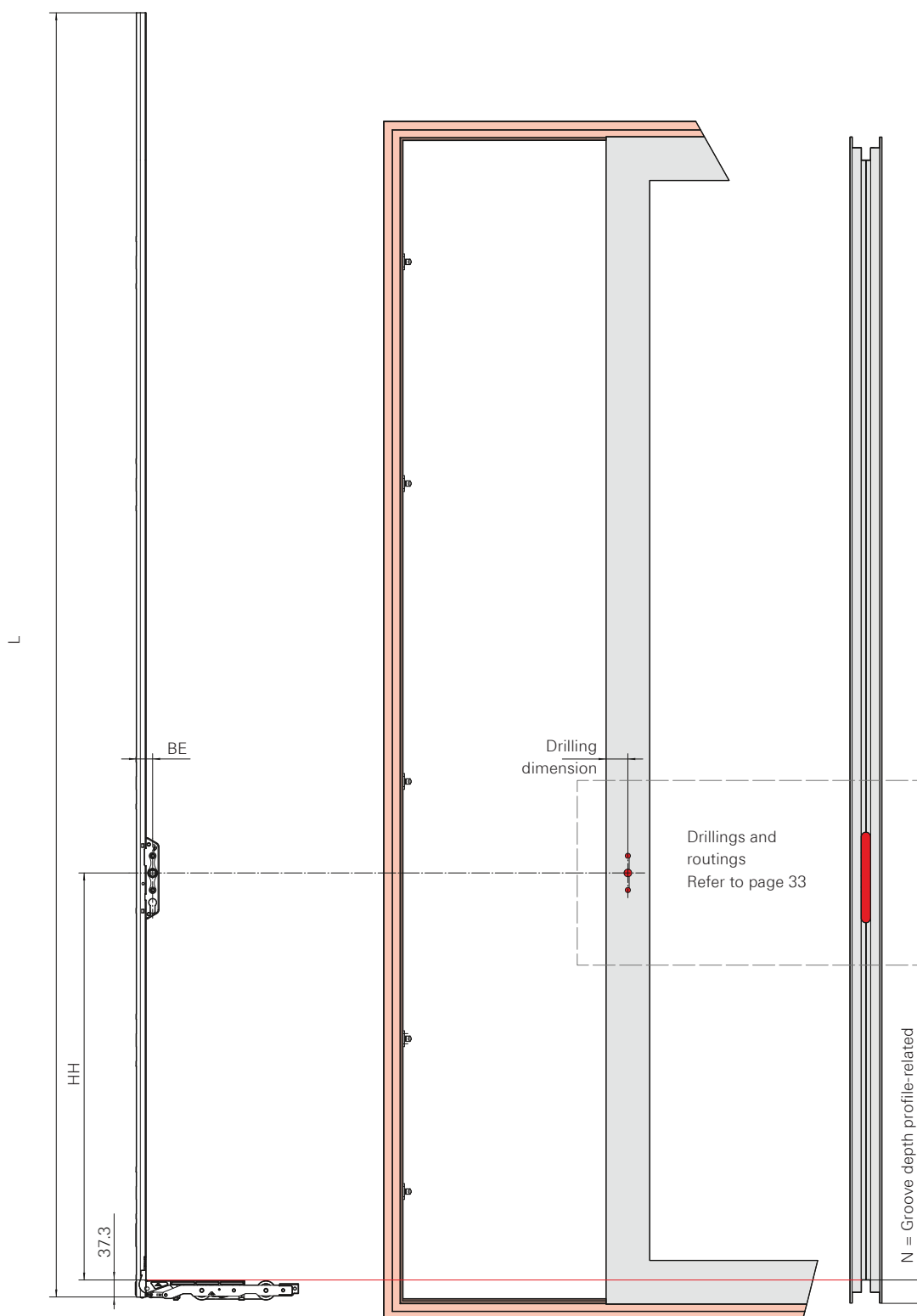
Roto Patio Lift Recessed grip	
8a Roto Patio Lift Recessed grip, oval	
Patio Lift recessed grip, oval, 7 mm	
R 01.1 Eloxal EV1	635161
R 06.2M Black, RAL 9005 M	635160
R 07.2 White, RAL 9016	635159
– Raw	635163
8b Roto Patio Lift Recessed grip, angular	
Patio Lift recessed grip, angular, 7 mm	
R 01.1 Eloxal EV1	635151
R 06.2M Black, RAL 9005 M	635150
R 07.2 White, RAL 9016	635149
– Raw	635153
Patio Lift recessed grip, angular, 11 mm	
R 01.1 Eloxal EV1	635156
R 06.2M Black, RAL 9005 M	635155
R 07.2 White, RAL 9016	635154
– Raw	635158
Roto Patio Lift Roto Line handle inside	
9a Roto Patio Lift Roto Line handle inside	
Patio Lift Roto Line handle, inside, WL, 40 mm	
R 01.1 Eloxal EV1	635146
R 06.2M Black, RAL 9005 M	635145
R 07.2 White, RAL 9016	635144
– Raw	635148
9b Roto Patio Lift Roto Line handle inside, lockable	
Patio Lift Roto Line handle, inside, for PC, WL, 40 mm	
R 01.1 Eloxal EV1	635141
R 06.2M Black, RAL 9005 M	635140
R 07.2 White, RAL 9016	635139
– Raw	635143
Patio Lift Roto Line handle, inside, for PC, WL, 150 mm	
R 01.1 Eloxal EV1	635131
R 06.2M Black, RAL 9005 M	635130
R 07.2 White, RAL 9016	635129
– Raw	635133
10 Roto Patio Lift Roto Line handle outside	
Roto Patio Lift Roto Line handle outside, lockable	
Patio Lift Roto Line handle, outside, for PC, WL	
R 01.1 Eloxal EV1	635136
R 06.2M Black, RAL 9005 M	635135
R 07.2 White, RAL 9016	635134
– Raw	635138
11 Roto Patio Lift Espagnolette, threaded insert	
Roto Patio Lift Espagnolette, threaded insert	635152
Roto Patio Lift Positioning jig	→ p. 39
Roto Patio Lift Positioning jig for locking pins	635157



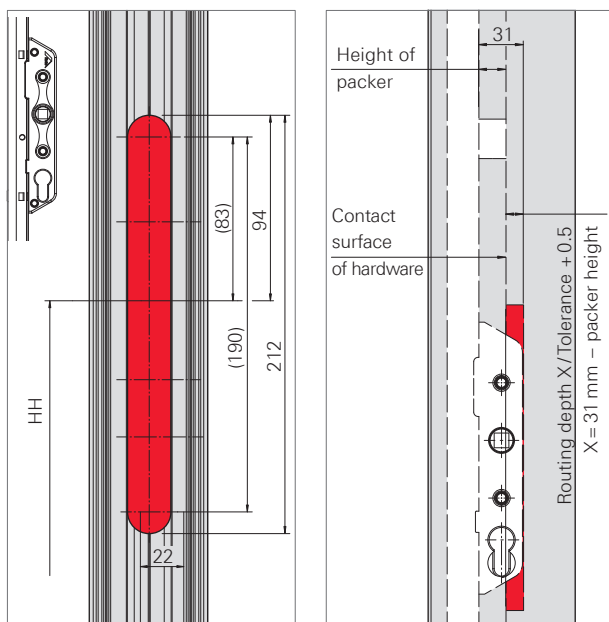




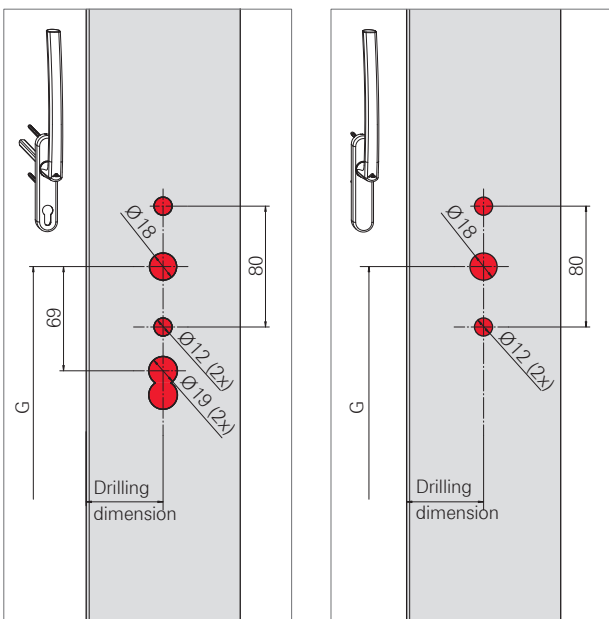
Operation step	Component	Installation procedure	
1.	Sash processing	Route out the espagnolette groove.	33
		Carry out the handle drilling.	33
		Route out the groove for the recessed grip.	33
2.	Bogie	Cut the connecting rod to length, if necessary.	34
		Screw together corner bogie and packer.	34
		Mount the connecting rod with the bogie.	35
		Install the bogie component group.	35
3.	Espagnolette	Cut the espagnolette to length.	36
		Break caps off the espagnolette.	37
		Install packers on the espagnolette.	37
		Before installation, bring the espagnolette into the closed position.	37
		Position the espagnolette. When doing this, make sure that the connecting rod of the espagnolette is engaged with the groove of the bogie's mechanical system. Screw in the screw.	37
		Screw in espagnolette completely.	37
4.	Handle	Cut handle screws to length. Install the handle.	38
5.	Working on the frame	Position locking pins.	40
		Mount the locking pins.	41
6.	Sash	Hinge (not dep.).	42
7.	End stop	Install.	43



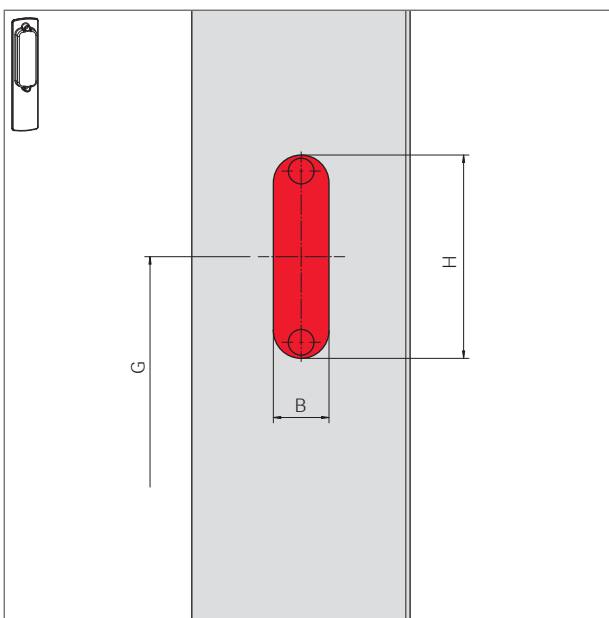
Patio Lift espagnolettes		Sash height SH (mm)	Weight	Backset BE (mm): 37.5			
				Espagnolette length L (mm)	Handle height HH (mm)		
Patio Lift espagnolette 300 PC	SH 1000–1800	1000–1800	300 kg	1700	349	6	3
Patio Lift espagnolette 300 PC	SH 1801–2200	1801–2200	300 kg	2185	953	8	4
Patio Lift espagnolette 300 PC	SH 2201–2600	2201–2600	300 kg	2375	953	8	4
Patio Lift espagnolette 300 PC	SH 2601–3000	2601–3000	300 kg	3000	953	10	5
Patio Lift espagnolette 300	SH 1000–1800	1000–1800	300 kg	1700	349	6	3
Patio Lift espagnolette 300	SH 1801–2200	1801–2200	300 kg	2185	953	8	4
Patio Lift espagnolette 300	SH 2201–2600	2201–2600	300 kg	2375	953	8	4
Patio Lift espagnolette 300	SH 2601–3000	2601–3000	300 kg	3000	953	10	5



1. Route out the espagnolette groove.
Routing depth = 31 mm – packer height.



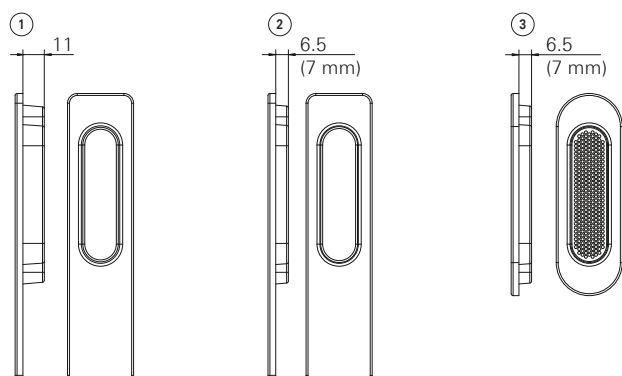
2. Carry out the handle drillings.
Drilling dimension of the sash profile-related;
drawing available upon request.

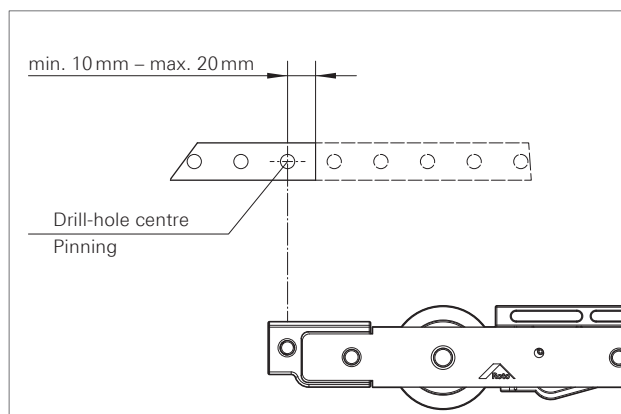
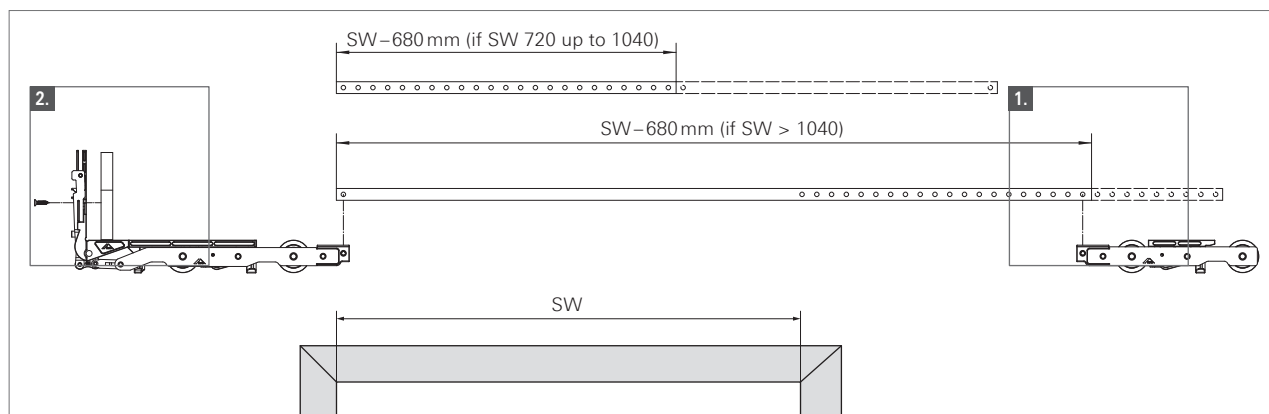


3. Route out the groove for the recessed grip.

Groove for the recessed grip

Description	Width	Height	Routing depth
① Patio Lift recessed grip, angular, 11 mm	28	93	11
② Patio Lift recessed grip, angular, 7 mm	28	93	7
③ Patio Lift recessed grip, oval, 7 mm	26	96	7



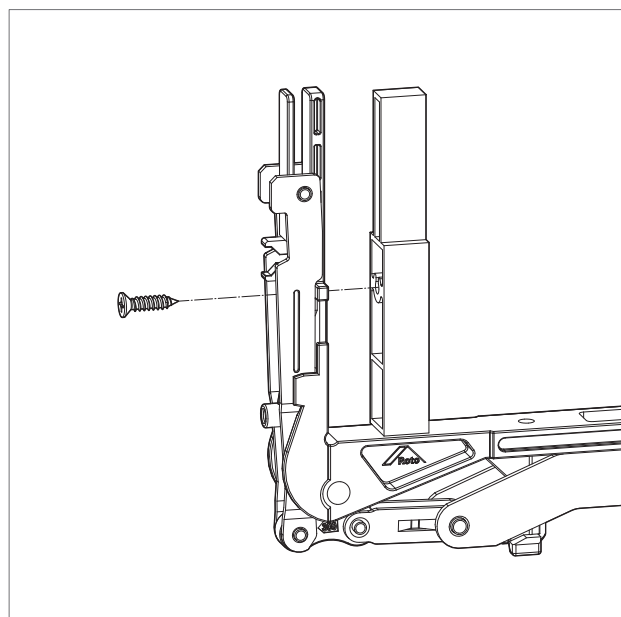


1. Cut the connecting rod to length, if necessary.
Excess after cutting drill-hole centre pinning: min. 10 mm – max. 20 mm.

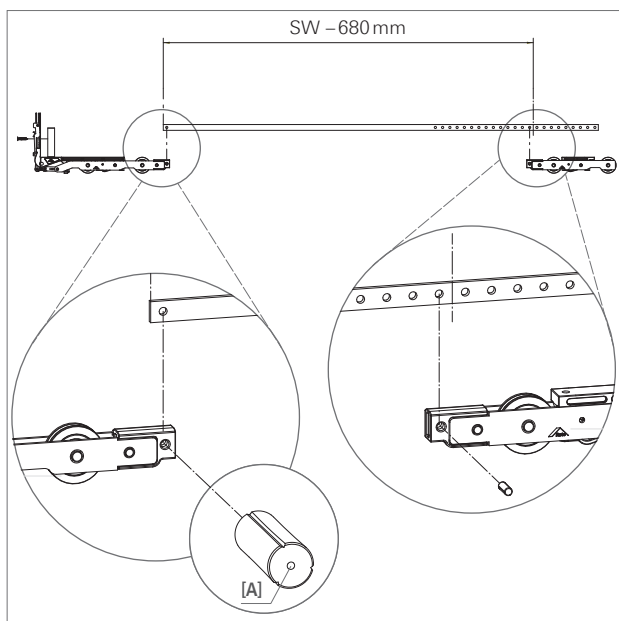
NOTE!
For SW 720 to 1040 mm, the connecting rod from the opposing side must be cut off.
The connecting rod may be shortened by the hole distance (20 mm).

Patio Lift connecting rods

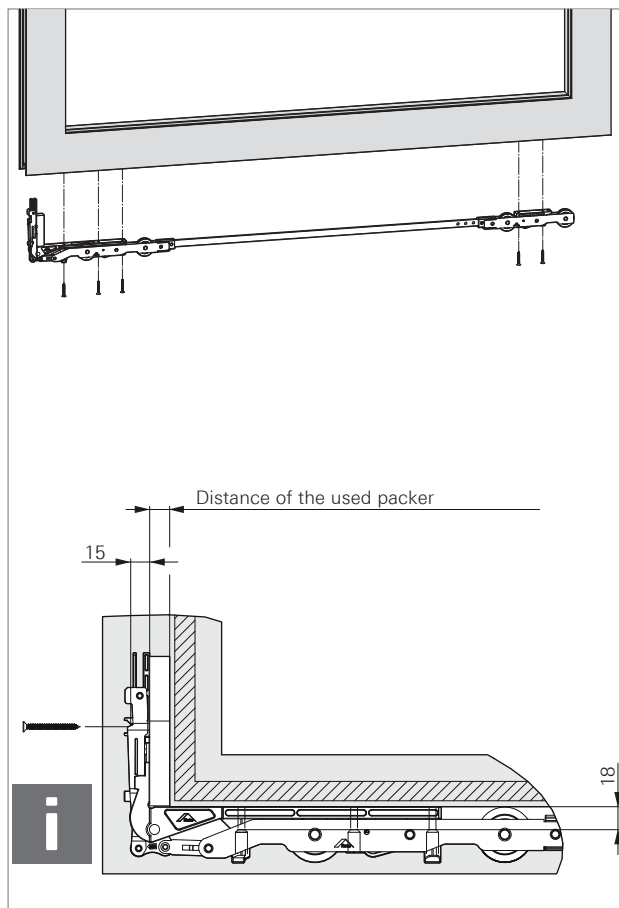
Description	Sash width (SW)	Length
Patio Lift connecting rod 895 mm	720 – 1600	895
Patio Lift connecting rod 1200 mm	1601 – 1900	1200
Patio Lift connecting rod 1500 mm	1901 – 2200	1500
Patio Lift connecting rod 1800 mm	2201 – 2500	1800
Patio Lift connecting rod 2300 mm	2501 – 3000	2300



2. Screw together corner bogie and packer.
Screw Ø4.8x20 of basic carton.



3. Insert connecting rod into bogie.
Pay attention to the pin's marking [A], knock in the pin.



4. Insert bogie component group into the sash and screw in. Choose screws on site.
(Recommendation: Self-tapping screws ISO 7050 – ST 4.2 x length (choice on site) – C–Z, stainless steel A2)



NOTE!

Coordinate the length of the screws to the on-site conditions.

Generally, screw into the reinforcement.
Steel reinforcement with wall-thickness ≥ 1.5 mm.

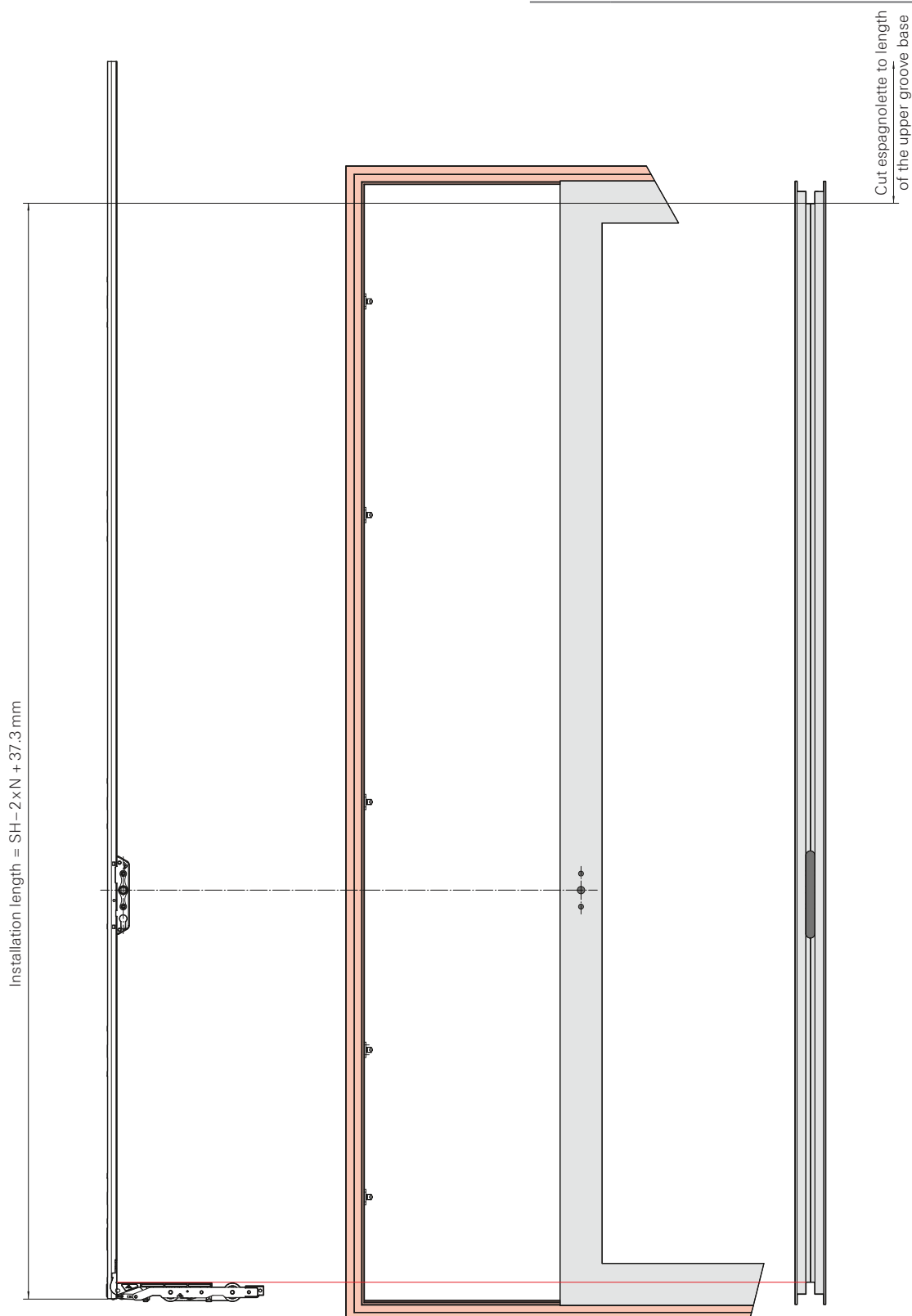
Aluminium reinforcement with wall-thickness ≥ 2 mm. If the wall-thickness is less, a sufficient packer must be introduced. The cavity for the reinforcement must be filled and be able to resist pressure.

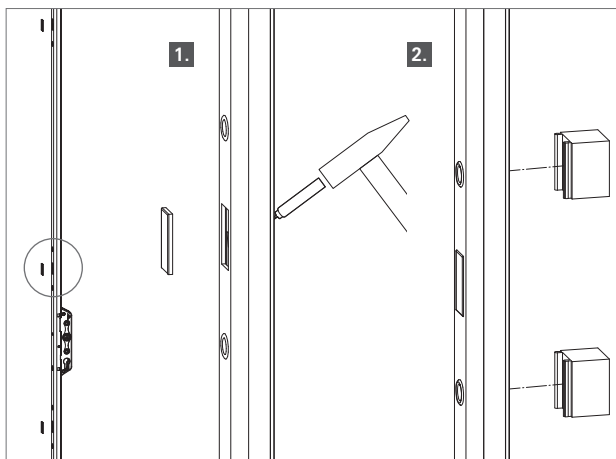
1. Cut espagnolette to length of the upper groove base (see picture). To calculate: $SH - 2 \times N + 37.3 \text{ mm}$



NOTE!

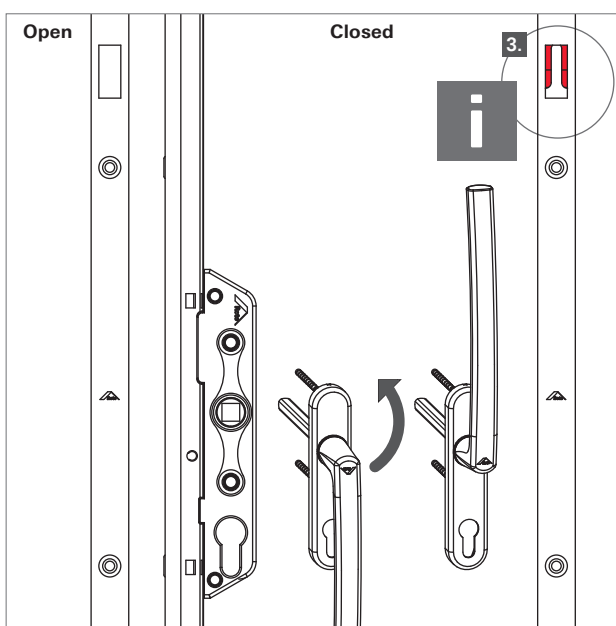
Cut the short espagnolette (63512) to length in the opened position.





1. Break caps off the espagnolette.

2. Mount packers under every screw hole at the espagnolette.

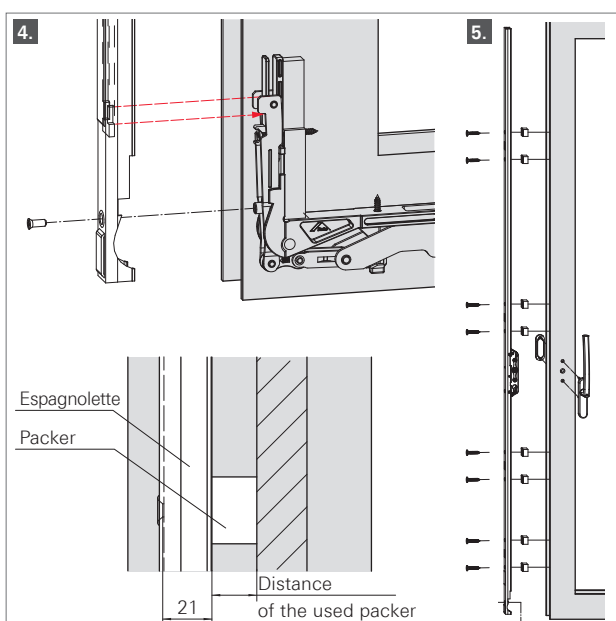


3. Before installation, bring the espagnolette into the closed position. Control via faceplate position.



NOTE!

Faceplate in the closed position.



4. Position the espagnolette. When doing this, make sure that the connecting rod of the espagnolette is engaged with the groove of the bogie's mechanical system.

Screw in the screw.

5. Screw in espagnolette completely, choose screws on site.

Recommendation:

Self-tapping screws ISO 7050 – ST 4.2 x length (choice on site) – C–Z, stainless steel A2



NOTE!

Coordinate the length of the screws to the on-site conditions.

Generally, screw only into the reinforcement. Steel reinforcement with wall-thickness ≥ 1.5 mm.

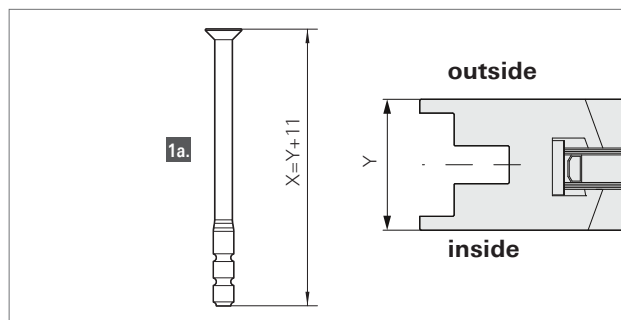
Aluminium reinforcement with wall-thickness ≥ 2 mm. If the wall-thickness is less, a sufficient packer must be introduced. The cavity for the reinforcement must be filled and be able to resist pressure.

Installation

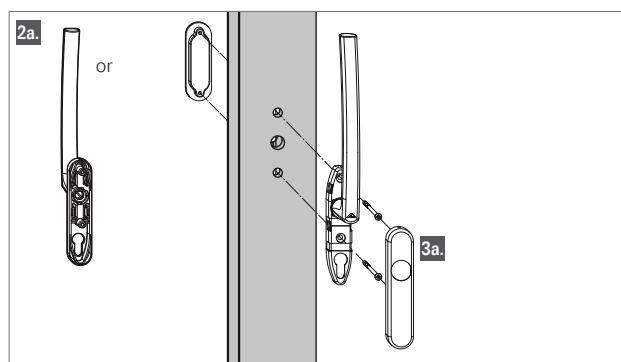
Sash

Install the handle

Installation of the exterior or interior handle whilst using the recessed grip:



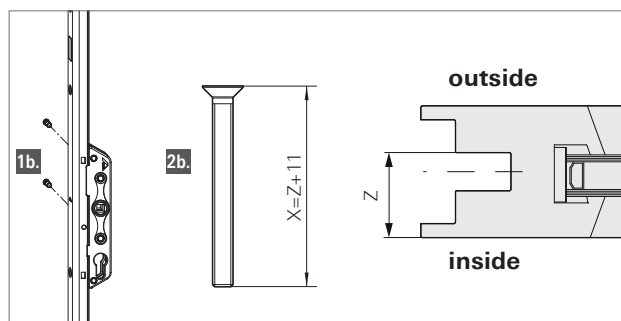
1a. Crop screw to $X = Y + 11$.



2a. Position of the exterior handle or insert the recessed grip into its groove. Screw the interior handle from the opposite side against it.

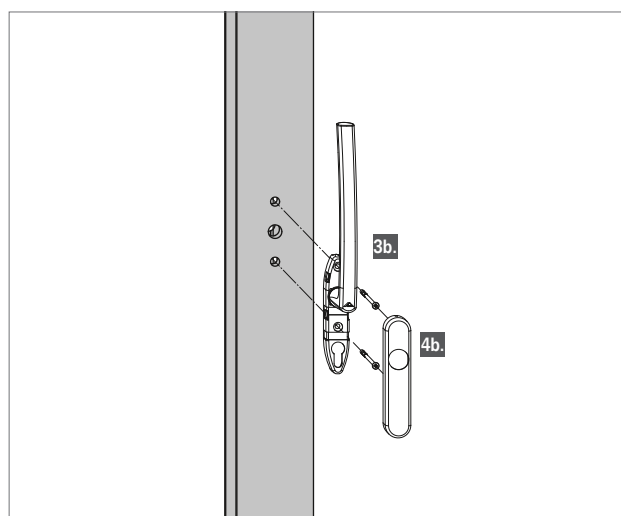
3a. Place cover cap.

Installation of the interior handle without using the recessed grip:



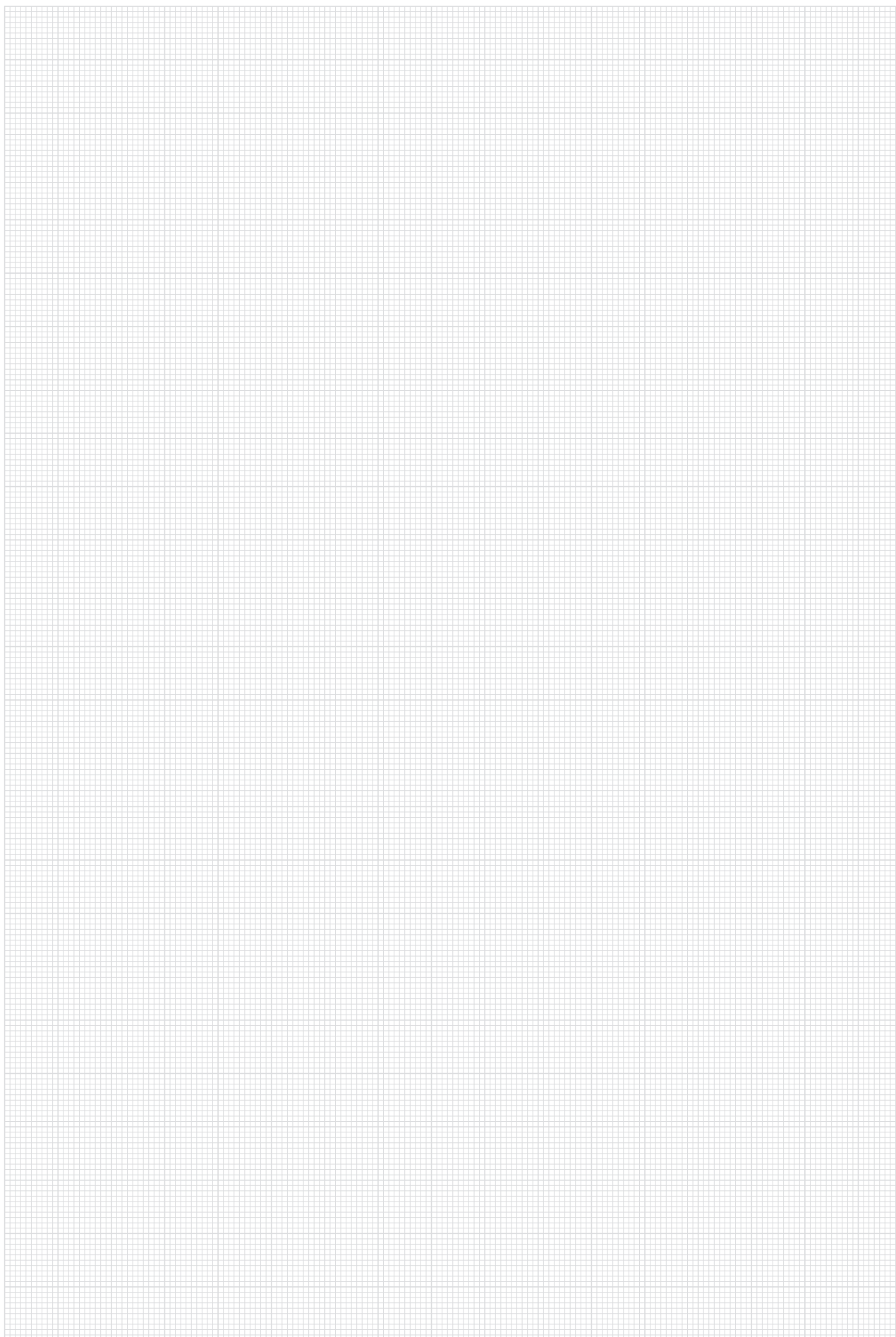
1b. Insert 2 threaded inserts (635152) into the espagnolette from the outside.

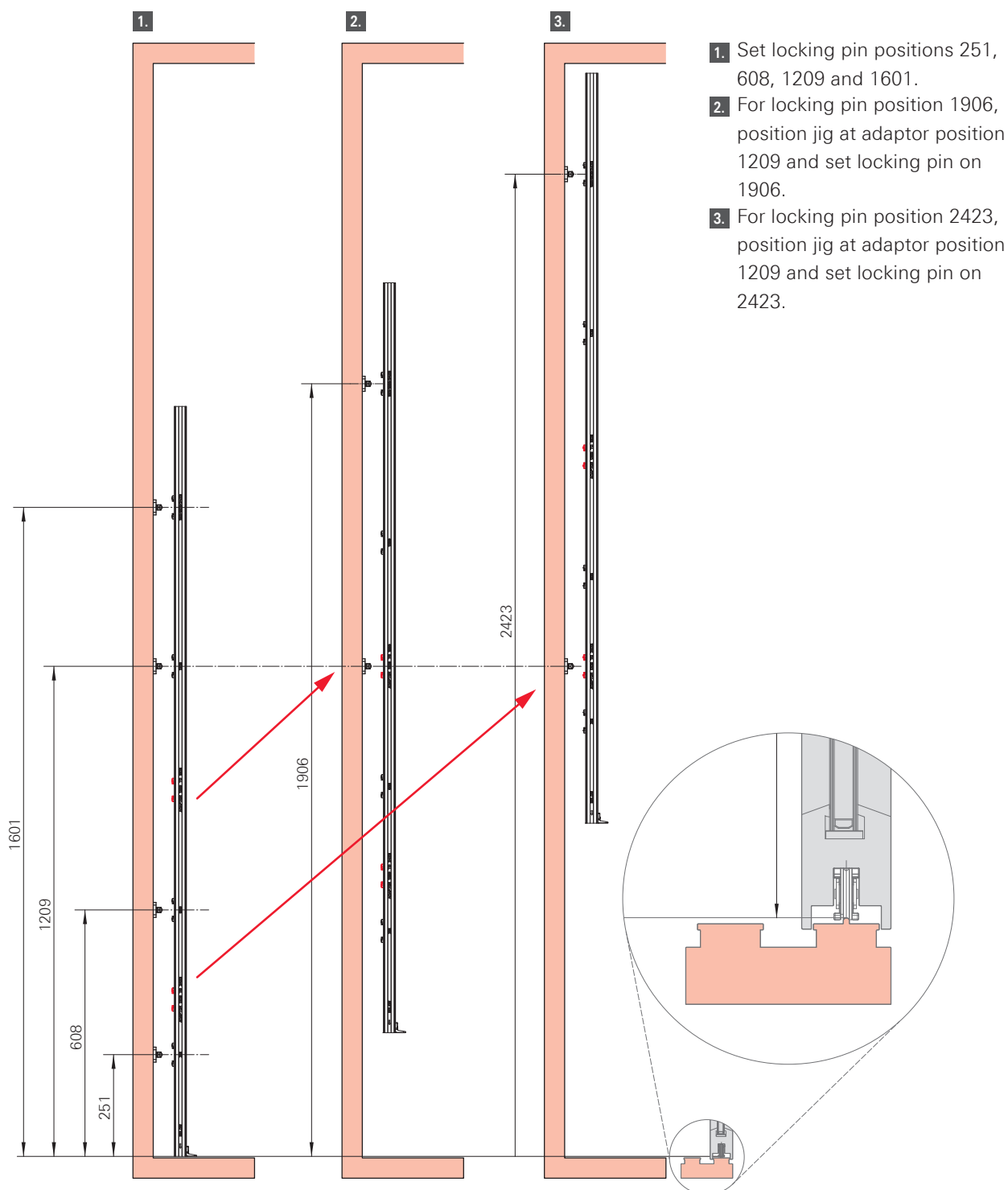
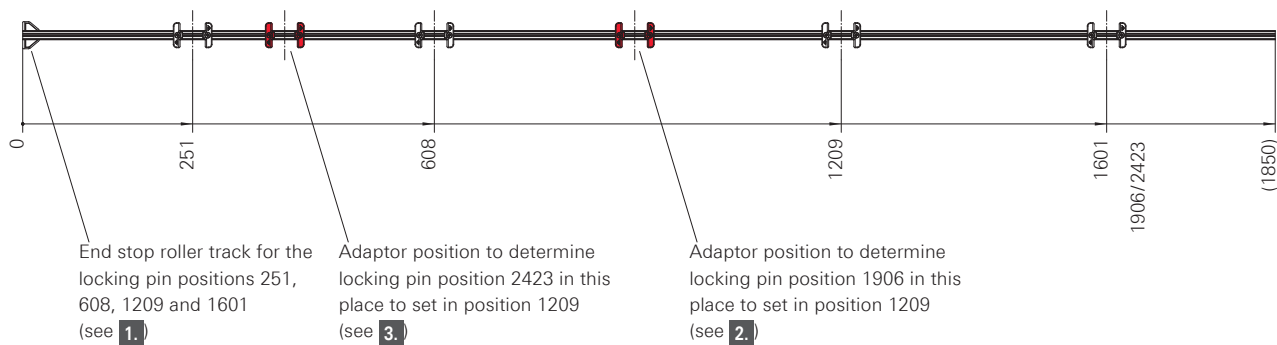
2b. Shorten to length $X = Z + 11$ if necessary 2 x counter-sunk screws M5 acc. to DIN ISO 10642.

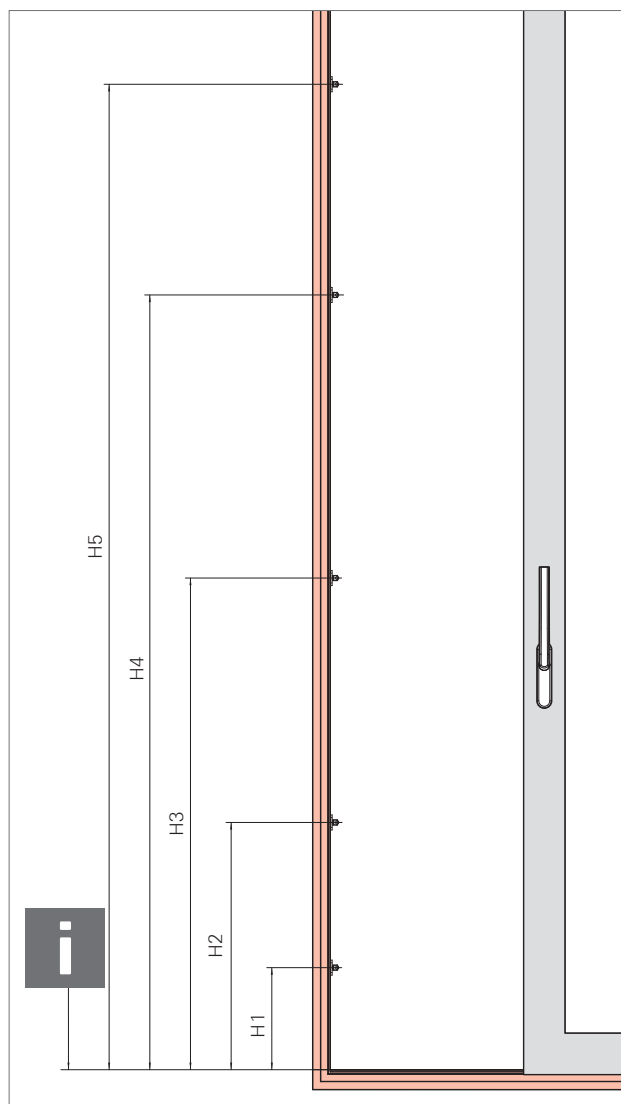


3b. Screw in interior handle.

4b. Place cover cap.







1. Define the locking pin position.

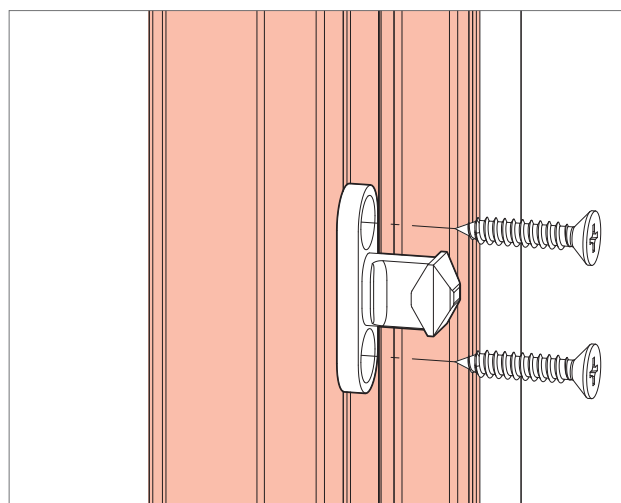
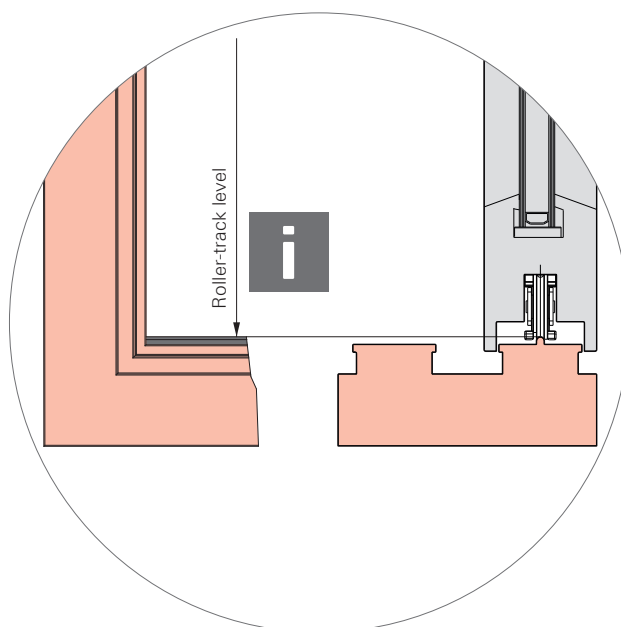


NOTE!

The measurements in the drawing correspond to the roller-track level.

Locking pin positions

Description	SH / mm	H1	H2	H3	H4	H5
Roto Patio Lift Espagnolette 300 PC 1000 – 1800	251	608	1209	–	–	–
Roto Patio Lift Espagnolette 300 PC 1801 – 2200	251	608	1209	1601	–	–
Roto Patio Lift Espagnolette 300 PC 2201 – 2600	251	608	1209	1906	–	–
Roto Patio Lift Espagnolette 300 PC 2601 – 3000	251	608	1209	1906	2423	–
Roto Patio Lift Espagnolette 300	1000 – 1800	251	608	1209	–	–
Roto Patio Lift Espagnolette 300	1801 – 2200	251	608	1209	1601	–
Roto Patio Lift Espagnolette 300	2201 – 2600	251	608	1209	1906	–
Roto Patio Lift Espagnolette 300	2601 – 3000	251	608	1209	1906	2423



2. Mount locking pin, choose screws on site.

Recommendation:

Self-tapping screw ISO 7050 – ST 4.2 x length (choice on site) – C–Z, stainless steel A2

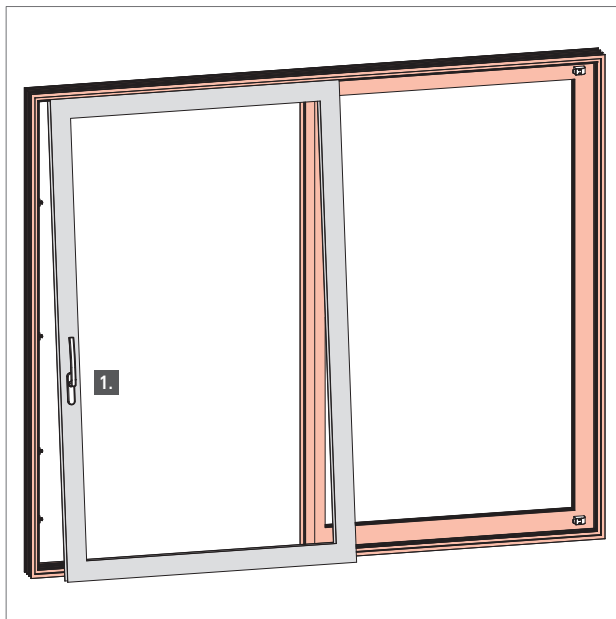


NOTE!

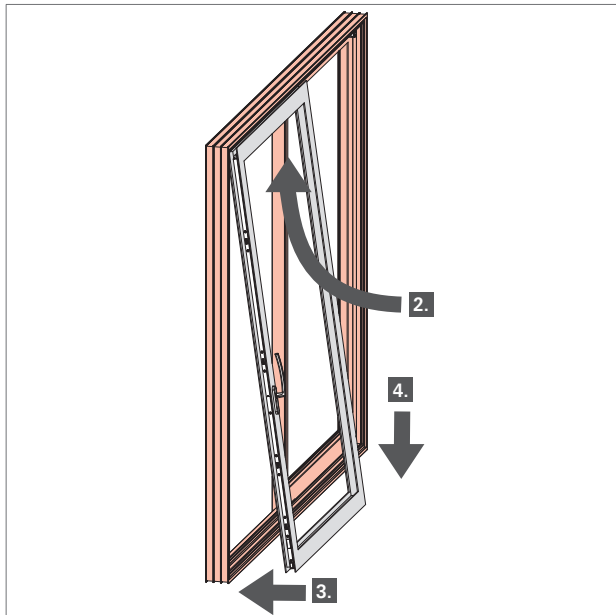
Coordinate the length of the screws to the on-site conditions.

Generally, screw only into the reinforcement.
Steel reinforcement with wall-thickness ≥ 1.5 mm.

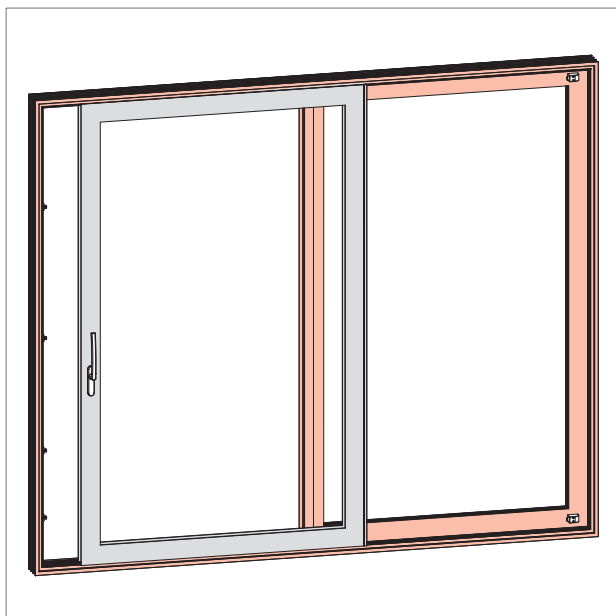
Aluminium reinforcement with wall-thickness ≥ 2 mm. If the wall-thickness is less, a sufficient packer must be introduced. The cavity for the reinforcement must be filled and be able to resist pressure.

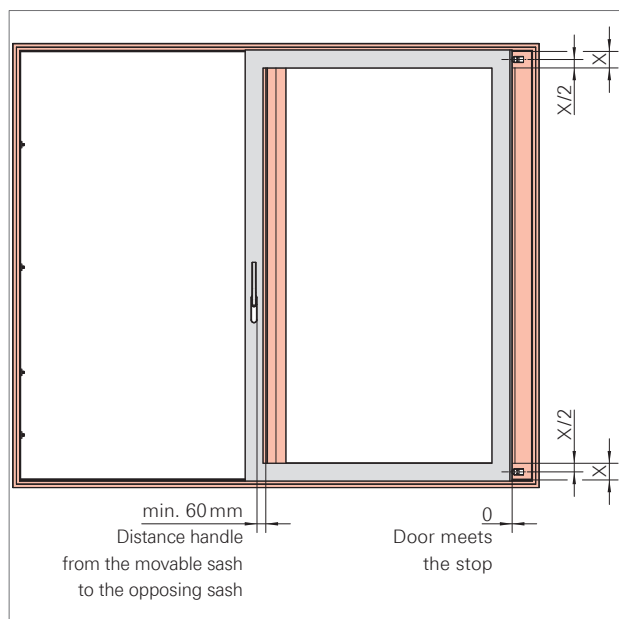


1. Bring the handle into the sliding mode.



2. Insert sash from the top at an angle.
3. Swivel in the sash at the bottom.
4. Lower the sash.



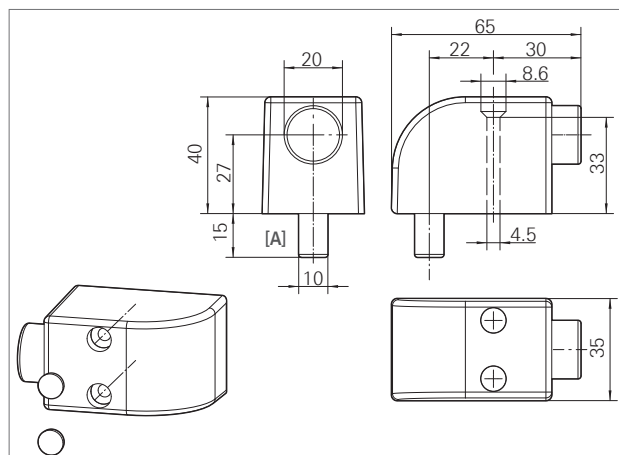


1. Define the end stop position.



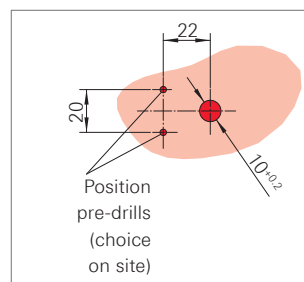
NOTE!

Choose positioning height of the end stop on site. Push plates, take into account the pressure-resistant area on the sliding sash. Position steel bolt of the end stop in the reinforcement of the opposing sash. If necessary, crop [A] to ensure that no components in the hardware groove are obstructed, e.g. on diagram D.



2. Installation height 27 mm:

Pre-drill.

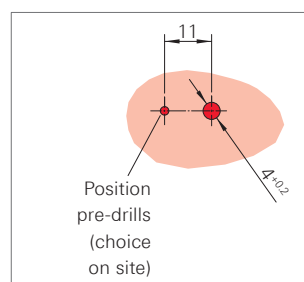


3. Screw in the end stop / screw $\varnothing 4.2$ mm x length (choice on site).

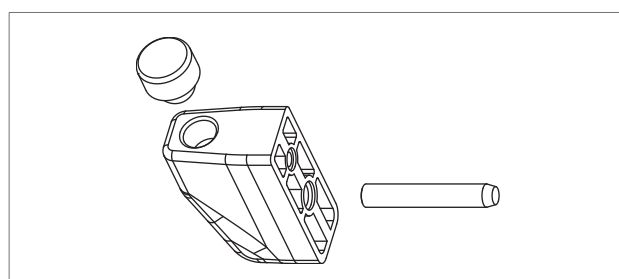
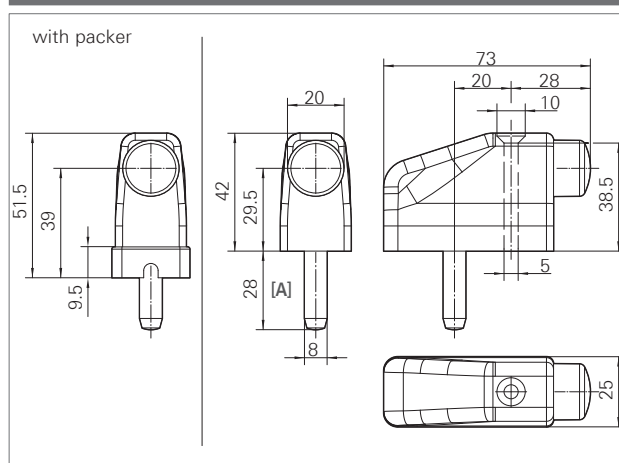
Alternatively:

2. Installation height 29.5 mm / with packer 39 mm:

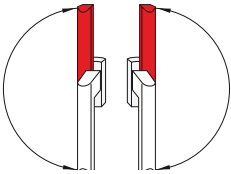
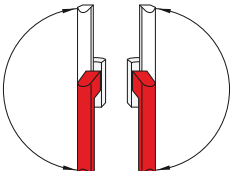
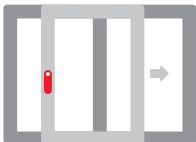
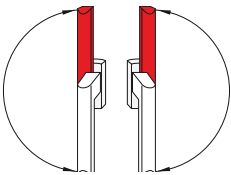
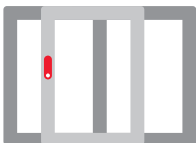
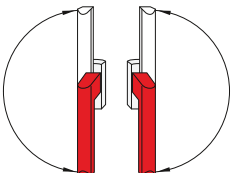
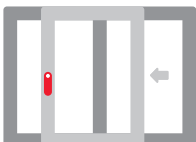
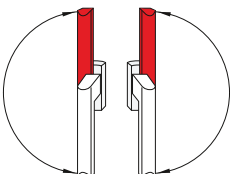
Pre-drill.



3. Screw in the end stop / screw $\varnothing 4.8$ mm x length (choice on site).
4. Pre-mount pin and damper.



The following symbols show the different handle positions and the resulting sash positions of windows and balcony doors.

Handle position	Sash position	Symbol	Meaning
			Closed position of the sash
			Opened slide position of the sash.
			Fixed opening position of the sash.
			Closed slide position of the sash.
			Closed position of the sash.



The following symbols and signs can be used on windows and balcony doors to protect the end-user.

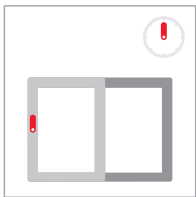
Please order stickers separately (OPR_21_EN).

Roto
Patio HS

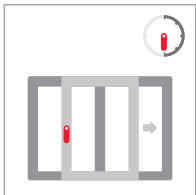


Beschlagsystem für Hebeschiebe-Elemente
Hardware system for Lift&Slide doors

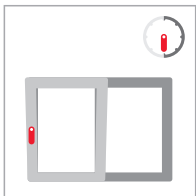
geschlossen
closed



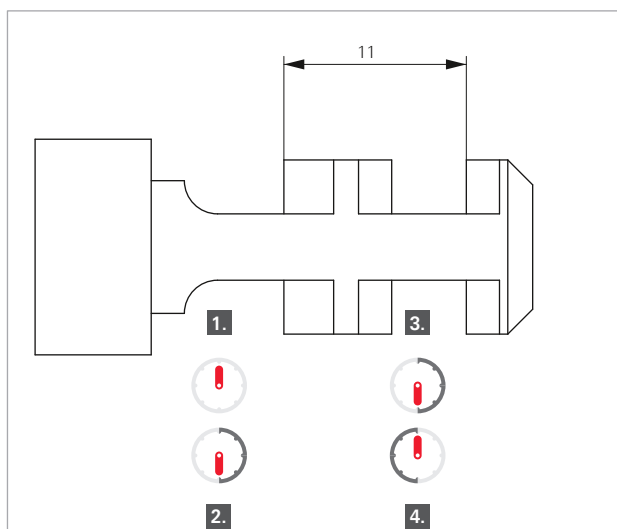
schieben
slide



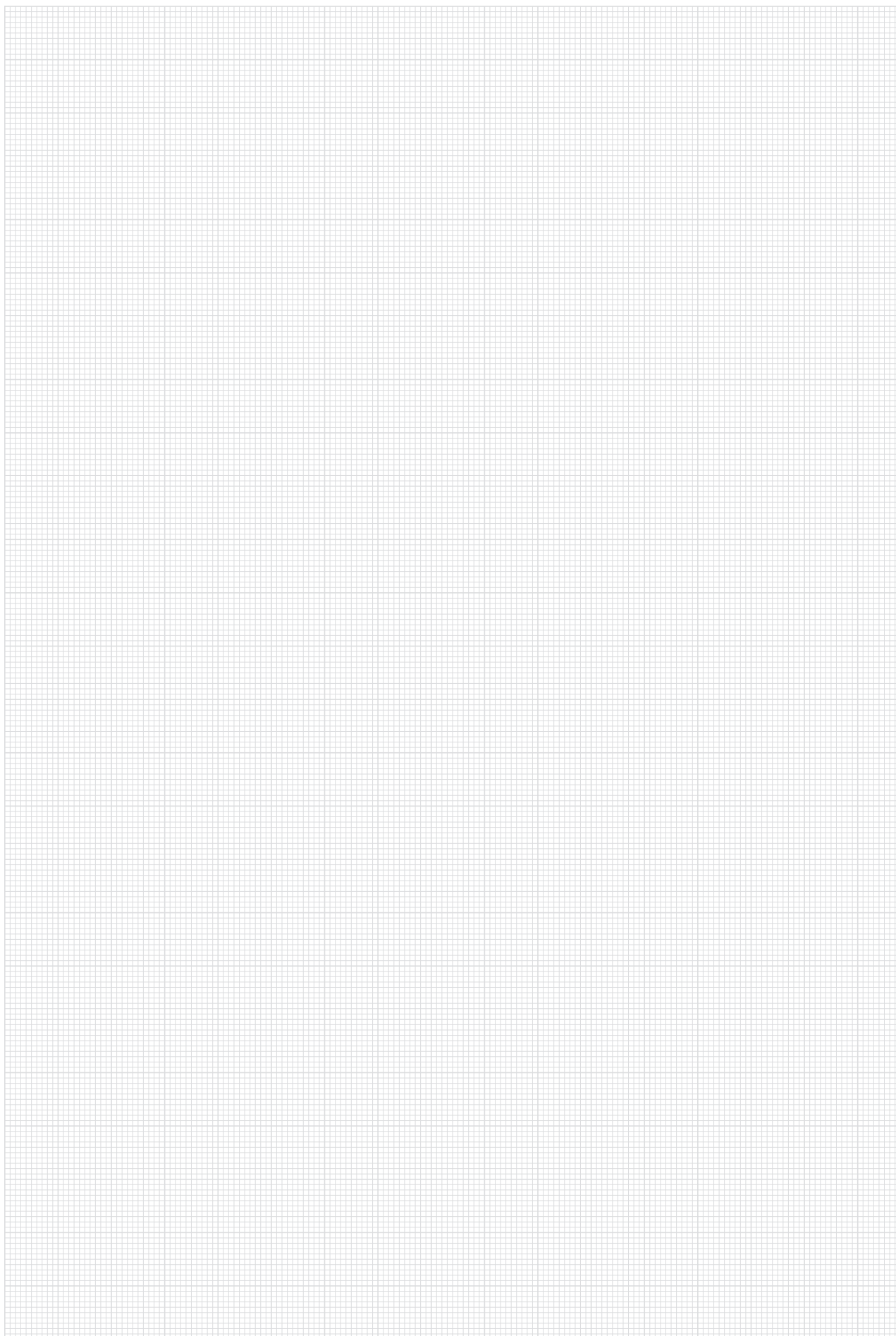
Spaltlüftung
Night-ventilation



10/2012
OPR_21_DE_v0



1. Closed position (move the handle upwards into the vertical position). Door is locked.
2. Sliding position (move the handle downwards into the vertical position).
3. Move the door approx. 11 mm
4. Closed position (move the handle upwards into the vertical position). Element in night-ventilation position.



Maintenance



WARNING!

Danger of injury through incorrectly conducted maintenance work!

Incorrect maintenance can result in serious personal injury or material damage.

- Before starting work, ensure that there is sufficient installation room.
- Maintain order and cleanliness at the installation location.
- Ensure that the window or balcony door is prevented from suddenly slamming during maintenance work.
- Get a specialist company to carry out adjustment work on hardware as well as replacement of parts and hinging and unhinging of sashes.
- Do not unhinge the sash for maintenance work.

At least annually, every six months for school and hotel buildings:

	Specialist company	End-users
If necessary, tighten fixing screws.	■	–
Replace damaged screws.	■	–
If necessary, replace components.	■	–
Lubricate all moving components with acid free and non resinous oil from a specialised dealer.	□	□
Lubricate steel locking pins with acid free and non resinous grease from a specialised dealer.	□	□

■ = To be carried out **only** by a specialist company.

– = Not to be carried out by the end-user; the end-user may not carry out installation work!

□ = To be carried out either by a specialist company or by the end-user.

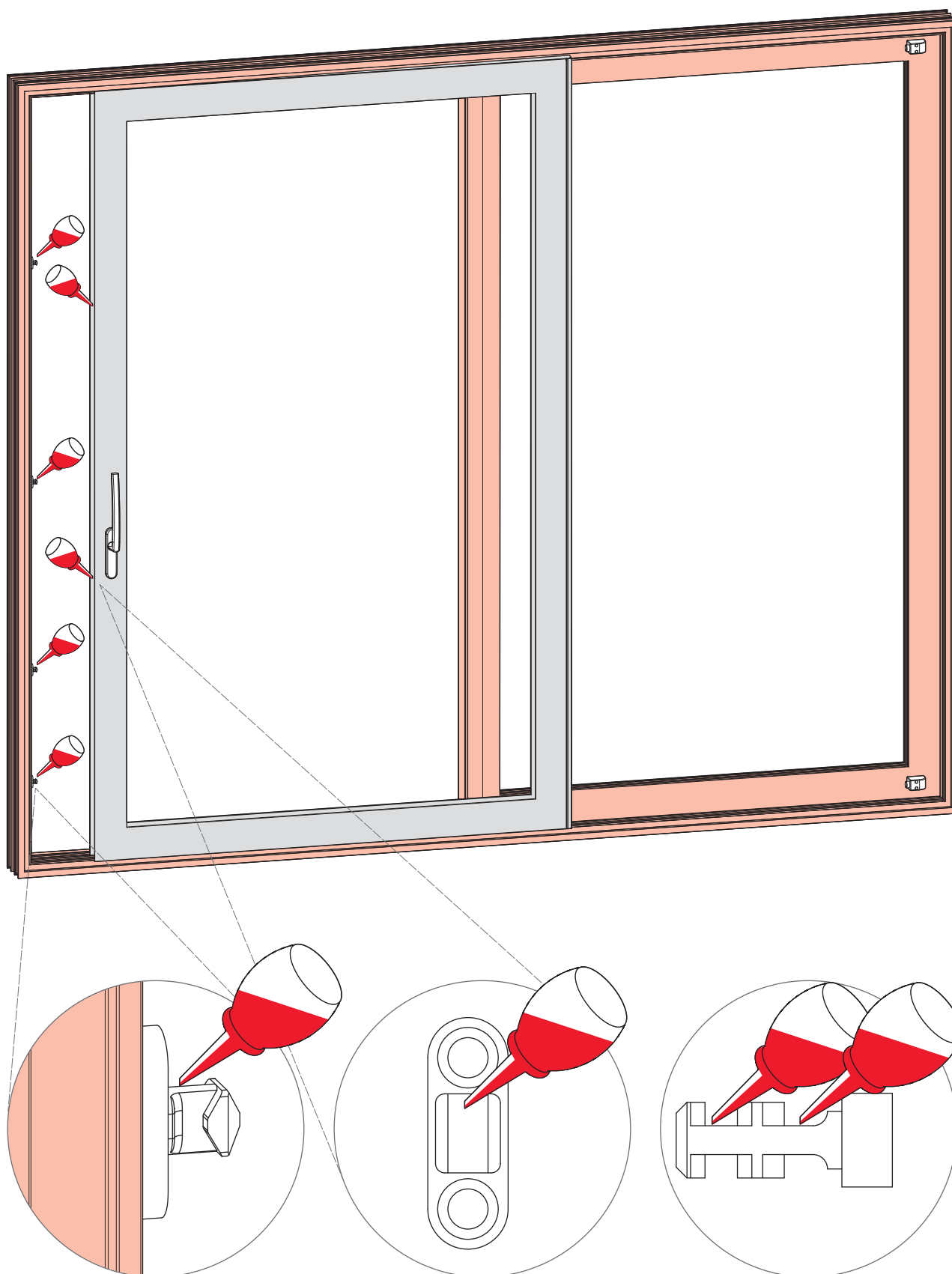


NOTE!

Observe the following environmental protection notes during maintenance work:

- Remove emerging or residual grease at the lubricating points and dispose of in accordance with the valid local regulations.
- Collect exchanged oil in suitable containers and dispose of in accordance with the environmental regulations.

The hardware overview shows the arrangement of the lubrication points. The illustrated overview does not necessarily correspond to the installed hardware. The number of lubrication points depends on the size and design of the window.



Inspection

At least annually, every six months for school and hotel buildings:

	Specialist company	End-users
Check that safety-relevant hardware components are mounted securely.	☐	☐
Examine safety-relevant hardware components for wear and tear.	☐	☐
All movable parts are to be operation-tested.	☐	☐
All locking points are to be operation-tested.	☐	☐
The hardware's smooth operation can be checked by means of moving the window handle.	■	—
– Locking and unlocking torque in accordance with DIN EN 13126-16: max. (handle length - 20 mm) x 100 N.	■	—
– It can be checked using a torque wrench.	■	—
– The smooth operation can be improved by greasing or oiling the hardware.		

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Care

	Specialist company	End-users
Keep the hardware free from deposits and soiling.	☐	☐
Never use aggressive, acidiferous cleaners or abrasive cleaning agents.	☐	☐
Only use mild, pH-neutral cleaning agents in diluted form.	☐	☐
Only use a soft cloth for cleaning.	☐	☐

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No legal claims can be derived from these recommendations, the application is to be conveyed for each concrete individual case. The window and balcony door manufacturer must draw builders and end-user's particular attention to these maintenance instructions. Roto Frank AG recommends window-fabricators to make maintenance agreements with their end-users.



Protection against corrosion

	Specialist company	End-users
On windows and balcony doors made of oak or other types of timber with a high concentration of (tannic-) acid, ensure that by means of a suitable window surface treatment, these content substances can not evaporate out of the timber. The hardware may not come in direct contact with untreated timber surfaces.	■	—
Aggressive vapours (e.g. by means of formic acid or acetic acid, ammonia, amine or ammonia compounds, aldehydes, phenols, chlorine, tannic acid etc.) in the vicinity of the windows must be absolutely avoided.	■	—
Never use acetic-acid or crosslinked acidic sealing compounds or those with the above mentioned contents, since both the direct contact with the sealing compound and its vaporisation can attack the hardware's surface.	■	—
Only electrogalvanised zinc plated and passivated screws may be used for fixing the hardware components.	■	—
Never use stainless-steel screws.	■	—

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Protection against dirt

	Specialist company	End-users
Remove deposits and dirt from building materials (building dust, plaster, cement, etc.) or similar materials with water before it cures.	□	□
Keep the hardware free from deposits and soiling.	□	□
Never use aggressive, acidiferous cleaners or abrasive cleaning agents.	□	□
Only use mild, pH-neutral cleaning agents in diluted form.	□	□
Only use a soft cloth for cleaning.	□	□

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Protection against (permanent) moist interior air

	Specialist company	End-users
Ventilate the hardware and the rebate areas – especially in the construction phase – so that they are neither exposed to direct contact with water nor to formation of condensation water.	☐	☐
Ensure that (permanently) damp spatial air cannot condense in the hinge and rebate areas: – Force ventilate several times each day (open all windows for approx. 15 minutes). – Also ventilate during holidays and absences. – For more complex construction projects, develop a ventilation plan if necessary. Divert the moisture present in the room air to the outside by means of condensation dryers.	☐	☐

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Protection against damages due to renovation work

	Specialist company	End-users
When applying surface treatments of the windows, exclude all hardware components from this treatment, and thus protect against contamination.	☐	☐
Use only adhesive tapes which do not damage the varnish layers. In the case of doubt, ask the window fabricator.	☐	☐

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Transport/handling of the window elements



DANGER!

Danger to life from incorrect handling and transport!

Incorrect handling and unsuitable transport of window elements can result in dangerous circumstances and cause severe accidents, even including death.

Therefore:

- During loading and unloading, select force application points which exclusively create reaction forces appropriate to the designed layout of the hardware components for the intended installation location.
- During handling and transport, ensure that hardware is in the locked position, so as to prevent an uncontrolled opening of the sash. Use suitable means of securing for this.
- Use only transport fastenings designed for the respective clearance.
- Wherever possible, undertake transport in the intended installation position. If transport in the intended installation position is not possible, unhinge the sash, and transport it separately from the frame to which it belongs.

During transport, loading, and unloading, especially when auxiliaries such as suckers, transport nets, forklifts, or cranes, reaction forces may arise which result in damage or overloading to the installed hardware. Therefore observe the following during all transport, loading, and unloading:

- The type and the force application points when transporting, loading, and unloading have a significant effect on the reaction forces which arise.
 - Always choose the force application points so that the resulting reaction forces are dissipated appropriate to the designed layout of the hardware components for the intended installation location. This applies particularly for the hinge positions.

Transport inspection

Check the delivery on receipt immediately for completeness and transport damage.



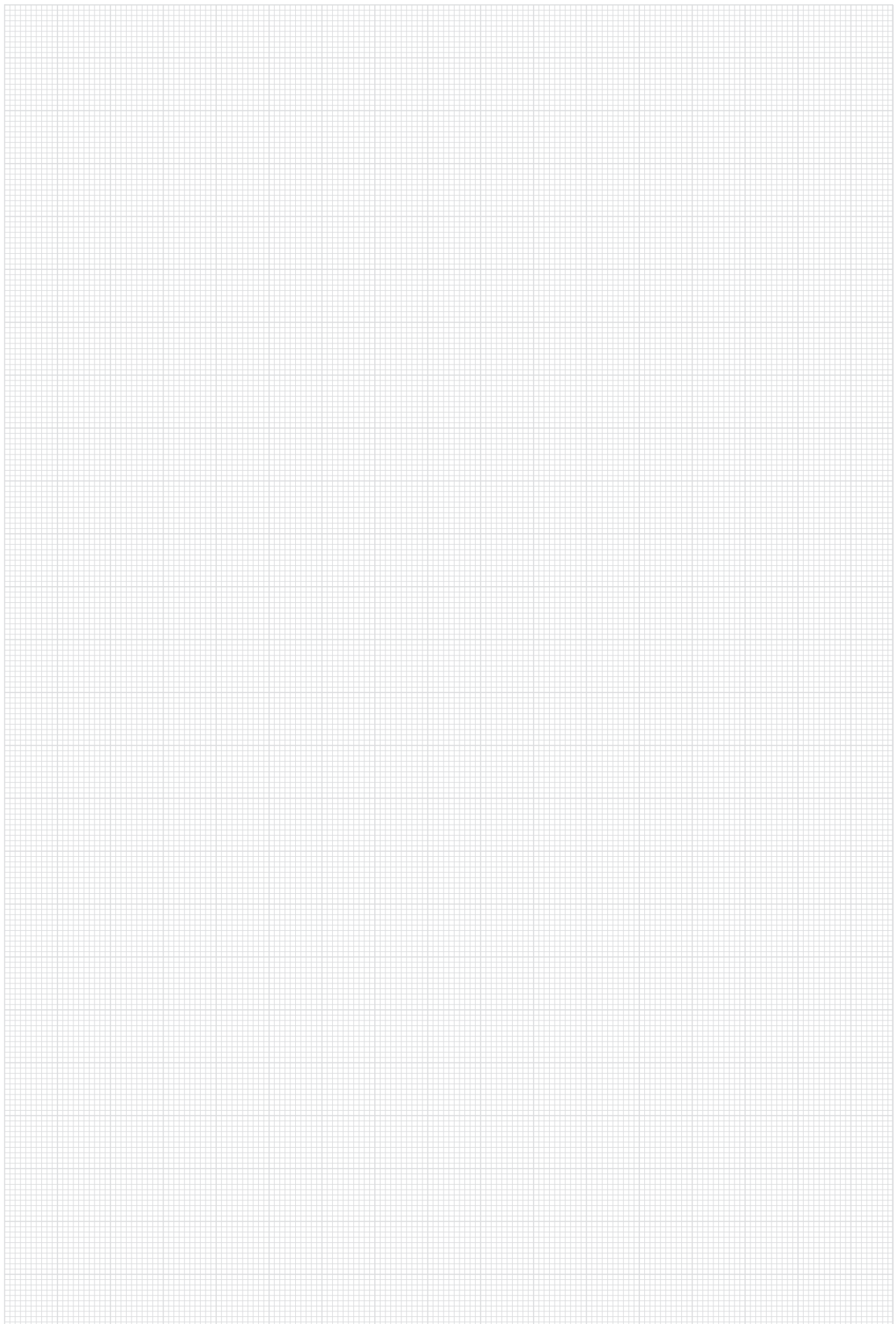
NOTE!

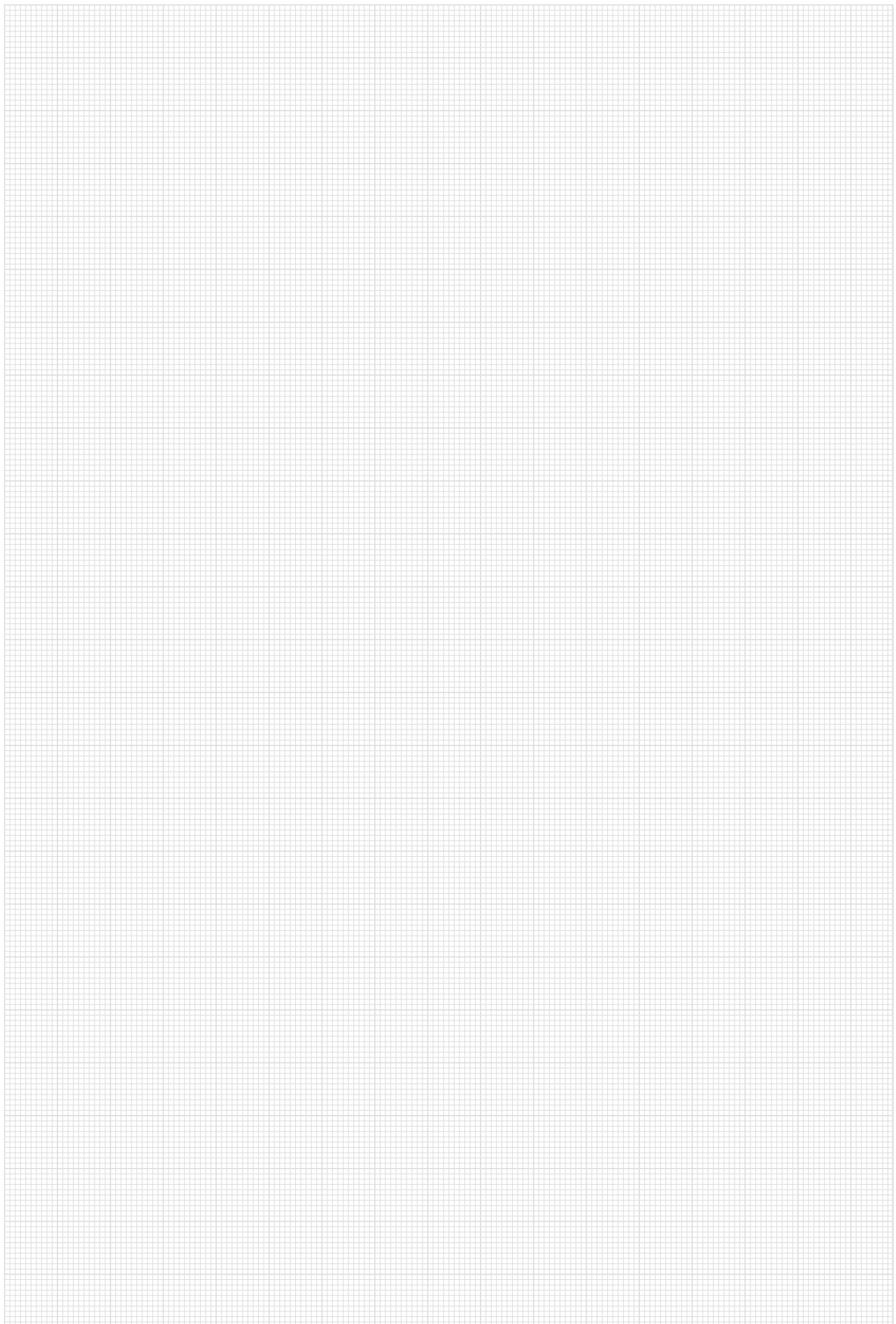
Claim any damage as soon as it is detected. Claims for damage can only be invoked within the statutory reclamation period.

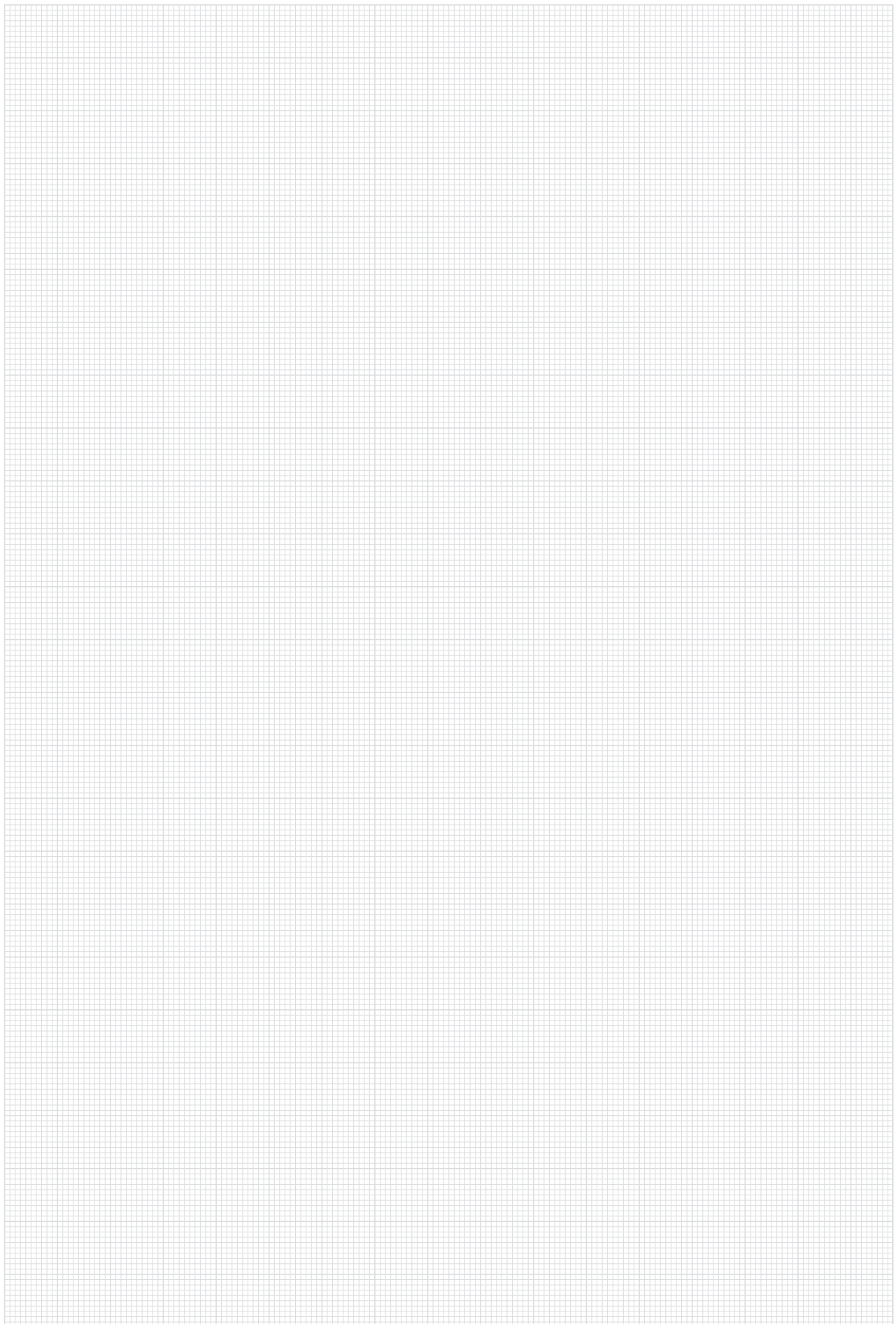


Separate the hardware components from the window and dispose of as metal scrap.

Send the plastic packers for recycling of synthetic materials.









Creates inner values

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From a single source: Optimum hardware systems to meet all challenges

Roto Tilt&Turn | The Tilt&Turn hardware system for windows and balcony doors

Roto Sliding | Hardware systems for large sliding windows and doors

Roto Door | Matching hardware technology "everything about doors"

Roto Equipment | Additional technology for windows and doors



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