

Roto Patio Alversa

Universal hardware for minimum effort
in Parallel Sliding and Tilt&Slide systems

Installation, maintenance and operating instructions
for aluminium profiles with a 16 mm hardware groove



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1 General information

1.1 Version history

Version	Date	Changes
v0	24.03.2017	
v1	01.12.2017	<p>Chapters added: → 1 "General information" from page 8, → 2 "Security" from page 17, → 3 "Information on the product" from page 23</p> <p>PS Air added.</p> <p>T connector, aluminium NT, for PS Air Com added to parts lists.</p> <p>Profile information and operating temperature range added. → 3.2 "Application ranges" from page 23</p> <p>New track sets added. → 5.2 "Track sets" from page 68</p> <p>New colour R 04.4 added.</p> <p>Bottom guide block, movable, added. → 9.7.4 "Bottom guide block, movable" from page 151</p> <p>Brief instructions added. → 8 "Brief instructions" from page 82</p> <p>Installation of the retrofit set for PS sliding scissor stay added. → 9.6.7.2 "Preassembling the PS sliding scissor stay with retrofit set" from page 136</p> <p>Installation of sliding scissor stay changed. Installation of top guide block added. → 9.6.7.1 "Inserting the KS sliding scissor stay" from page 134 → 9.6.7.3 "Inserting the PS sliding scissor stay and installing the top guide block" from page 138</p> <p>Adjustment of top guide block added. → 10.5 "Top guide block, fixed" from page 162 → 10.6 "Top guide block, tiltable" from page 163</p> <p>Roto Patio PS maintenance added. → 12.3.2 "Roto Patio Alversa PS (except for PS Air Com)" from page 172 → 12.3.3 "Roto Patio Alversa PS Air Com" from page 173</p> <p>Bogies changed. Now with integrated anti-jemmy device.</p> <p>KS scissor stays changed.</p> <p>PS scissor stays changed (retrofit set can be installed).</p> <p>SRW relating to the quantity of supporting pieces changed. → 9.5.11.1 "Supporting piece drill holes" from page 117</p> <p>Installation of connecting rod changed. → 9.5.12.3 "Connecting rod" from page 120</p> <p>Installation of frame components changed.</p>

1.2 Instructions

This manual contains important information, instructions and application diagrams (max. sash sizes and weights) and assembly instructions for the installation, maintenance and operation of hardware.

The information and instructions contained in this document refer to products belonging to the Roto hardware system named on the front page. All steps must be completed in sequence.

The following documents apply in addition to these instructions:

- Alversa catalogue
- Handles catalogue

The following guidelines also apply:

Gütegemeinschaft Schlösser und Beschläge e. V

- Directive TBDK: Attachment of supporting fitting components for turn-only and tilt&turn fittings

- Directive VHBE: Hardware for windows and balcony doors – Guidelines/advice for end-users
- Directive VHBH: Hardware for windows and balcony doors – Guidelines/advice on the product and on liability

VFF (German Window and Facade Association)

- TLE.01: Correct handling of ready-to-install windows and external doors during transport, storage and installation
- WP.01: Maintenance of windows, facades and external doors – Maintenance, care and inspection – Information for sales
- WP.02: Maintenance of windows, facades and external doors – Maintenance, care and inspection – Measures and documents
- WP.03: Maintenance of windows, facades and external doors – Maintenance, care and inspection – Maintenance agreement

Additional guidelines

- Instructions and information issued by profile manufacturers, e.g. manufacturers of windows and balcony doors
- Instructions and information issued by screw manufacturers
- The applicable regulations, directives and national laws

Storing the instructions

These instructions are an important part of the product. The instructions must be stored so that they are always to hand.

Explanation of the markings

The manual uses the following markings for emphasis (e.g. in figures or instructions):

Marking	Meaning
	Sash
	Frame
	Drill holes, routing or screw positions
	Unaffected components Indirectly affected components
	Components that have just been described Arrows or movements
	Item number
[1]	Legend
[A]	Steps



INFO

Any dimensions without a unit in the instructions are given in millimetres (mm). Other units of measurement are clearly indicated by the presence of the differing unit.



INFO

Figures are provided in the left-hand version (DIN 107). The process for the right-hand version is mirror-inverted.



INFO

Roto Patio Alversa | PS stands for the variants:

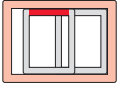
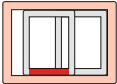
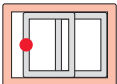
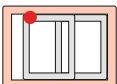
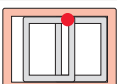
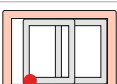
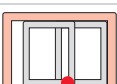
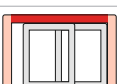
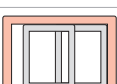
- Roto Patio Alversa | PS without night ventilation
- Roto Patio Alversa | PS with night ventilation
- Roto Patio Alversa | PS Air
- Roto Patio Alversa | PS Air Com

1.3 Symbols

Symbol	Meaning
■	First-level list
○	Second-level list
→	(Cross-)reference
▷	Result
▶	Unnumbered step
1.	Numbered step
a.	Numbered second-level step

1.4 Pictographs

Symbol	Meaning
	Tilt&Slide system
	Parallel Sliding system
	without ventilation
	Tilt ventilation
	Night ventilation
	Comfort tilt ventilation
	Aluminium
	Left of sash
	Right of sash

Symbol	Meaning
	Top of sash
	Bottom of sash
	Sash handle height (centre-left)
	Top left of sash
	Top right of sash
	Bottom left of sash
	Bottom right of sash
	Top of frame
	Bottom of frame

1.5 Product characteristics

Symbol	Meaning
	Hardware axis
	Designation
	DIN left / right
	Clearance
	Colour
	Colour code
	Sash rebate width

Symbol	Meaning
	Sash rebate height
	Sash weight
	Fixed handle height
	Centred / variable handle height
	Information
	Material number
	Installation type
	Groove width
	Groove depth
	Frame width
	Frame groove
	Opening type
	System
	Adjustment

1.6 Abbreviations

Abbreviation	Meaning
lock.	lockable
Com	Comfort
CTL	Catalogue
DIN L / R	DIN left / right
d _h	Screw head diameter
T&T	Tilt&Turn
BS	Backset

Abbreviation	Meaning
SRW	Sash rebate width
SRH	Sash rebate height
S.kg	Sash weight
BSec	Basic security
IMO	Installation instructions
ISR	Hexalobular internal screw
Y	Yes
kg	Kilograms
KS	Tilt&Slide
mm	Millimetres
CL	Centre lock
N	No
Nm	Torque
Not sh.	Not shown
PS	Parallel Sliding
RC	Resistance class
FIW	Frame internal width

1.7 Target groups

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

Hardware dealers

The “hardware dealers” target group includes all companies and individuals that purchase hardware from hardware manufacturers for resale, without modifying or further processing the hardware.

Window and balcony door manufacturers

The “window and balcony door manufacturers” target group includes all companies and individuals that purchase hardware from hardware manufacturers or hardware dealers and further process the hardware by integrating it in windows and balcony doors.

Building element dealers or installation companies

The “building element dealers or installation companies” target group includes all companies and individuals that purchase windows and balcony doors from window and balcony door manufacturers for resale and for installation in construction projects, without modifying the windows or balcony doors.

Builders

The “builders” target group includes all companies and individuals who place orders for the manufacture of windows and balcony doors for installation in their construction projects.

End users

The “end users” target group includes all individuals who use the installed windows and balcony doors.

1.8 Target groups' obligation to give instructions



INFO

Each target group must fulfil their obligation to give instructions in full.

Unless specified otherwise in the text below, documents and information can be passed on as a printed document, on a CD-ROM or via the Internet.

Responsibility of hardware dealers

Hardware dealers must pass the following documents on to the window and balcony door manufacturer:

- Catalogue
- Installation, maintenance and operation instructions
- Directive on attachment of supporting fitting components for turn-only and tilt&turn fittings (TBDK)
- Guidelines/advice on the product and on liability (VHBH)
- Guidelines/advice for end-users (VHBE)

Responsibility of the window and balcony door manufacturer

The window and balcony door manufacturer must pass the following documents on to building element dealers or the builder, even if a subcontractor (installation company) is involved:

- Installation, maintenance and operation instructions
- Directive on attachment of supporting fitting components for turn-only and tilt&turn fittings (TBDK)
- Guidelines/advice on the product and on liability (VHBH)
- Guidelines/advice for end-users (VHBE)

They must ensure that the end users are provided with the documents and information intended for them in printed format.

Responsibility of building element dealers and the installation company

Building element dealers must pass the following documents on to the builder, even if a subcontractor (installation company) is involved:

- Installation, maintenance and operation instructions (with a 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 pass the following documents on to the end user:

- Installation, maintenance and operation instructions (with a focus on hardware)
- Guidelines/advice for end-users (VHBE)

1.9 Copyright protection

The contents of this document are copyright-protected. This content can be used when working with the hardware. Any other use is not permitted without written permission of the manufacturer.

1.10 Limitation of liability

All information and instructions contained in this document have been compiled in consideration of the applicable standards and regulations, the latest developments in technology and many years of knowledge and experience.

The hardware manufacturer assumes no liability for damage caused by:

- Failure to comply with this document and all product-specific documents and other applicable directives (see the chapters entitled "Security" and "Stipulated use").
- Improper use / misuse (see the chapters entitled "Security" and "Stipulated use").
- Insufficient invitation to tender, non-compliance with installation specifications and non-compliance with the application diagrams (where available).
- Increased contamination.

Claims made by third parties against the hardware manufacturer on account of damage resulting from misuse or failure to comply with the obligation to give instructions on the part of hardware dealers, window, door and balcony door manufacturers, building element dealers or the builder are passed on accordingly.

The obligations agreed in the delivery contract, the general terms and conditions, the hardware manufacturer's terms and conditions of delivery and the legal provisions applicable when the contract was concluded shall apply.

The warranty only covers original Roto components.

We reserve the right to make technical changes as part of improvement to performance characteristics and further development.

1.11 Preserving the surface finish



ATTENTION

Surface treatments may cause property damage.

Surface treatments (e.g. painting and varnishing) on elements can damage components or prevent them from working properly.

- ▶ For masking, only use adhesive tape that does not damage the paint coats. Consult the manufacturer if in doubt.
- ▶ Protect components against direct contact with the surface treatment.
- ▶ Protect components against contamination.



ATTENTION

Protection against corrosion

Cleaning agents can corrode the surface of the components.

- ▶ Do not use aggressive or flammable liquids, acidic cleaners or abrasive cleaners.
- ▶ Only use mild, pH-neutral cleaning agents that have been diluted.
- ▶ Apply a thin protective film to the components, for example using a cloth soaked in oil.
- ▶ Avoid aggressive vapours (e.g. produced by formic acid, acetic acid, ammonia, amine compounds, ammonia compounds, aldehyde, carbolic acid, chlorine, tannic acid) around the element.
- ▶ Do not use any acetic acid-crosslinking or acid-crosslinking sealing compounds or those with the aforementioned constituents as both direct contact with the sealing compound and its fumes can corrode the surface of the components.



ATTENTION

Protection against dirt

Contamination prevents components working properly.

- ▶ Remove deposits and contaminants caused by construction materials before they bond with water, e.g. construction dust, plaster, stucco, mortar and cement.
- ▶ Keep components free of deposits and contaminants.



ATTENTION

Protection against (permanently) damp room air

Damp room air can lead to mould growth and corrosion caused by condensation.

- ▶ Provide adequate ventilation for components, particularly during the construction phase.
- ▶ Intensively air out the room several times per day by opening all elements for approximately 15 minutes. If intensive airing is not an option, place the elements in tilt mode and provide airtight masking inside the room, e.g. if there is fresh screed that cannot be walked on or must not be exposed to drafts. Discharge any humidity present in the room air to the outside using condensation dryers.
- ▶ Establish a ventilation plan for more complex construction projects if necessary.
- ▶ Provide adequate ventilation during holiday periods as well.

1.12 Imprint

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2 Security

This manual contains instructions relating to safety. The principal safety information in this chapter includes information and instructions relevant to the safe use or maintaining the safe condition of the product. Warning instructions that relate to handling warn of residual risks and are located before steps that are relevant to safety.

- Follow all of the instructions in order to prevent personal injury and property and environmental damage.

2.1 Presentation and structure of warning instructions

The warning instructions relate to individual actions and are structured as follows with a warning symbol:



DANGER

Nature and source of the danger.

- Explanation and description of the danger and the implications.
- Measures to take to avert the danger.

2.2 Security levels of warning instructions

The warning instructions that relate to handling are identified differently according to the severity of the associated danger. The signal words and the associated warning symbols used are clarified below.



DANGER

Immediate risk of death or serious injuries.

- Observe these warning instructions to avoid personal injuries.



WARNING

Potential risk of death or serious injuries.

- Observe these warning instructions to avoid personal injuries.



CAUTION

Risk of injuries

- Observe these warning instructions to avoid personal injuries.



ATTENTION

Reference to property or environmental damage.

- Observe these warning instructions to avoid property or environmental damage.

2.3 Stipulated use

The hardware system described in these instructions is intended for installation in sliding sashes in windows and balcony doors. The hardware system is solely intended for further processing on windows and balcony door sashes for vertical installation made from the materials described in these

instructions. The hardware system opens sashes in windows and balcony doors and closes them tightly.

Stipulated use also includes compliance with all safety information and specifications contained in these instructions, the other applicable documents and the applicable regulations, directives and national laws.

2.3.1 Misuse

Any use and processing of the products that goes beyond or differs from the stipulated use is considered misuse and can lead to hazardous situations.



WARNING

Danger in the event of misuse!

Misuse and incorrect installation of hardware can lead to hazardous situations.

- ▶ Only use hardware combinations that have been approved by the hardware manufacturer.
- ▶ Only use original accessories or those that have been approved by the hardware manufacturer.

2.3.2 Usage restriction

Opened sashes in windows and balcony doors, and windows and balcony door sashes that are unlocked or placed in ventilation positions, only have a shielding effect. They do not meet the following requirements:

- Joint impermeability
- Driving rain impermeability
- Sound insulation
- Thermal insulation
- Burglary inhibition

2.4 Stipulated use for end users

On windows or balcony doors with sliding hardware, window sashes or balcony door sashes can be moved horizontally or vertically by operating a handle.

On special structures, various sashes can additionally be brought into a turn position and / or into a tilt position restricted by the scissor stay version.

When closing a sash and locking the hardware, the gasket counter force must generally be overcome.



WARNING

Opening and closing sashes improperly poses the risk of injury and property damage.

Incorrect opening and closing of the sash can result in serious injuries and substantial property damage.

- ▶ Ensure that the sash does not collide with the frame, opening restrictor (buffer) or other sashes when it is moved into the fully open or closed position.
- ▶ Ensure that the sash is slowly guided by hand throughout its entire movement range, until it has been brought into a fully closed or opening position.



Any use and processing of the products that goes beyond or differs from the stipulated use is considered misuse and can lead to hazardous situations.

No claims can be made on account of damage resulting from failure to comply with the stipulated use.

2.4.1 Misuse

Any use and processing of the products that goes beyond or differs from the stipulated use is considered misuse and can lead to hazardous situations.



WARNING

Danger in the event of misuse!

Misuse and incorrect installation of hardware can lead to hazardous situations.

- ▶ Only use hardware combinations that have been approved by the hardware manufacturer.
- ▶ Only use original accessories or those that have been approved by the hardware manufacturer.

2.5 Basic safety information

The following hazards may arise when handling the product:

2.5.1 Installation

Incorrect installation poses an immediate risk of death or serious injuries.

Incorrect installation or assembly of hardware can lead to hazardous situations or property damage. Depending on the height of the fall, this can result in serious to life-threatening injuries, as well as glass breakage.

- ▶ Only use hardware combinations that have been approved by the hardware manufacturer.
- ▶ Only use original accessories or those that have been approved by the hardware manufacturer.
- ▶ Always have installation performed by a specialist company.

Heavy loads pose a risk of injury.

Lifting and carrying heavy loads may lead to injuries in the event of a fall or physical overexertion.

- ▶ Note the applicable accident prevention regulations.
- ▶ Transport heavy loads with two people and use suitable transportation means (such as an industrial truck).

Physical strain may cause damage to health.

Moving heavy loads for extended periods leads to physical injury in the long term.

- ▶ When carrying and lifting by hand, comply with a maximum weight of 25 kg for men and 10 kg for women.
- ▶ Carry and lift even small loads with an ergonomically correct posture.

2.5.2 Use

Falls from open windows and balcony doors present an immediate risk of death and pose the risk of serious injuries.

Opened sashes of windows and balcony doors create a danger zone. Depending on the height of the fall, this can result in serious to life-threatening injuries, as well as glass breakage.

- ▶ Take care when in the vicinity of open windows and balcony doors.
- ▶ Keep children and anyone unable to understand the risks away from the hazardous area.

Trapping body parts in the opening between sash and frame may lead to serious injuries.

Gripping between the sash and frame when closing windows and balcony doors poses the risk of crushing injuries.

- ▶ When closing windows and balcony doors, never grip between the sash and frame and always exercise caution.
- ▶ Keep children and anyone unable to understand the risks away from the hazardous area.

Opening and closing sashes improperly poses the risk of injury and property damage.

Incorrect opening and closing of sashes can result in serious injuries and substantial property damage.

- ▶ When moving the sash, ensure that it will not slam against the frame or other sashes once fully opened or closed.
- ▶ Ensure that the sash is slowly guided by hand throughout its entire movement range, until it has been brought into a fully closed or opening position.
- ▶ When closing a sash and locking the hardware, the gasket counter force must be overcome.

Misuse poses a risk of injury and property damage.

Misuse can lead to hazardous situations and may destroy the hardware, frame materials or other individual components within the windows or balcony doors.

- ▶ Do not introduce any obstacles in the opening area between the frame and window or balcony door sashes.
- ▶ Do not attach additional loads to windows and balcony door sashes.
- ▶ Refrain from intentionally or uncontrollably slamming or pushing the window or balcony door sash against the window reveal.

Improper maintenance poses the potential risk of injury and property damage.

Windows and balcony doors, including the hardware, require expert maintenance (care, cleaning, maintenance and inspection) in order to guarantee their proper condition and safe use.

- ▶ Keep the hardware free of deposits and contaminants.
- ▶ Carry out care and cleaning tasks in accordance with these instructions.
- ▶ Always have regular maintenance, adjustment and repair work carried out by a specialist company.



2.5.3 Ambient conditions

Physical and chemical influences may result in property damage.

Hardware components can be permanently damaged to the point that they can no longer function in a saline, aggressive or corrosive environment.

- ▶ Do not use the hardware components in a saline, aggressive or corrosive environment.
- ▶ Carry out care and cleaning tasks in accordance with these instructions.
- ▶ Corrosion protection must be inspected by an authorised specialist company as part of regular maintenance work.

Moisture may cause property damage.

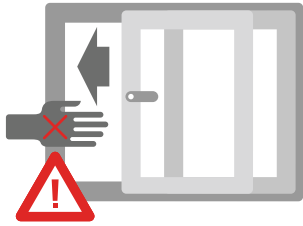
Depending on the outside temperature, relative humidity of the room air and installation conditions for the windows and balcony doors, a temporary buildup of condensation may occur. This can lead to corrosion on the hardware and mould growth on the frame or wall. Ambient conditions that are too damp, particularly during the construction phase, can lead to timber elements warping.

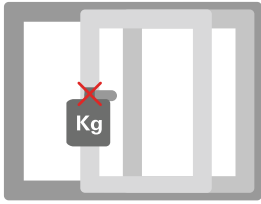
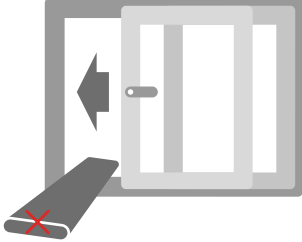
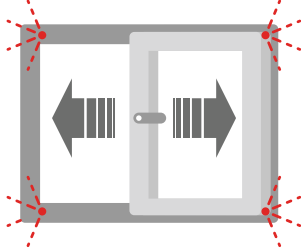
- ▶ Avoid preventing the circulation of air, e.g. due to deep reveals, curtains or unfavourable positioning of heaters or the like.
- ▶ Intensively air out the room several times per day.
 Open all windows and balcony doors for approximately 15 minutes so that the air in the room can be completely replaced.
- ▶ Provide adequate ventilation during holiday periods as well.
- ▶ Create a ventilation plan for construction projects if necessary.

2.6 Operation

The safety symbols and markings and the associated warning instructions explained below apply to the safe operation of windows and balcony doors.

Safety symbols and markings

Symbol	Meaning
	<p>Falls from open windows and balcony doors present an immediate risk of death and pose the risk of serious injuries.</p> <p>Take care when in the vicinity of open windows and balcony doors.</p> <p>Keep children and anyone unable to understand the risks away from the hazardous area.</p>
	<p>Trapping body parts in the opening between sash and frame may lead to serious injuries.</p> <p>When closing windows and balcony doors, never grip between the sash and frame and always exercise caution.</p> <p>Keep children and anyone unable to understand the risks away from the hazardous area.</p>

Symbol	Meaning
	<p>Placing additional loads on the sash poses a risk of injury.</p> <p>Do not attach additional loads to windows and balcony door sashes.</p>
	<p>Introducing obstacles into the opening between sash and frame poses a risk of injury and property damage.</p> <p>Do not introduce any obstacles in the opening area between the frame and window or balcony door sashes.</p>
	<p>Opening and closing the sash in an uncontrolled manner poses a risk of injury and property damage.</p> <p>Ensure that the sash is slowly guided by hand throughout its entire movement range, until it has been brought into a fully closed or opening position.</p>



3 Information on the product

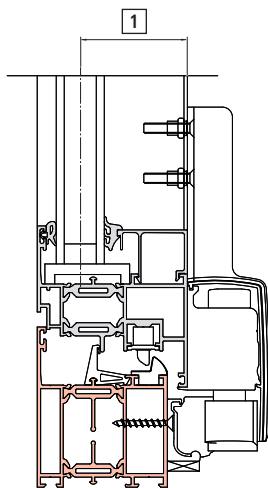
3.1 General hardware characteristics

- Modular sliding system for all profile materials.
- Universal central locking system and handle for use across all variants.
- Use of standard components from the Roto NT modular system which have been tried and tested millions of times.
- Use of innovative and future-proof components from the new Roto NX hardware system.
- Optimised run-in and run-out characteristics on every Roto Patio Alversa | PS thanks to damping elements.
- Intuitive operation on every Roto Patio Alversa | PS thanks to the familiar Tilt&Turn operating sequence.

3.2 Application ranges

- Sash rebate width: max. 2000 mm
- Sash rebate height: max. 2700 mm
- Sash weight: max. 200 kg
- Rebate clearance: 12 mm
- Overlap width: 18 / 20 mm
- Minimum overlap height: 7 mm
- 9 mm hardware axis not available for Roto Patio Alversa | PS with night ventilation
- 10 mm hardware axis not available for Roto Patio Alversa | PS with night ventilation
- 13 mm hardware axis available for all Roto Patio Alversa variants
- 122 mm retracting distance
- Compatible with RC1N and RC2 / RC2N
- Sash arrangement according to diagrams A and D
- Diagram C is possible, but must be technically tested by Roto.
- For profiles which run on the inside only
- Operating range: -20 °C to +50 °C

3.3 Application diagrams



[1] M dimension

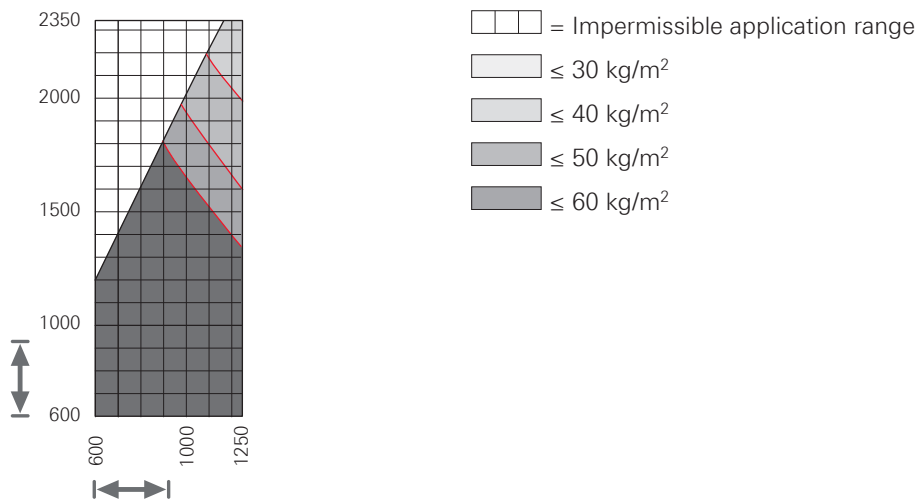


INFO

See the following pages for the permitted product-specific M dimension. Different dimensions must be technically tested by Roto.

3.3.1 Roto Patio Alversa | KS

3.3.1.1 Up to 100 kg sash weight



The specifications in the application diagram refer to the glass weight in kg/m².

1 mm/m² glass thickness ≈ 2.5 kg

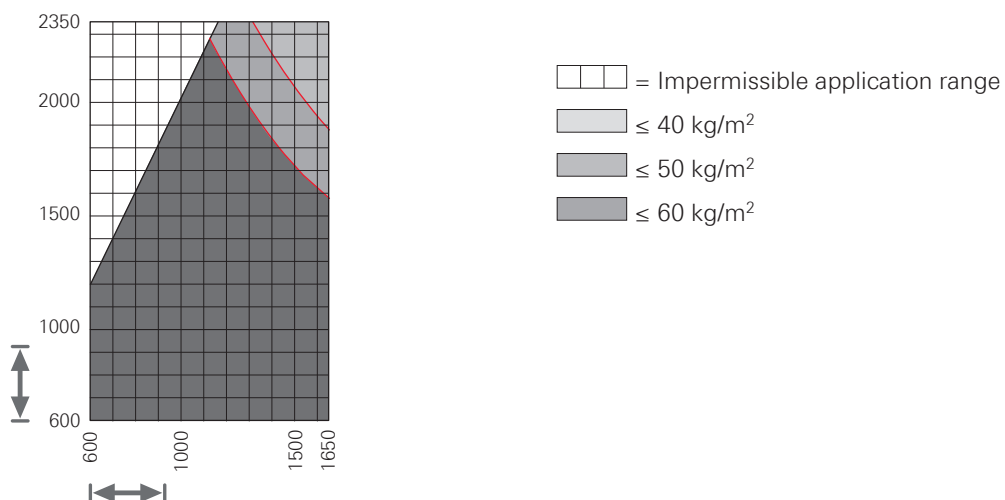
SRH:SRW = max. 2:1

Dimension M = max. 62 mm

Application range		
	Sash rebate width (SRW)	600 – 1250 mm
	Sash rebate height (SRH)	600 – 2350 mm
	Sash weight (S.kg)	max. 100 kg
	Glass weight	max. 60 kg/m ²



3.3.1.2 Up to 160 kg sash weight



The specifications in the application diagram refer to the glass weight in kg/m².

1 mm/m² glass thickness ≈ 2.5 kg

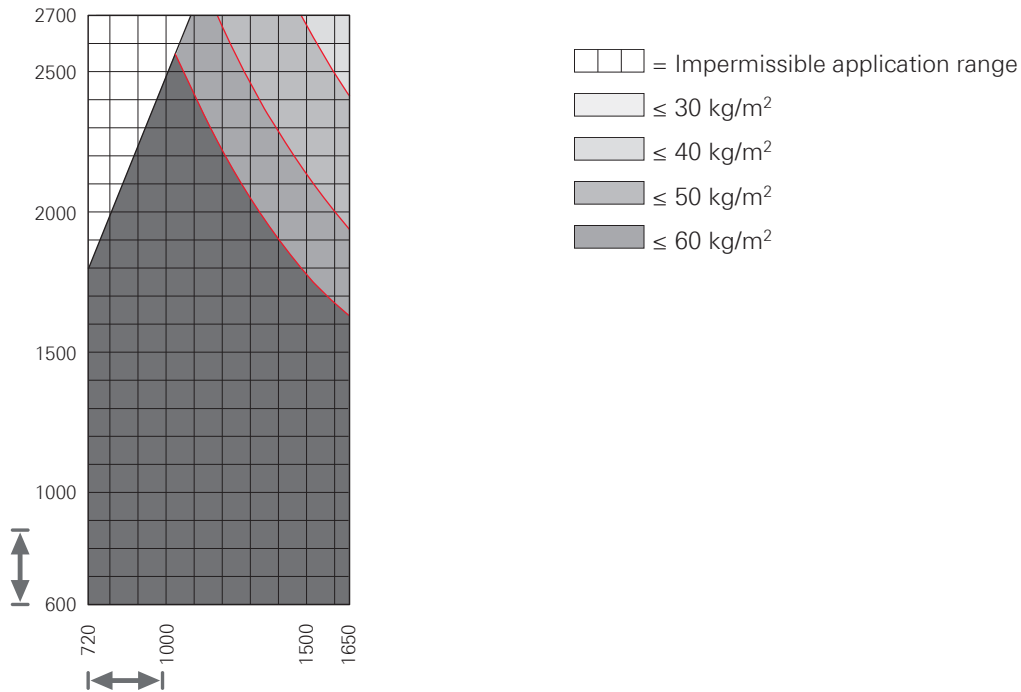
SRH:SRW = max. 2:1

Dimension M = max. 62 mm

			Application range
	Sash rebate width (SRW)		600 – 1650 mm
	Sash rebate height (SRH)		600 – 2350 mm
	Sash weight (S.kg)		max. 160 kg
	Glass weight		max. 60 kg/m ²

3.3.2 Roto Patio Alversa | PS without / with night ventilation

3.3.2.1 Up to 160 kg sash weight



The specifications in the application diagram refer to the glass weight in kg/m².

1 mm/m² glass thickness ≅ 2.5 kg

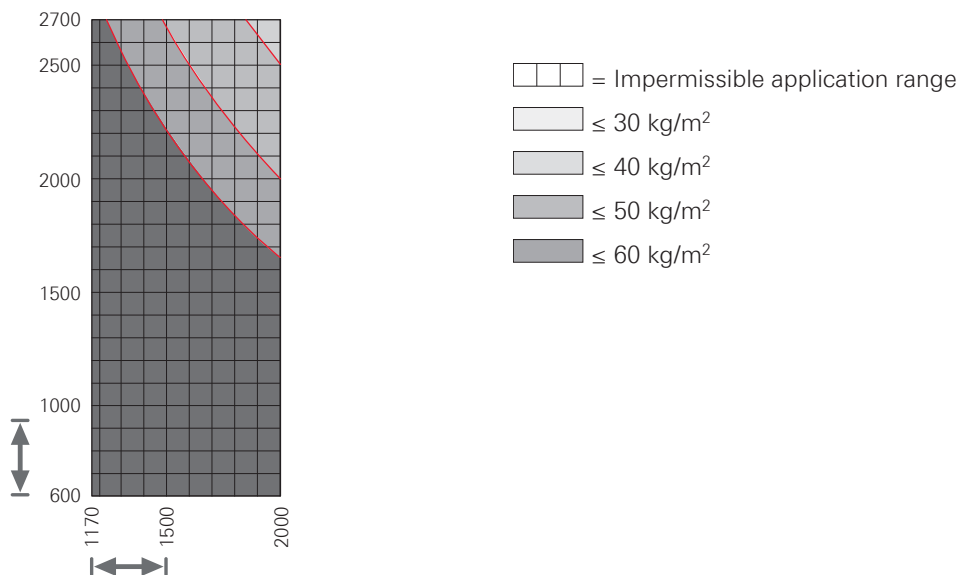
SRH:SRW = max. 2.5:1

Dimension M = max. 68 mm

Application range		
	Sash rebate width (SRW)	720 – 1650 mm
	Sash rebate height (SRH)	600 – 2700 mm
	Sash weight (S.kg)	max. 160 kg
	Handle height	Central (SRH / 2)
		For SRH 1801 – 2400 mm: fixed handle height 1000 mm
	Glass weight	max. 60 kg/m ²



3.3.2.2 Up to 200 kg sash weight



The specifications in the application diagram refer to the glass weight in kg/m^2 .

1 mm/m² glass thickness $\approx$ 2.5 kg

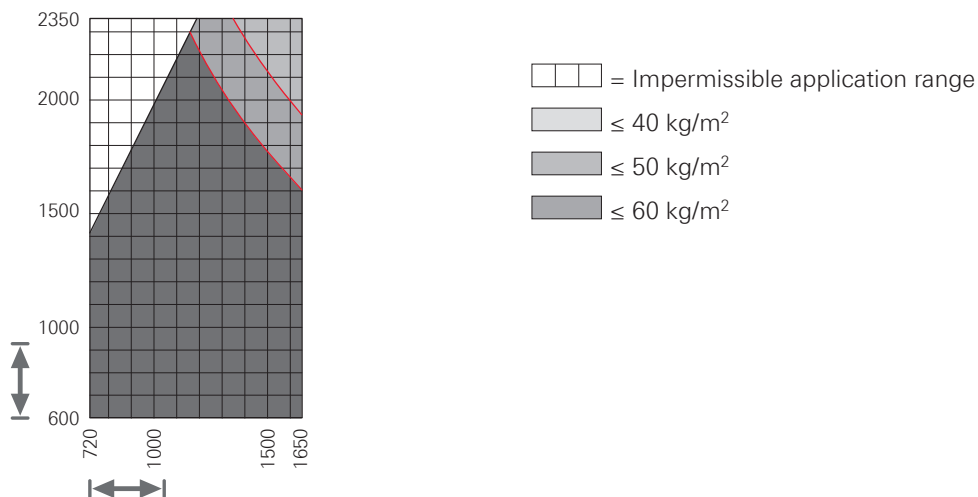
SRH:SRW = max. 2.5:1

Dimension M = max. 68 mm

Application range		
	Sash rebate width (SRW)	1170 – 2000 mm
	Sash rebate height (SRH)	600 – 2700 mm
	Sash weight (S.kg)	max. 200 kg
	Handle height	Central (SRH / 2)
		For SRH 1801 – 2400 mm: fixed handle height 1000 mm
	Glass weight	max. 60 kg/m ²

3.3.3 Roto Patio Alversa | PS Air

3.3.3.1 Up to 160 kg sash weight



The specifications in the application diagram refer to the glass weight in kg/m^2 .

1 mm/m² glass thickness $\approx$ 2.5 kg

SRH:SRW = max. 2:1

Dimension M = max. 68 mm ^[1]

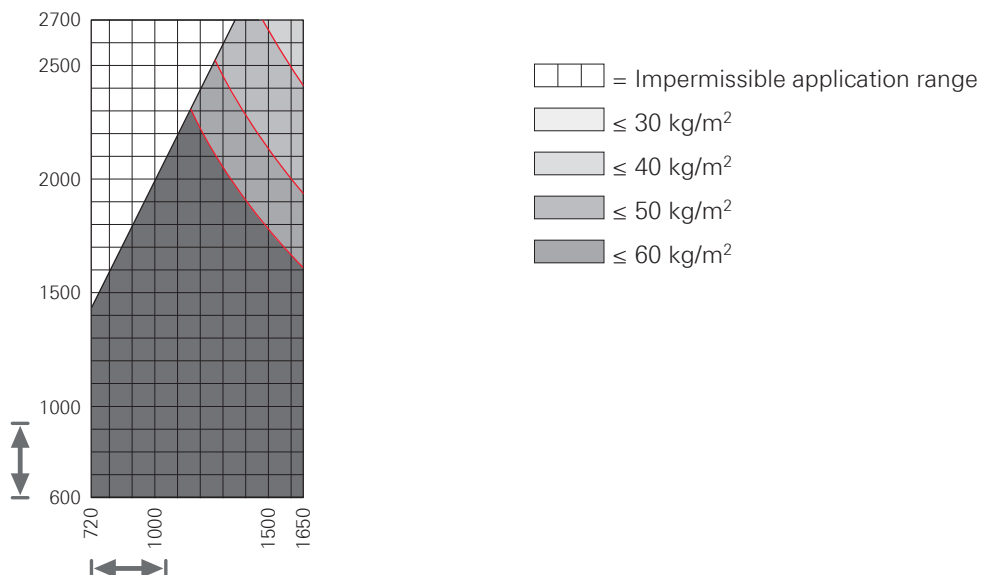
Application range		
	Sash rebate width (SRW)	720 – 1650 mm
	Sash rebate height (SRH)	600 – 2350 mm
	Sash weight (S.kg)	max. 160 kg
	Handle height	Central (SRH / 2)
		For SRH 1801 – 2400 mm: fixed handle height 1000 mm
	Glass weight	max. 60 kg/m ²

[1] Mandatory from dimension M 44 mm retrofit set for the lock-in position.



3.3.4 Roto Patio Alversa | PS Air Com

3.3.4.1 Up to 160 kg sash weight



The specifications in the application diagram refer to the glass weight in kg/m^2 .

1 mm/m^2 glass thickness $\approx 2.5 \text{ kg}$

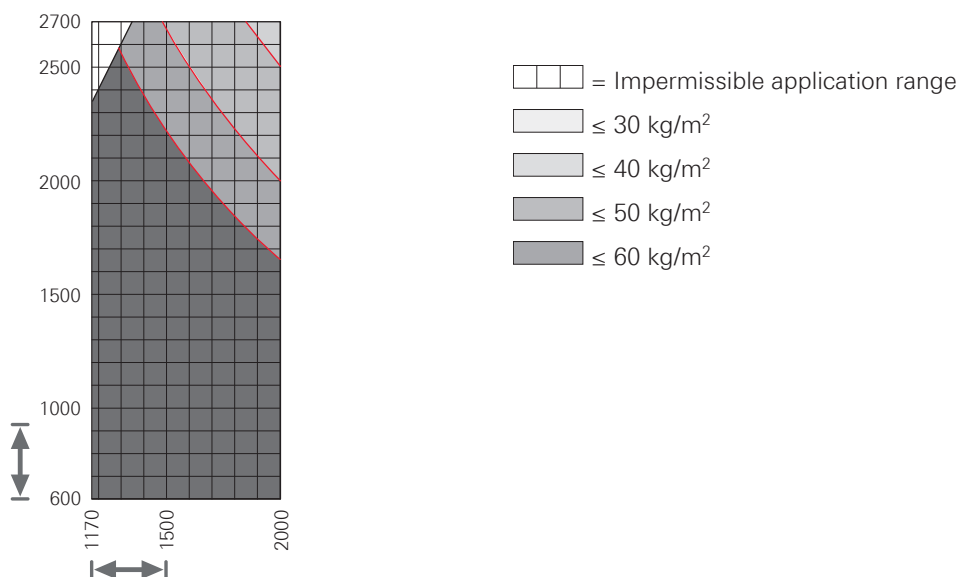
SRH:SRW = max. 2:1

Dimension M = max. 68 mm

Application range		
	Sash rebate width (SRW)	720 – 1650 mm
	Sash rebate height (SRH)	600 – 2700 mm
	Sash weight (S.kg)	max. 160 kg ^[2]
	Handle height	Central (SRH / 2)
		For SRH 1801 – 2400 mm: fixed handle height 1000 mm
	Glass weight	max. 60 kg/m^2

[2] Mandatory from S.kg >140 kg retrofit set for tilt assistance.

3.3.4.2 Up to 200 kg sash weight



The specifications in the application diagram refer to the glass weight in kg/m^2 .

1 mm/m² glass thickness $\approx$ 2.5 kg

SRH:SRW = max. 2:1

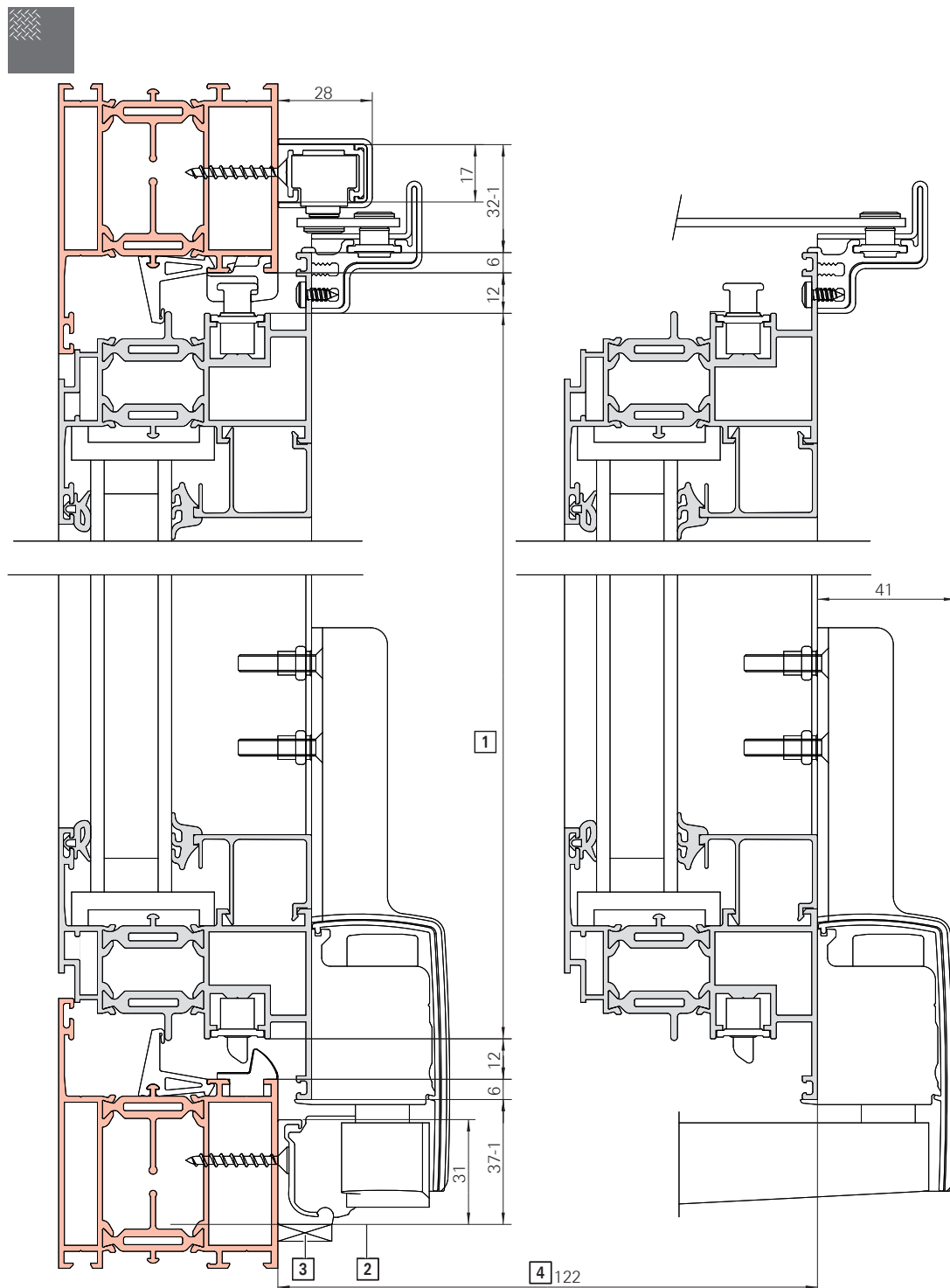
Dimension M = max. 68 mm

Application range		
	Sash rebate width (SRW)	1170 – 2000 mm
	Sash rebate height (SRH)	600 – 2700 mm
	Sash weight (S.kg)	max. 200 kg ^[3]
	Handle height	Central (SRH / 2)
		For SRH 1801 – 2400 mm: fixed handle height 1000 mm
	Glass weight	max. 60 kg/m^2

[3] Mandatory from S.kg >140 kg retrofit set for tilt assistance.

3.4 Profile sections

3.4.1 Vertical cross section



Assignment	Meaning
[1]	SRH
[2]	Max. top edge of finished floor
[3]	Underlay the roller track over the entire length on site in order to transfer the load.
[4]	Retracting distance

3.5 Design variants

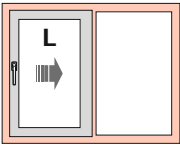
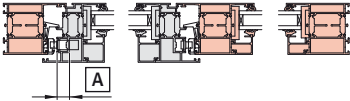
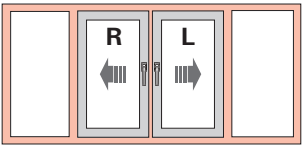
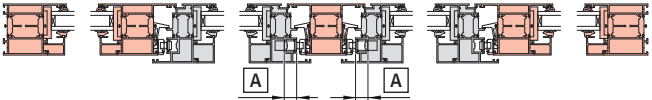
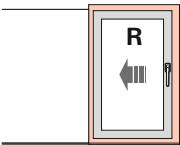
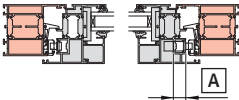
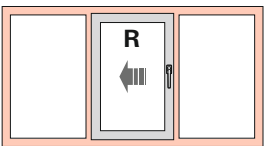
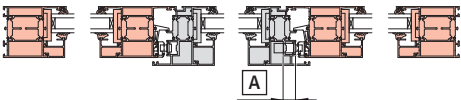
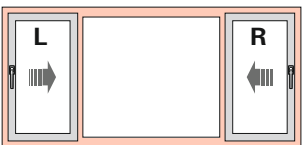
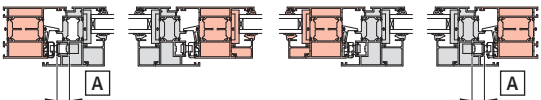
3.5.1 Note regarding the design variants

Combinations for constructing the Patio Alversa are assigned to the following diagrams.

These combinations can be built in DIN L and R.

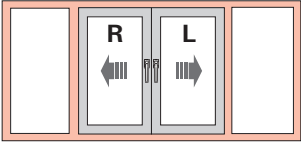
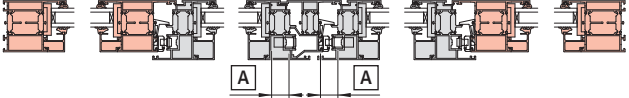
The cross sections show where the espagnolette is installed.

3.5.2 Diagram A

Combinations	Previous description	
 <p>1 sliding sash (L or R) 1 fixed glazing element</p>	Diagram A	 <p>[A] = Backset (standard 15 mm)</p>
 <p>2 sliding sashes (L and R) with centre post 2 fixed glazing elements</p>	Diagram C	 <p>[A] = Backset (standard 15 mm)</p>
 <p>1 sliding sash (L or R) 1 frame, internal, flush with the wall</p>	Diagram B	 <p>[A] = Backset (standard 15 mm)</p>
 <p>1 sliding sash (L or R) 2 fixed glazing elements</p>	Diagram G	 <p>[A] = Backset (standard 15 mm)</p>
 <p>2 sliding sashes (L and R) 1 fixed glazing element</p>	Diagram K	 <p>[A] = Backset (standard 15 mm)</p>

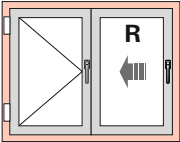
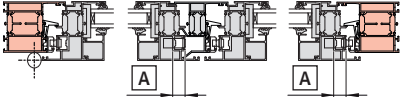


3.5.3 Diagram C

Combinations	Further description
 <p>2 sliding sashes (L and R) without centre post 2 fixed glazing elements</p>	<p>Diagram C</p>  <p>[A] = Backset</p>

3.5.4 Diagram D



Combinations	Previous description	
 <p>1 sliding sash (L or R) 1 Turn-Only sash (L or R) Bottom guide block, movable → 9.7.4.1 "Bottom guide block, movable" from page 151</p>	<p>Diagram D</p>	



INFO
Turn-Only sash (diagram D) can be opened for cleaning and maintenance work.

3.6 Variant overview

3.6.1 Notes on the variant overview

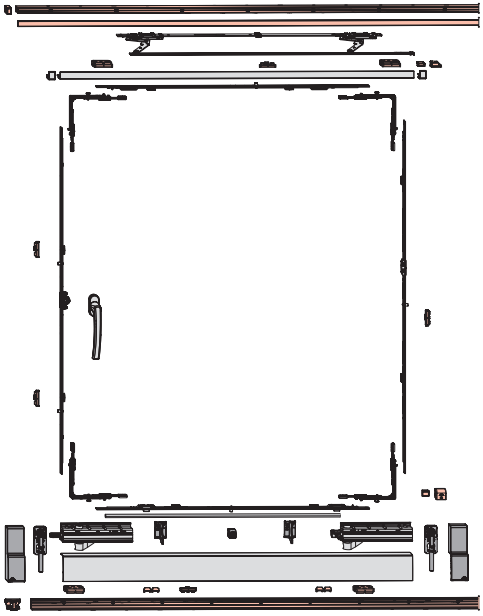
The following overviews list the components for each Patio Alversa variant.
The components for each variant are identical to the previously illustrated variant unless otherwise indicated; only additional components or those that are not present are listed again.



INFO
For more detailed information on assembling hardware, see the hardware overview chapter.

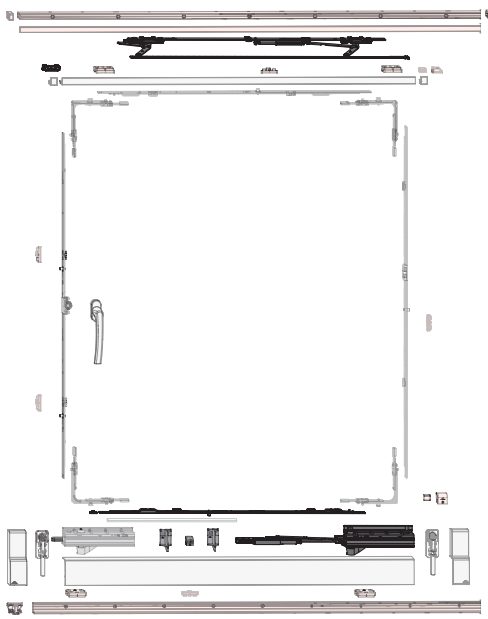


3.6.2 Roto Patio Alversa | KS

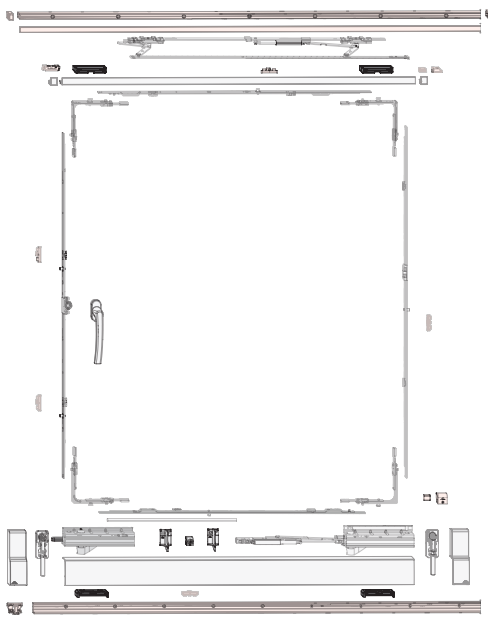
Example hardware overview	Quantity	Component	See page
	4	Corner drives	→ from page 99
	1	T&T espagnolette	→ from page 101
	1	Centre lock, vertical	→ from page 102
	1	Centre lock, horizontal, with bullet catch; bottom	→ from page 102
	1	Centre lock, horizontal; top	→ from page 102
	1	Handle	→ from page 104
	1	Bogies, Tilt&Slide	→ from page 108
	2	Reinforcement parts	→ from page 108
	1-2	Supporting pieces	→ from page 117
	1	Connecting rod	→ from page 118
	1	Support block	→ from page 118
	1	Retaining track	→ from page 94
	...	Strikers (depending on the size of the sash and resistance class)	→ from page 123
	1	Guide track	→ from page 132
	2	Guide plates	→ from page 128
	1	Sliding scissor stay, Tilt&Slide	→ from page 138
	1	Roller track	→ from page 141
	2	End caps for retaining track	→ from page 150
	1	Guide block, bottom	→ from page 144
	1	Stop part, bottom	→ from page 155
	1	Stop part, top	→ from page 155
	2	Rubber buffer stop part	→ from page 155
	1	Bogie cover	→ from page 156
	2	Reinforcement part cover caps	→ from page 157
	2	Cover caps on the bogie cover	→ from page 156
	1	Guide track cover profile	→ from page 156
	2	End caps for guide track	→ from page 158



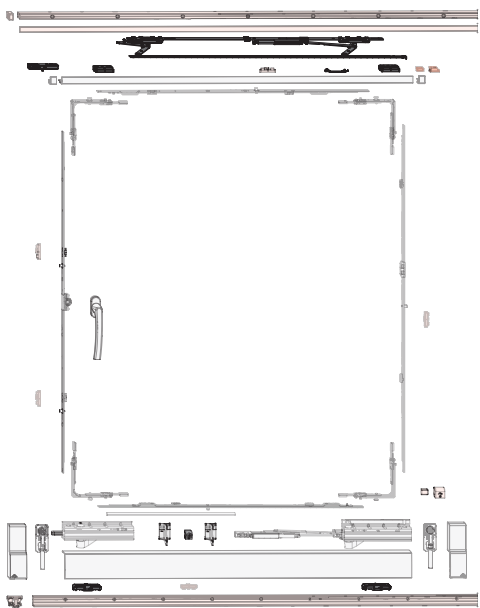
3.6.3 Roto Patio Alversa | PS without night ventilation

Example hardware overview	Quantity	Component	See page	
	1	Travel restrictor	Accessory	→ from page 100
	1	Centre lock, horizontal; bottom	Spare	→ from page 102
	1	Sliding scissor stay, Parallel Sliding, night ventilation	Spare	→ from page 138
	1	Bogies, Parallel Sliding	Spare	→ from page 108
	1	Top guide block, fixed	Accessory	→ from page 138
	2	Guide plates	Omitted	

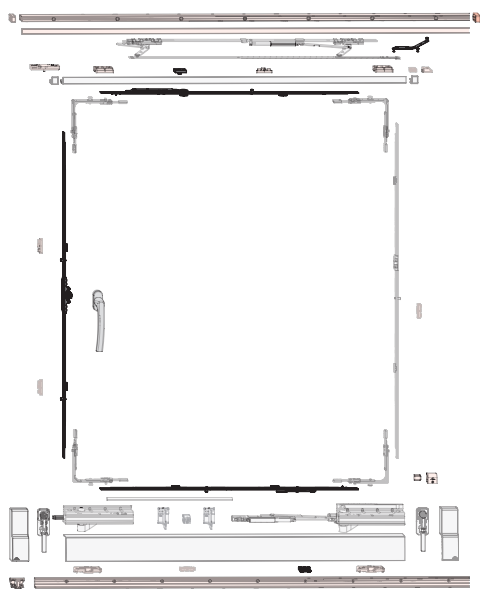
3.6.4 Roto Patio Alversa | PS with night ventilation

Example hardware overview	Quantity	Component	See page	
	...	Night ventilation strikers (depending on the size of the sash and resistance class)	Spare	→ from page 123
	1	Travel restrictor	Omitted	

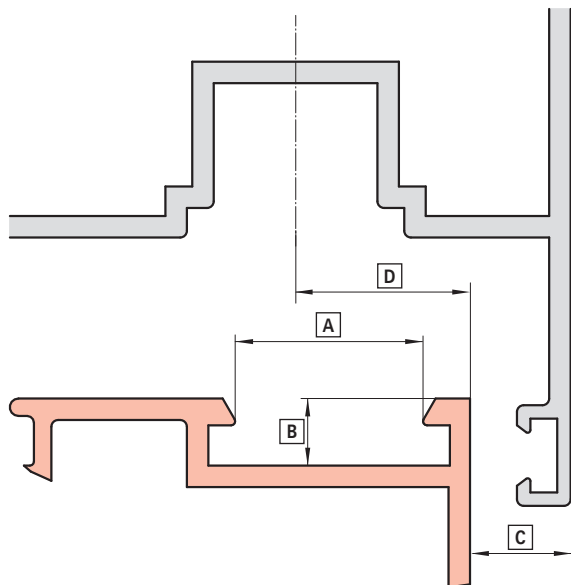
3.6.5 Roto Patio Alversa | PS Air

Example hardware overview	Quantity	Component		See page
	...	Strikers (depending on the sash size and resistance class)	Spare	→ from page 123
	2	Tilt strikers	Spare	→ from page 123
	1	Top guide block, tiltable	Spare	→ from page 138
	1	Sliding scissor stay, Parallel Sliding, tilt ventilation	Spare	→ from page 138
	1	Retrofit set for the lock-in position (from dimension M > 44 mm)	Accessory	→ from page 136
	...	Night ventilation strikers	Omitted	

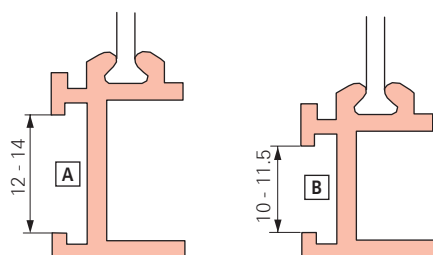
3.6.6 Roto Patio Alversa | PS Air Com

Example hardware overview	Quantity	Component		See page
	1	T&T espagnolette, reinforced	Spare	→ from page 101
	1	Centre lock, horizontal, with comfort scissor stay; top	Spare	→ from page 102
	1	Comfort scissor stay frame component	Accessory	→ from page 129
	1	Centre lock, horizontal, with mishandling device; bottom	Spare	→ from page 102
	1	Mishandling device frame component	Accessory	→ from page 129
	1	Retrofit set for tilt assistance (from S.kg > 140 kg)	Spare	→ from page 136
	1	Retrofit set for lock-in position	Omitted	

3.7 Definition of profile terms



- [A] Groove width
- [B] Groove depth
- [C] Overlap height
- [D] Axis dimension



- [A] Groove version V.01
- [B] Groove version V.02



INFO

When ordering profile-specific frame components, the designations V.01 and V.02 must be noted. With groove versions from 11.6 mm to 11.9 mm, the profile and the components on the frame must undergo testing in real-life conditions.

4 Hardware overviews

The hardware overviews on the following pages are a recommendation on the part of Roto Frank AG.

The basic page layout in the hardware overviews chapter firstly shows examples of the combination of individual hardware components, and the associated parts list can be seen on the following pages.

The item numbers in the squares link the hardware overview to the parts list.

The actual composition of the hardware depends on:

- The height of the element
- The width of the element
- The weight of the element
- Security grade
- Profile system
- Variation



INFO Security grades

- Basic security (BSec) and security grade 1 (RC 1 N) are jointly mapped out in a single hardware overview. For a BSec hardware set, replace all security strikers with standard strikers.
- The RC 1 N, RC 2 and RC 2 N security grades refer to the entire system.
- The hardware combinations shown in the hardware overviews are recommendations.
- The hardware complies with the corresponding security grades in the required system tests.
- However, the security grades are only complied with if all of the other components in the system (e.g. profile system, reinforcement, glass, etc.) are also designed for this.
- Steel security strike plates must generally be used in systems with a 9 mm hardware axis.



INFO Variations

- The hardware overviews in diagram C only show the second opening sash in full. The full hardware overview of the cropped, first opening sash can be found in diagram A.

Profile-related frame components and general sets are listed in additional chapters.

Recommended handles can be found in the handles catalogue.

Determine the required quantity of essential hardware components with Roto Con Orders.



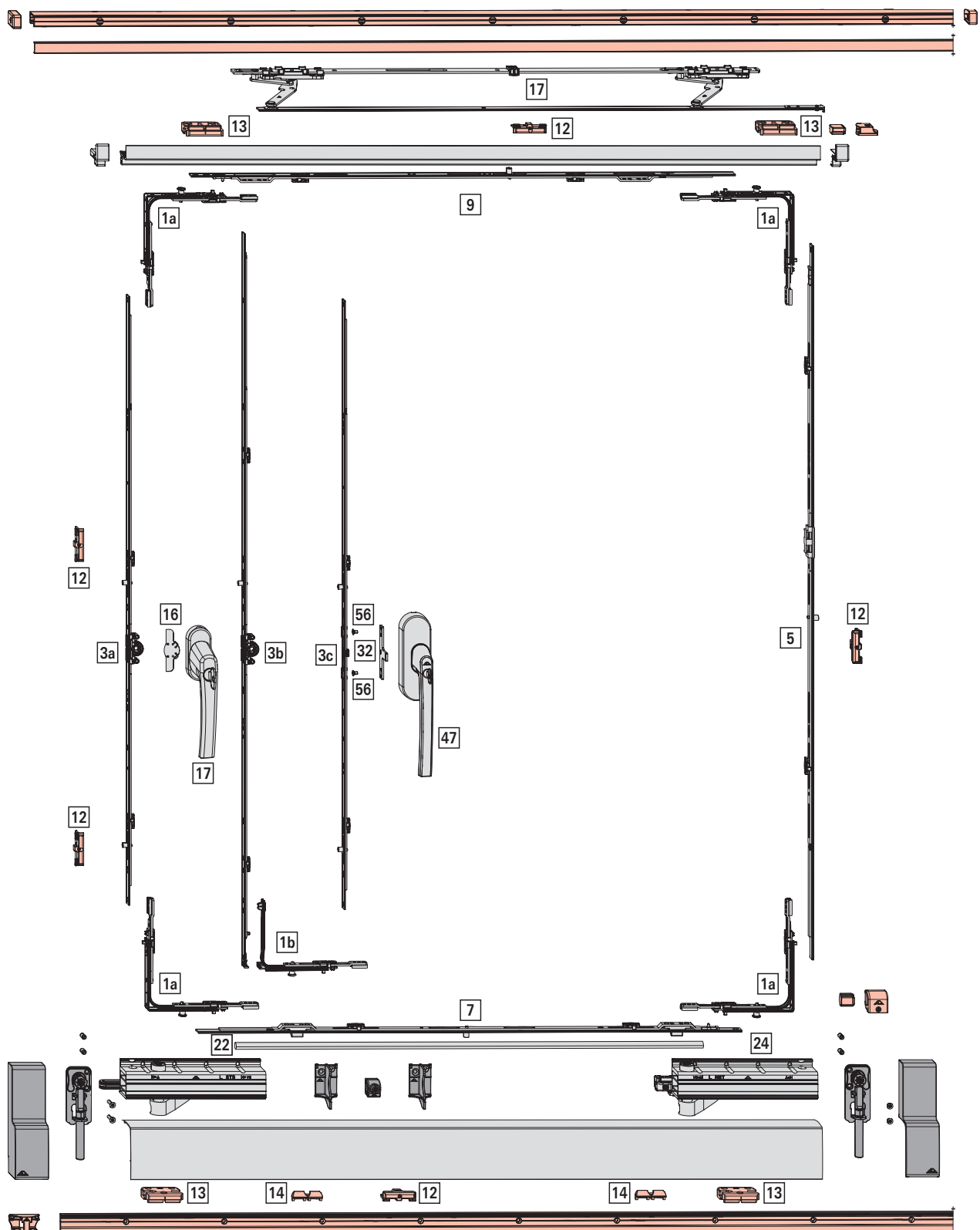
INFO Roto Con Orders

Efficient online hardware configurator for the custom configuration of individual window and door hardware components. All conventional shapes and opening types can be automatically configured quickly and easily. Individual parts lists, including application ranges and an exemplary hardware overview, can be ordered from your responsible sales representative.

www.ROTO-frank.com



KS – BSec / RC 1 N	
Diagram A – T&T espagnolette	43
KS – RC 2 and RC 2 N	
Diagram A – T&T espagnolette	47
PS without night ventilation – BSec / RC 1 N	
Diagram A – T&T espagnolette	51
PS without night ventilation – RC 2 and RC 2 N	
Diagram A – T&T espagnolette	53
PS with night ventilation – BSec / RC 1 N	
Diagram A – T&T espagnolette	55
PS with night ventilation – RC 2 and RC 2 N	
Diagram A – T&T espagnolette	57
PS Air – BSec / RC 1 N	
Diagram A – T&T espagnolette	59
PS Air – RC 2 and RC 2 N	
Diagram A – T&T espagnolette	61
PS Air Com – BSec / RC 1 N	
Diagram A – T&T espagnolette	63
PS Air Com – RC 2 and RC 2 N	
Diagram A – T&T espagnolette	67



Shown: up to 160 kg; RC 1 N; SRW 1450; SRH 1300; T&T espagnolette, centred / variable handle height (a) or T&T espagnolette, fixed handle height (b) and T&T espagnolette custom solution (3c)
Roto Patio Alversa - Aluminium with 16mm



Application range

Sash width **SW** 600 – 1650 mmSash height **SH** 600 – 2350 mmSash weight **S.kg** max. 100 kg / 160 kg**[1a] Corner drive, standard**

Cam	Material no.
1V	260272

**[1b] Corner drive, Tilt&Turn
(for T&T espagnolette, fixed handle height)**

Cam	Material no.
1V	260288

[3a] T&T espagnolette, centred / variable handle height, backset 15

SRH	Handle height	Length	Cam	Material no.
600 – 620	225 – 310	400	–	259718
621 – 800	311 – 400	580	1E	259719
801 – 1200	401 – 600	980	1E	259720
1201 – 1600	601 – 800	1380	2E	259721
1601 – 2000	801 – 1000	1780	2E	795389
2001 – 2400	1001 – 1200	2180	4E	795392
2401 – 2700	1201 – 1350	2180	4E	795392
2x centre lock, multipart		200	1E	+ 450821

[3b] T&T espagnolette, fixed handle height, backset 15

SRH	Handle height	Length	Cam	Material no.
600 – 800	263	690	–	259833
801 – 1000	413	890	1E	259836
1001 – 1200	513	1090	1E	259838
1201 – 1400	563	1290	1E	259840
1401 – 1600	563	1490	2E	259843
1601 – 1800	563	1690	2E	259846
1601 – 1800	1000	1690	2E	794035
1801 – 2000	1000	1890	2E	794036
2001 – 2200	1000	2090	3E	794038
2201 – 2400	1000	2290	3E	794040
2401 – 2600	1000	2290	3E	794040
Centre lock, multipart		200	1E	+ 450821
2601 – 2700	1000	2290	3E	794040
Centre lock, multipart		400	1E	+ 280346

[16] Drilling protection**

Material no.
770965

[17] Handle, lockable → CTL_1****[3c] T&T espagnolette, centred / variable handle height, custom solution**

SRH	Handle height	Length	Cam	Material no.
801 – 1200	401 – 600	980	1E	778275
1201 – 1600	601 – 800	1380	2E	774288
1601 – 2000	801 – 1000	1780	2E	774289
2001 – 2400	1001 – 1200	2180	4E	774290
2401 – 2700	1201 – 1350	2180	4E	774290
2x centre lock, multipart		200	1E	+ 450821

Roto Line Alversa geared-handle set*

Pos.	Colour	PU	Material no.
200 geared-handle	Natural silver	R01.1	1 775936
	Medium bronze	R05.3	1 775937
	Dark bronze	R05.4	1 775938
	Bronze	R05.5	1 775939
	Traffic white	R07.2	1 775940
	Cream	R07.3	1 775942

The Roto Line Alversa geared-handle set comprises:

Quantity

[47]	Alversa 200 geared-handle	1
[32]	T connector	1
[56]	Countersunk screws M5x12	2

T connector, aluminium NT

Material no.

796152**[5] Centre lock, vertical**

SRH	Length	Cam	Material no.
600 – 800	590	–	774165
801 – 1000	790	1E	774174
1001 – 1200	990	1E	774175
1201 – 1400	1190	1E	774176
1401 – 1600	1390	2E	774177
1601 – 1800	1590	2E	774178
1801 – 2000	1790	2E	774179
2001 – 2200	1990	3E	774180
2201 – 2400	2190	3E	774181
2401 – 2600	2190	3E	774181
Centre lock, multipart	200	1E	+ 450821
2601 – 2700	2190	3E	774181
Centre lock, multipart	400	1E	+ 280346

[7] Centre lock, horizontal, with bullet catch

SRW	Length	Cam	DIN	Material no.
600 – 800	590	–	Left	772801
			Right	786296
801 – 1000	790	1E	Left	772802
			Right	786297
1001 – 1200	990	1E	Left	772803
			Right	786298
1201 – 1400	1190	1E	Left	772804
			Right	786299
1401 – 1650	1440	1E	Left	772875
			Right	786300

[9] Centre lock, horizontal

SRW	Length	Cam	Material no.
600 – 800	590	–	603442
801 – 1000	790	1E	603444
1001 – 1200	990	1E	603447
1201 – 1400	1190	1E	603462
1401 – 1650	1490	1E	603466

[12] Striker, standard → Page 72**[13] Striker, security → Page 73****[17] Sliding scissor stay set, Tilt&Slide**

SRW	Damping	Material no.
600 – 900	No	810456
901 – 1250	No	810457
1251 – 1650	No	810458

* The total of the axis dimension and overlap height must be ≥ 25 mm. For dimensions of 15 - 25 mm, order the T connector, aluminium NT, and discard the T connector from the Roto Line Alversa geared-handle set.

** Mandatory for RC 1 N.

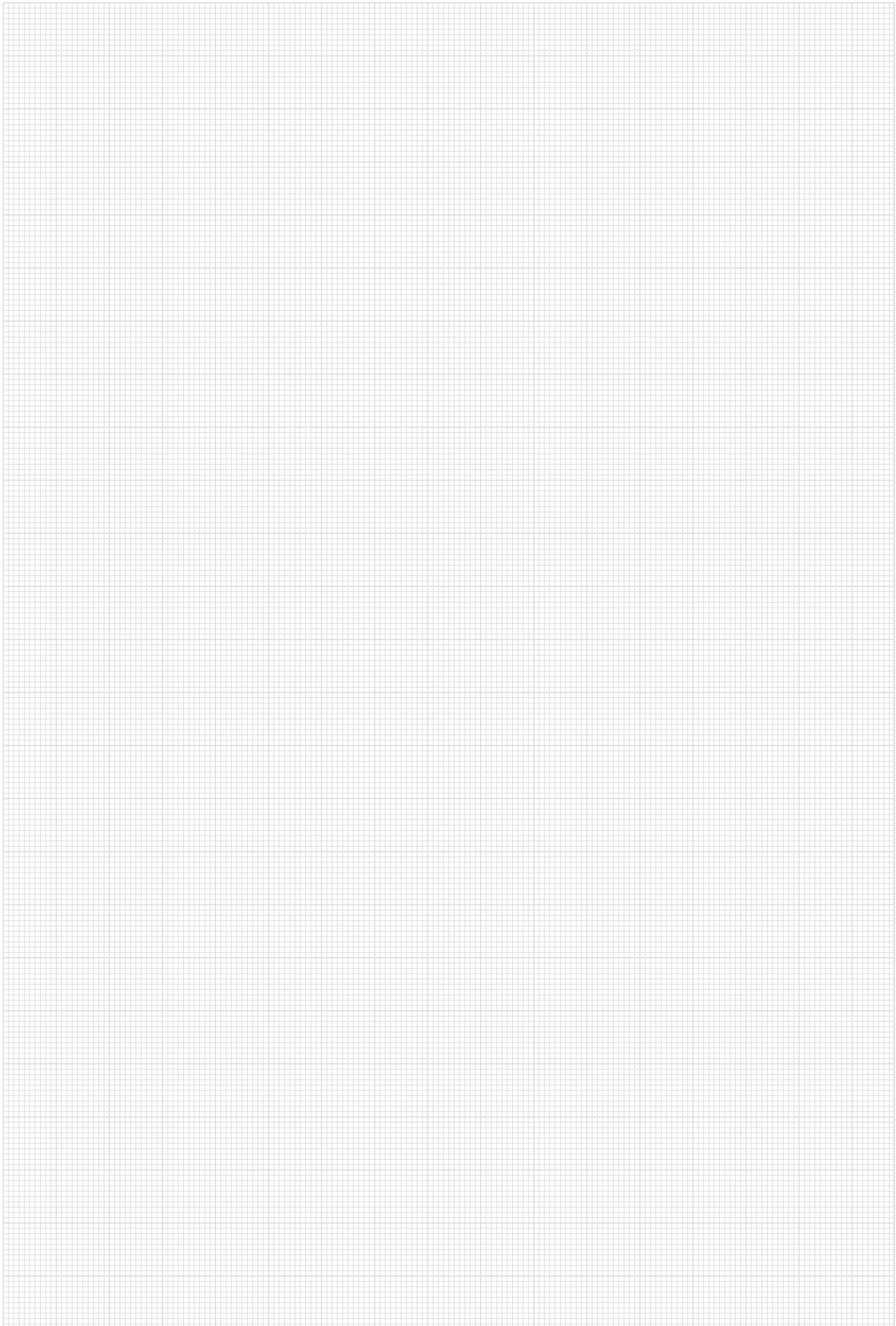
Bogie set, Tilt&Slide					
Pos.	Weight	Damping	DIN	PU	Material no.
Bogies	Up to 160 kg	No	Left	1	799896
			Right	1	799897

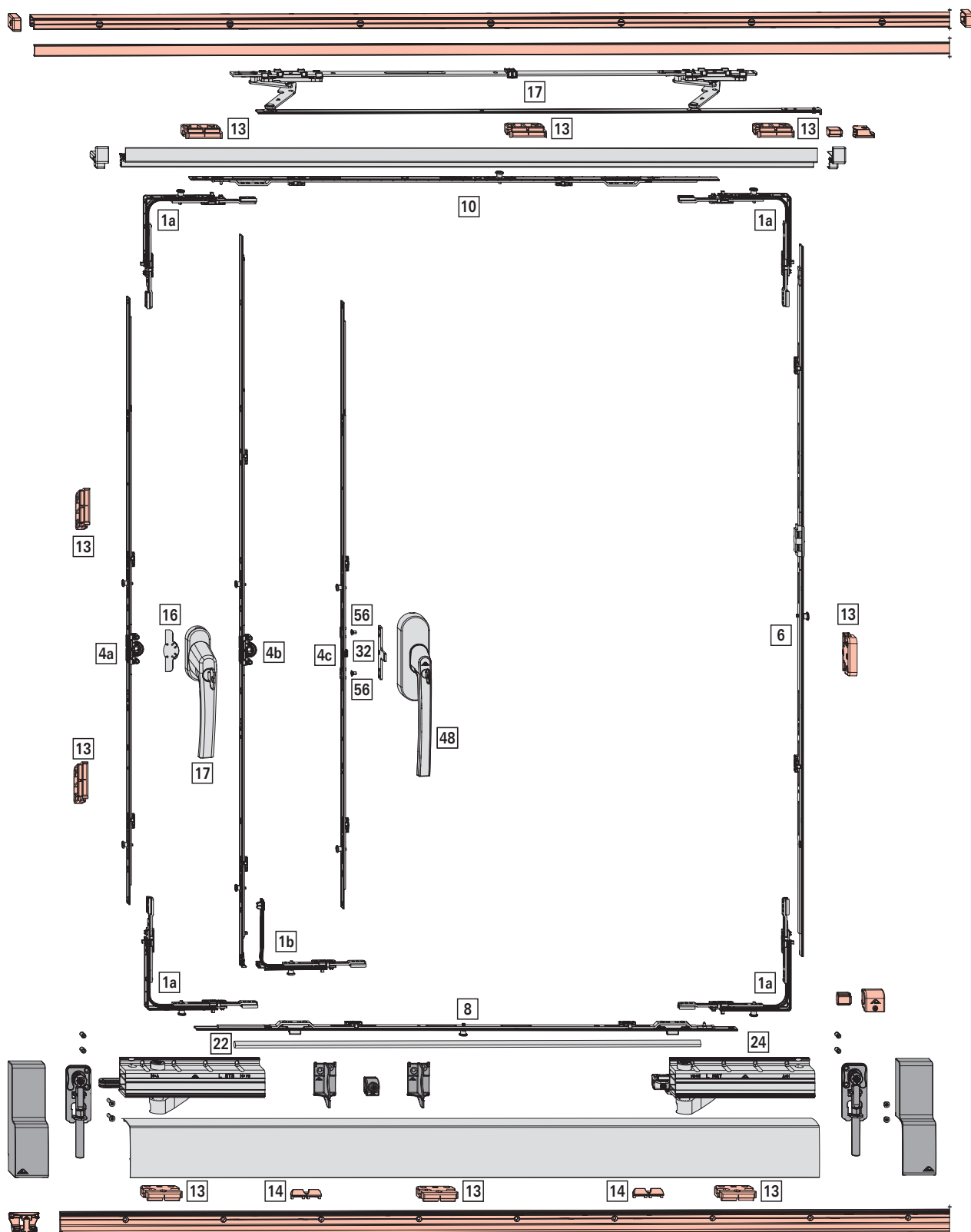
The bogie set, Tilt&Slide, comprises:				Quantity
[22]	Leading bogie			1
[24]	Trailing bogie			1
Not sh.	Countersunk tapping screws ST4.8x50			8

[14] Guide plate → Page 75

Track set → Page 68

Reinforcement part set > 100 kg → Page 67





Shown: up to 160 kg; RC 2; SRW 1450; SRH 1300 T&T espagnolette, centred / variable handle height (a) or T&T espagnolette, fixed handle height (b) and T&T espagnolette custom solution (4c)
 Roto Patio Alversa - Aluminium with 16mm hardware groove



Application range

Sash width **SW** 600 – 1650 mmSash height **SH** 600 – 2350 mmSash weight **S.kg** max. 100 kg / 160 kg**[1a] Corner drive, standard**

	Cam	Material no.
	1V	260272

**[1b] Corner drive, Tilt&Turn
(for T&T espagnolette, fixed handle height)**

	Cam	Material no.
	1V	260288

**[4a] T&T espagnolette, centred / variable handle
height, backset 15 – security**

SRH	Handle height	Length	Cam	Material no.
621 – 800	311 – 400	580	1V	355743
801 – 1200	401 – 600	980	1V	355744
1201 – 1600	601 – 800	1380	2V	355745
1601 – 2000	801 – 1000	1780	2V	795390
2001 – 2400	1001 – 1200	2180	4V	795393
2401 – 2700	1201 – 1350	2180	4V	795393
2 x centre lock, multipart		200	1V	+ 337708

**[4b] T&T espagnolette, fixed handle height,
backset 15 – security**

SRH	Handle height	Length	Cam	Material no.
600 – 800	263	690	1V	259832
801 – 1000	413	890	2V	259835
1001 – 1200	513	1090	2V	259837
1201 – 1400	563	1290	2V	259839
1401 – 1600	563	1490	3V	259841
1601 – 1800	563	1690	3V	259844
1601 – 1800	1000	1690	3V	794041
1801 – 2000	1000	1890	3V	794042
2001 – 2200	1000	2090	4V	794043
2201 – 2400	1000	2290	4V	794044
2401 – 2600	1000	2290	3V	794044
Centre lock, multipart		200	1V	+ 337708
2601 – 2700	1000	2290	3V	794044
Centre lock, multipart		400	1V	+ 337710

[16] Drilling protection

	Material no.
	770965

[17] Handle, lockable → CTL_1**[4c] T&T espagnolette, centred / variable handle
height, custom solution – security**

SRH	Handle height	Length	Cam	Material no.
1601 – 2000	801 – 1000	1780	2V	774291
2001 – 2400	1001 – 1200	2180	4V	774292
2401 – 2700	1201 – 1350	2180	4V	774292
2x centre lock, multipart		200	1V	+ 337708

Roto Line Alversa geared-handle set – security*

Pos.	Colour	PU	Material no.
200 geared-handle, lock.	Natural silver	R01.1	1 775943
	Medium bronze	R05.3	1 775944
	Dark bronze	R05.4	1 775945
	Bronze	R05.5	1 775946
	Traffic white	R07.2	1 775947
	Cream	R07.3	1 775948

The Roto Line Alversa geared-handle set comprises:

	Quantity
[48] Alversa 200 geared-handle, lock.	1
[32] T connector	1
[56] Countersunk screws M5x12	2

T connector, aluminium NT

	Material no.
	796152

[6] Centre lock, vertical – security

SRH	Length	Cam	Material no.
600 – 800	590	–	774165
801 – 1000	790	1V	774167
1001 – 1200	990	1V	774168
1201 – 1400	1190	1V	774169
1401 – 1600	1390	2V	774170
1601 – 1800	1590	2V	774171
1801 – 2000	1790	2V	773124
2001 – 2200	1990	3V	774172
2201 – 2400	2190	3V	774173
2401 – 2600	2190	3V	774173
Centre lock, multipart	200	1V	+ 337708
2601 – 2700	2190	3V	774173
Centre lock, multipart	400	1V	+ 337710

**[8] Centre lock, horizontal, with bullet catch –
security**

SRW	Length	Cam	DIN	Material no.
600 – 800	590	–	Left	772801
			Right	786296
801 – 1000	790	1V	Left	772876
			Right	786301
1001 – 1200	990	1V	Left	772877
			Right	786302
1201 – 1400	1190	1V	Left	772878
			Right	786303
1401 – 1650	1440	1V	Left	772879
			Right	786304

[10] Centre lock, horizontal – security

SRW	Length	Cam	Material no.
600 – 800	590	–	603442
801 – 1000	790	1V	603472
1001 – 1200	990	1V	603473
1201 – 1400	1190	1V	603474
1401 – 1650	1490	1V	603475

[13] Striker, security → Page 73**[17] Sliding scissor stay set, Tilt&Slide**

SRW	Damping	Material no.
600 – 900	No	810456
901 – 1250	No	810457
1251 – 1650	No	810458

* The total of the axis dimension and overlap height must be ≥ 25 mm. For dimensions of 15 - 25 mm, order the T connector, aluminium NT, and discard the T connector from the Roto Line Alversa geared-handle set.

Bogie set, Tilt&Slide

Pos.	Weight	Damping	DIN	PU	Material no.
Bogies	Up to 160 kg	No	Left	1	799896
			Right	1	799897

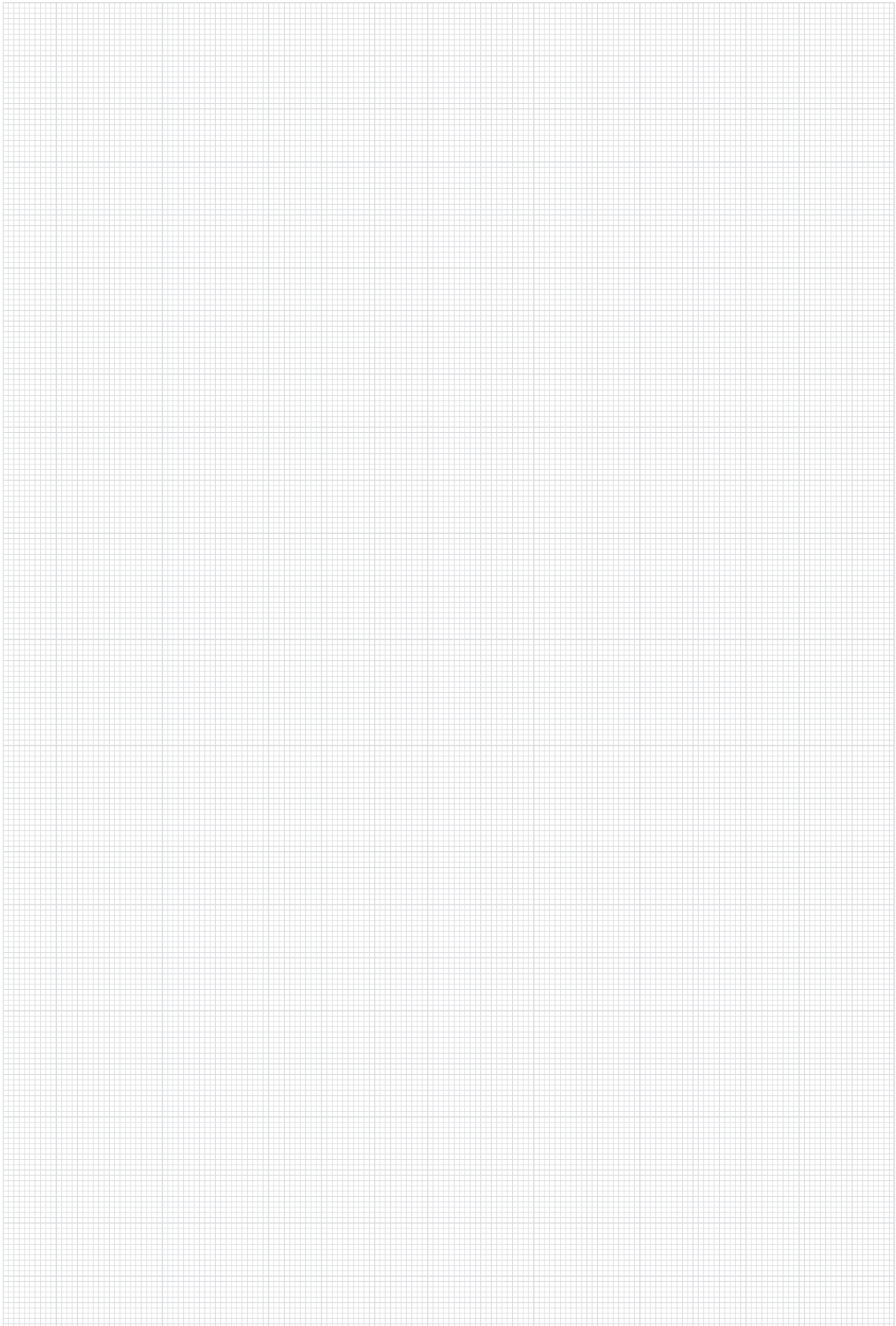
The bogie set, Tilt&Slide, comprises:

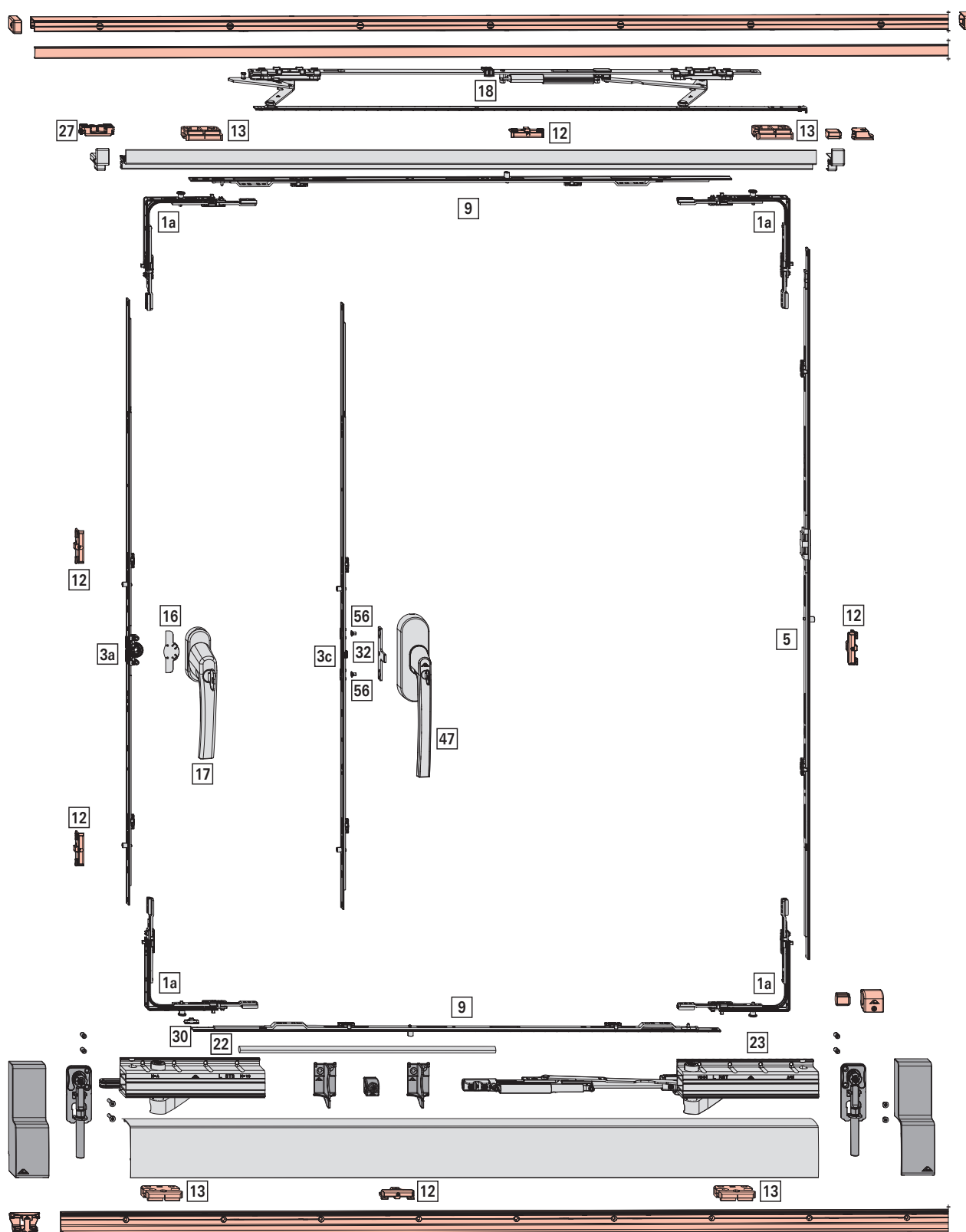
	Quantity
[22] Leading bogie	1
[24] Trailing bogie	1
Not sh. Countersunk tapping screws ST4.8x50	8

[14] Guide plate → *Page 75*

Track set → *Page 68*

Reinforcement part set > 100 kg → *Page 67*





Shown: up to 160 kg; RC 1 N; SRW 1450; SRH 1300; T&T espagnolette, centred / variable handle height (a) and T&T espagnolette custom solution (3c)

Roto Patio Alversa - Aluminium with 16mm hardware groove

Subject to change

**Application range**Sash width **SW** 720 – 2000 mmSash height **SH** 600 – 2700 mmSash weight **S.kg** max. 200 kg**[1a] Corner drive, standard**

	Cam	Material no.
	1V	260272

[30] Travel restrictor

	Material no.
	264603

[3a] T&T espagnolette, centred / variable handle height, backset 15

SRH	Handle height	Length	Cam	Material no.
600 – 620	225 – 310	400	–	259718
621 – 800	311 – 400	580	1E	259719
801 – 1200	401 – 600	980	1E	259720
1201 – 1600	601 – 800	1380	2E	259721
1601 – 2000	801 – 1000	1780	2E	795389
2001 – 2400	1001 – 1200	2180	4E	795392
2401 – 2700	1201 – 1350	2180	4E	795392
2x centre lock, multipart		200	1E	+ 450821

[16] Drilling protection**

	Material no.
	770965

[17] Handle, lockable → CTL_1****[3c] T&T espagnolette, centred / variable handle height, custom solution**

SRH	Handle height	Length	Cam	Material no.
801 – 1200	401 – 600	980	1E	778275
1201 – 1600	601 – 800	1380	2E	774288
1601 – 2000	801 – 1000	1780	2E	774289
2001 – 2400	1001 – 1200	2180	4E	774290
2401 – 2700	1201 – 1350	2180	4E	774290
2x centre lock, multipart		200	1E	+ 450821

Roto Line Alversa geared-handle set*

Pos.		Colour	PU	Material no.
200 geared-handle	Natural silver	R01.1	1	775936
	Medium bronze	R05.3	1	775937
	Dark bronze	R05.4	1	775938
	Bronze	R05.5	1	775939
	Traffic white	R07.2	1	775940
	Cream	R07.3	1	775942

The Roto Line Alversa geared-handle set comprises:

	Quantity
[47] Alversa 200 geared-handle	1
[32] T connector	1
[56] Countersunk screws M5x12	2

T connector, aluminium NT

	Material no.
	796152

[5] Centre lock, vertical

SRH	Length	Cam	Material no.
600 – 800	590	–	774165
801 – 1000	790	1E	774174
1001 – 1200	990	1E	774175
1201 – 1400	1190	1E	774176
1401 – 1600	1390	2E	774177
1601 – 1800	1590	2E	774178
1801 – 2000	1790	2E	774179

[5] Centre lock, vertical

SRH	Length	Cam	Material no.
2001 – 2200	1990	3E	774180
2201 – 2400	2190	3E	774181
2401 – 2600	2190	3E	774181
Centre lock, multipart	200	1E	+ 450821
2601 – 2700	2190	3E	774181
Centre lock, multipart	400	1E	+ 280346

[9] Centre lock, horizontal

SRW	Length	Cam	Material no.
600 – 800	590	–	603442
801 – 1000	790	1E	603444
1001 – 1200	990	1E	603447
1201 – 1400	1190	1E	603462
1401 – 1650	1490	1E	603466
1651 – 1850	1490	1E	603466
Centre lock, multipart	200	1E	+ 450821
1851 – 2000	1490	1E	603466
Centre lock, multipart	400	1E	+ 280346

[12] Striker, standard → Page 72**[13] Striker, security → Page 73****Parallel Sliding sliding scissor stay set, night ventilation**

Pos.	SRW	Damping	DIN	PU	Material no.
	720 – 900	Yes	Left	1	772220
			Right	1	772225
	901 – 1250	Yes	Left	1	772221
			Right	1	772226
	1251 – 1650	Yes	Left	1	772222
			Right	1	772227
	1651 – 2000	Yes	Left	1	772223
			Right	1	772228

The Parallel Sliding sliding scissor stay set, night ventilation comprises:

	Quantity
[18] Sliding scissor stay, Parallel Sliding	1
[27] Top guide block, fixed	1

Bogie set, Parallel Sliding

Pos.	Weight	Damping	DIN	PU	Material no.
Bogies					
Bogies	Up to 160 kg	Yes	Left	1	799898
			Right	1	799900

The Parallel Sliding bogie set comprises:

	Quantity
[22] Leading bogie	1
[23] Trailing bogie	1
Not sh. Countersunk tapping screws ST4.8x50	8

Tandem bogies

Tandem bogies	Up to 200 kg	Yes	Left	1	799901
			Right	1	799902

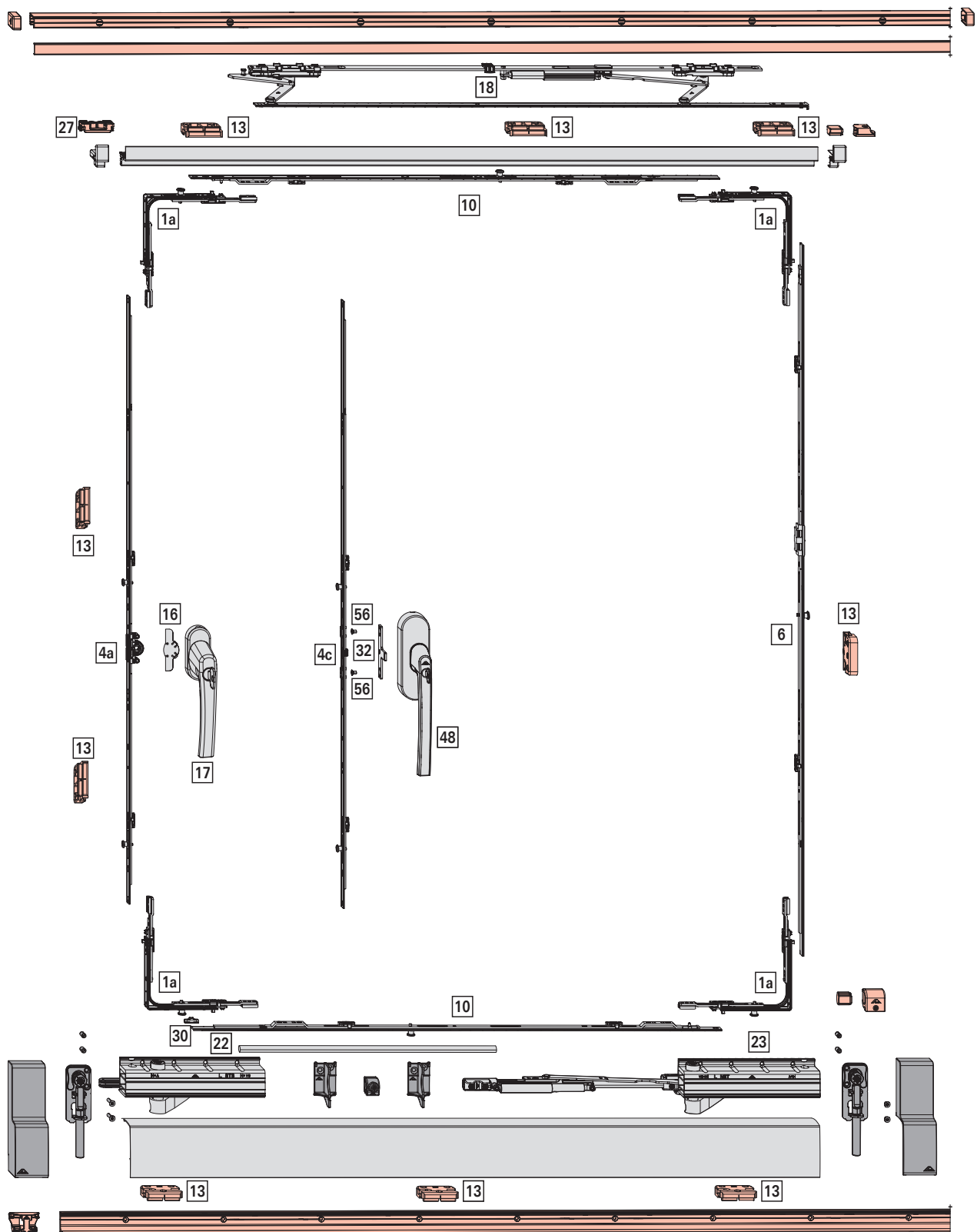
The Parallel Sliding tandem bogie set comprises:

	Quantity
Not sh. Leading tandem bogie	1
Not sh. Trailing tandem bogie	1
Not sh. Countersunk tapping screws ST4.8x50	16

Track set → Page 68**Reinforcement part set → Page 67**

* The total of the axis dimension and overlap height must be ≥ 25 mm. For dimensions of 15 - 25 mm, order the T connector, aluminium NT, and discard the T connector from the Roto Line Alversa geared-handle set.

** Mandatory for RC 1 N.



Shown: up to 160 kg; RC 2; SRW 1450; SRH 1300 T&T espagnolette, centred / variable handle height (a) and T&T espagnolette custom solution (4c)

Roto Patio Alversa - Aluminium with 16mm hardware groove

Subject to change

**Application range**Sash width **SW** 720 – 2000 mmSash height **SH** 600 – 2700 mmSash weight **S.kg** max. 200 kg**[1a] Corner drive, standard**

Cam	Material no.
1V	260272

[30] Travel restrictor

Material no.
264603

[4a] T&T espagnolette, centred / variable handle height, backset 15 – security

SRH	Handle height	Length	Cam	Material no.
621 – 800	311 – 400	580	1V	355743
801 – 1200	401 – 600	980	1V	355744
1201 – 1600	601 – 800	1380	2V	355745
1601 – 2000	801 – 1000	1780	2V	795390
2001 – 2400	1001 – 1200	2180	4V	795393
2401 – 2700	1201 – 1350	2180	4V	795393
2 x centre lock, multipart		200	1V	+ 337708

[16] Drilling protection

Material no.
770965

[17] Handle, lockable → CTL_1**[4c] T&T espagnolette, centred / variable handle height, custom solution – security**

SRH	Handle height	Length	Cam	Material no.
1601 – 2000	801 – 1000	1780	2V	774291
2001 – 2400	1001 – 1200	2180	4V	774292
2401 – 2700	1201 – 1350	2180	4V	774292
2x centre lock, multipart		200	1V	+ 337708

Roto Line Alversa geared-handle set – security*

Pos.	Colour	PU	Material no.
200 geared-handle, lock.	Natural silver	R01.1	1 775943
	Medium bronze	R05.3	1 775944
	Dark bronze	R05.4	1 775945
	Bronze	R05.5	1 775946
	Traffic white	R07.2	1 775947
	Cream	R07.3	1 775948

The Roto Line Alversa geared-handle set comprises: Quantity

[48]	Alversa 200 geared-handle, lock.	1
[32]	T connector	1
[56]	Countersunk screws M5x12	2

T connector, aluminium NT

Material no.
796152

[6] Centre lock, vertical – security

SRH	Length	Cam	Material no.
600 – 800	590	–	774165
801 – 1000	790	1V	774167
1001 – 1200	990	1V	774168
1201 – 1400	1190	1V	774169
1401 – 1600	1390	2V	774170
1601 – 1800	1590	2V	774171
1801 – 2000	1790	2V	773124
2001 – 2200	1990	3V	774172
2201 – 2400	2190	3V	774173

[6] Centre lock, vertical – security

SRH	Length	Cam	Material no.
2401 – 2600	2190	3V	774173
Centre lock, multipart	200	1V	+ 337708
2601 – 2700	2190	3V	774173
Centre lock, multipart	400	1V	+ 337710

[10] Centre lock, horizontal – security

SRW	Length	Cam	Material no.
600 – 800	590	–	603442
801 – 1000	790	1V	603472
1001 – 1200	990	1V	603473
1201 – 1400	1190	1V	603474
1401 – 1650	1490	1V	603475
1651 – 1850	1490	1V	603475
Centre lock, multipart	200	1V	+ 337708
1851 – 2000	1490	1V	603475
Centre lock, multipart	400	1V	+ 337710

[13] Striker, security → Page 73**Parallel Sliding sliding scissor stay set, night ventilation**

Pos.	SRW	Damping	DIN	PU	Material no.
	720 – 900	Yes	Left	1	772220
			Right	1	772225
	901 – 1250	Yes	Left	1	772221
			Right	1	772226
	1251 – 1650	Yes	Left	1	772222
			Right	1	772227
	1651 – 2000	Yes	Left	1	772223
			Right	1	772228

The Parallel Sliding sliding scissor stay set, night ventilation comprises: Quantity

[18]	Sliding scissor stay, Parallel Sliding	1
[27]	Top guide block, fixed	1

Bogie set, Parallel Sliding

Pos.	Weight	Damping	DIN	PU	Material no.
Bogies	Up to 160 kg	Yes	Left	1	799898
			Right	1	799900

The Parallel Sliding bogie set comprises: Quantity

[22]	Leading bogie	1
[23]	Trailing bogie	1
Not sh.	Countersunk tapping screws ST4.8x50	8

Tandem bogies

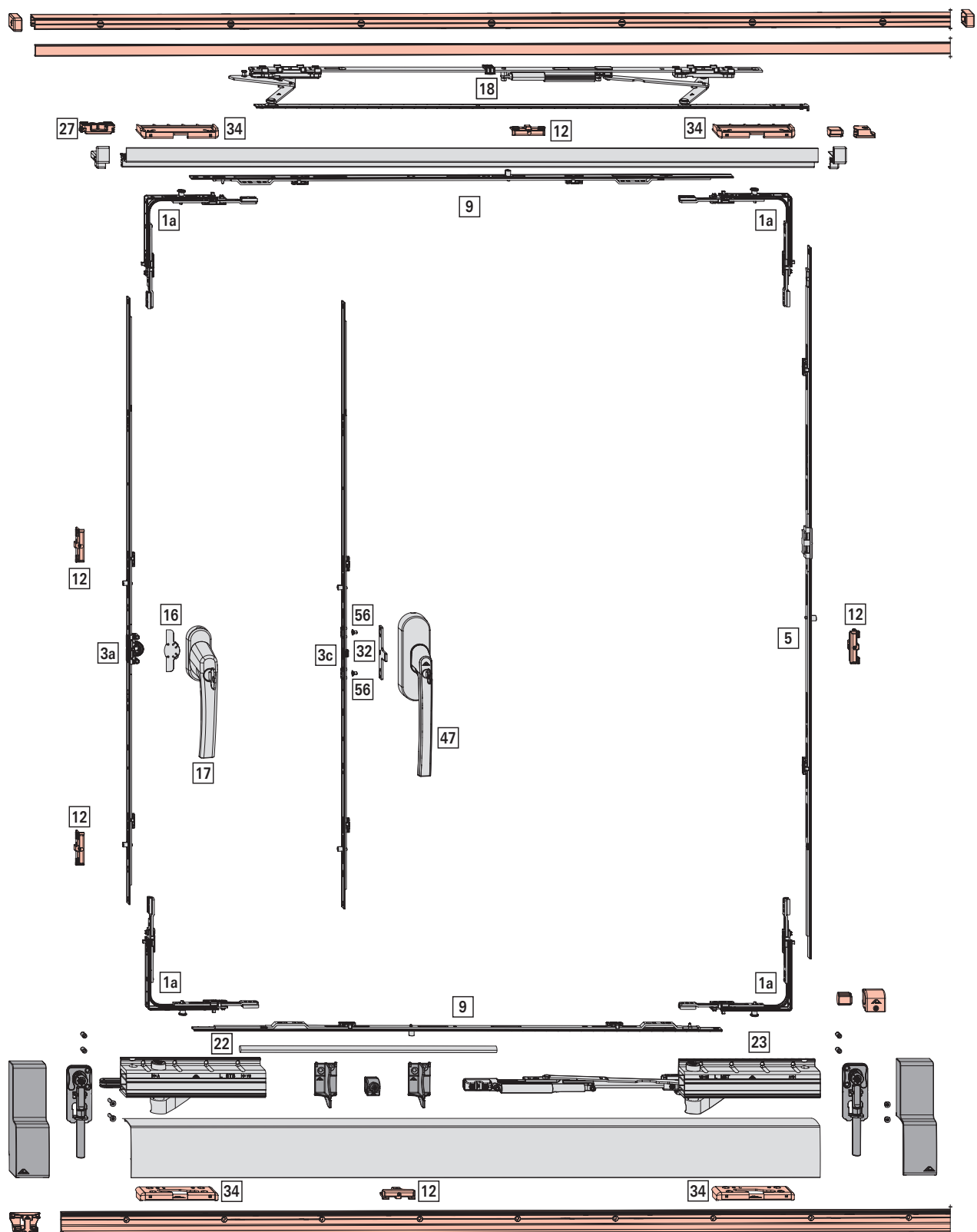
Tandem bogies	Up to 200 kg	Yes	Left	1	799901
			Right	1	799902

The Parallel Sliding tandem bogie set comprises: Quantity

Not sh.	Leading tandem bogie	1
Not sh.	Trailing tandem bogie	1
Not sh.	Countersunk tapping screws ST4.8x50	16

Track set → Page 68**Reinforcement part set → Page 67**

* The total of the axis dimension and overlap height must be ≥ 25 mm. For dimensions of 15 - 25 mm, order the T connector, aluminium NT, and discard the T connector from the Roto Line Alversa geared-handle set.



Shown: up to 160 kg; RC 1 N; SRW 1450; SRH 1300; T&T espagnolette, centred / variable handle height (a) and T&T espagnolette custom solution (3c)

Roto Patio Alversa - Aluminium with 16mm hardware groove

Subject to change

**Application range**Sash width **SW** 720 – 2000 mmSash height **SH** 600 – 2700 mmSash weight **S.kg** max. 200 kg**[1a] Corner drive, standard**

	Cam	Material no.
	1V	260272

[3a] T&T espagnolette, centred / variable handle height, backset 15

SRH	Handle height	Length	Cam	Material no.
600 – 620	225 – 310	400	–	259718
621 – 800	311 – 400	580	1E	259719
801 – 1200	401 – 600	980	1E	259720
1201 – 1600	601 – 800	1380	2E	259721
1601 – 2000	801 – 1000	1780	2E	795389
2001 – 2400	1001 – 1200	2180	4E	795392
2401 – 2700	1201 – 1350	2180	4E	795392
2x centre lock, multipart		200	1E	+ 450821

[16] Drilling protection**

	Material no.
	770965

[17] Handle, lockable → CTL_1****[3c] T&T espagnolette, centred / variable handle height, custom solution**

SRH	Handle height	Length	Cam	Material no.
801 – 1200	401 – 600	980	1E	778275
1201 – 1600	601 – 800	1380	2E	774288
1601 – 2000	801 – 1000	1780	2E	774289
2001 – 2400	1001 – 1200	2180	4E	774290
2401 – 2700	1201 – 1350	2180	4E	774290
2x centre lock, multipart		200	1E	+ 450821

Roto Line Alversa geared-handle set*

Pos.		Colour	PU	Material no.
200 geared-handle	Natural silver	R01.1	1	775936
	Medium bronze	R05.3	1	775937
	Dark bronze	R05.4	1	775938
	Bronze	R05.5	1	775939
	Traffic white	R07.2	1	775940
	Cream	R07.3	1	775942

The Roto Line Alversa geared-handle set comprises:

	Quantity
[47] Alversa 200 geared-handle	1
[32] T connector	1
[56] Countersunk screws M5x12	2

T connector, aluminium NT

	Material no.
	796152

[5] Centre lock, vertical

SRH	Length	Cam	Material no.
600 – 800	590	–	774165
801 – 1000	790	1E	774174
1001 – 1200	990	1E	774175
1201 – 1400	1190	1E	774176
1401 – 1600	1390	2E	774177
1601 – 1800	1590	2E	774178
1801 – 2000	1790	2E	774179
2001 – 2200	1990	3E	774180
2201 – 2400	2190	3E	774181
2401 – 2600	2190	3E	774181

[5] Centre lock, vertical

SRH	Length	Cam	Material no.
Centre lock, multipart	200	1E	+ 450821
2601 – 2700	2190	3E	774181
Centre lock, multipart	400	1E	+ 280346

[9] Centre lock, horizontal

SRW	Length	Cam	Material no.
600 – 800	590	–	603442
801 – 1000	790	1E	603444
1001 – 1200	990	1E	603447
1201 – 1400	1190	1E	603462
1401 – 1650	1490	1E	603466
1651 – 1850	1490	1E	603466
Centre lock, multipart	200	1E	+ 450821
1851 – 2000	1490	1E	603466
Centre lock, multipart	400	1E	+ 280346

[12] Striker, standard → Page 72**[13] Striker, security → Page 73****[34] Night ventilation strikers → Page 73****Parallel Sliding sliding scissor stay set, night ventilation**

Pos.	SRW	Damping	DIN	PU	Material no.
	720 – 900	Yes	Left	1	772220
			Right	1	772225
	901 – 1250	Yes	Left	1	772221
			Right	1	772226
	1251 – 1650	Yes	Left	1	772222
			Right	1	772227
	1651 – 2000	Yes	Left	1	772223
			Right	1	772228

The Parallel Sliding sliding scissor stay set, night ventilation comprises:

	Quantity
[18] Sliding scissor stay, Parallel Sliding	1
[27] Top guide block, fixed	1

Bogie set, Parallel Sliding

Pos.	Weight	Damping	DIN	PU	Material no.
Bogies					
Bogies	Up to 160 kg	Yes	Left	1	799898
			Right	1	799900

The Parallel Sliding bogie set comprises:

	Quantity
[22] Leading bogie	1
[23] Trailing bogie	1
Not sh. Countersunk tapping screws ST4.8x50	8

Tandem bogies

	Weight	Damping	DIN	PU	Material no.
Tandem bogies	Up to 200 kg	Yes	Left	1	799901
			Right	1	799902

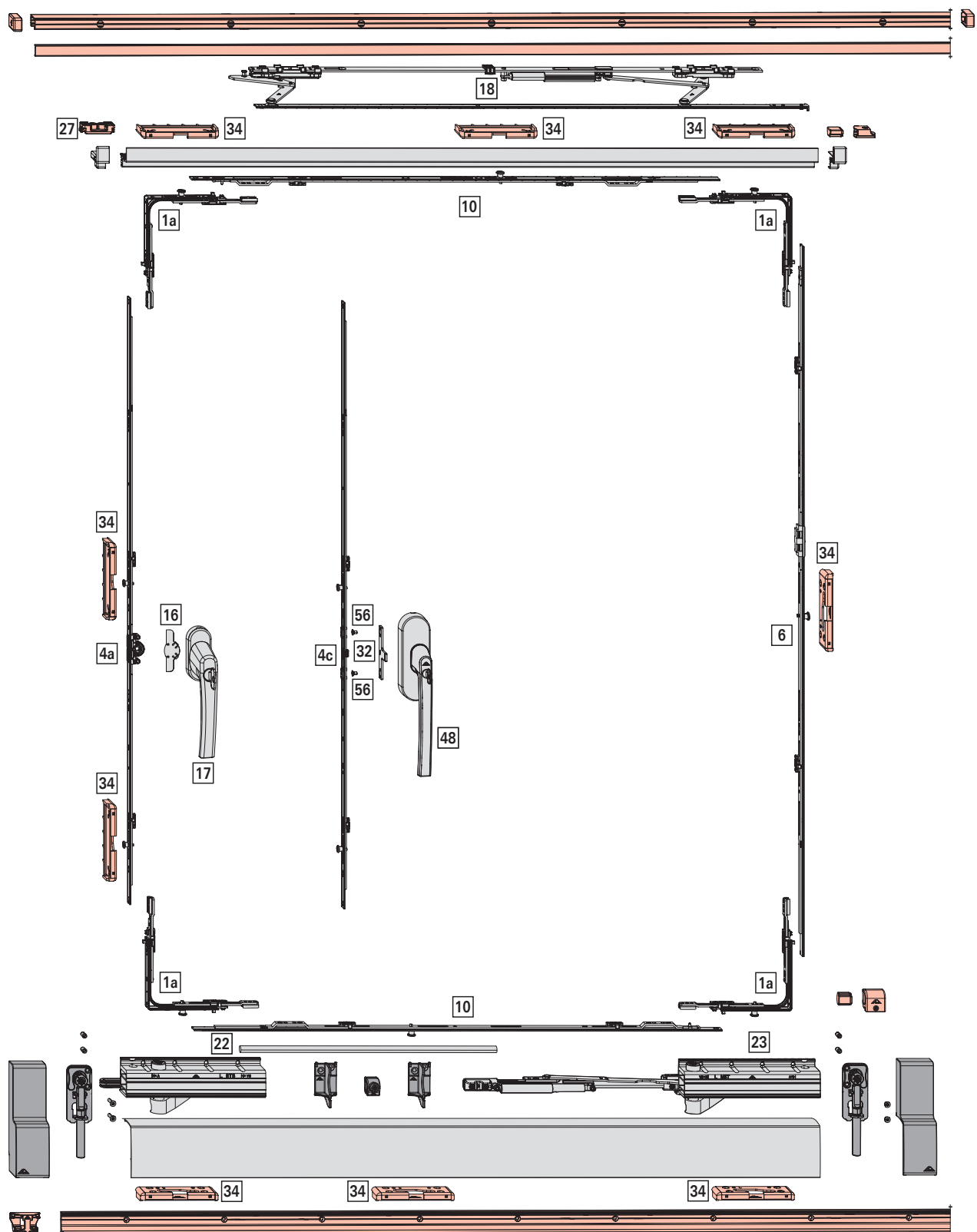
The Parallel Sliding tandem bogie set comprises:

	Quantity
Not sh. Leading tandem bogie	1
Not sh. Trailing tandem bogie	1
Not sh. Countersunk tapping screws ST4.8x50	16

Track set → Page 68**Reinforcement part set → Page 67**

* The total of the axis dimension and overlap height must be ≥ 25 mm. For dimensions of 15 - 25 mm, order the T connector, aluminium NT, and discard the T connector from the Roto Line Alversa geared-handle set.

** Mandatory for RC 1 N.



Shown: up to 160 kg; RC 2; SRW 1450; SRH 1300 T&T espagnolette, centred / variable handle height (a) and T&T espagnolette custom solution (4c) in night ventilation position

Roto Patio Alversa - Aluminium with 16mm hardware groove



Application range

Sash width **SW** 720 – 2000 mmSash height **SH** 600 – 2700 mmSash weight **S.kg** max. 200 kg

[1a] Corner drive, standard

	Cam	Material no.
	1V	260272

[4a] T&T espagnolette, centred / variable handle height, backset 15 – security

SRH	Handle height	Length	Cam	Material no.
621 – 800	311 – 400	580	1V	355743
801 – 1200	401 – 600	980	1V	355744
1201 – 1600	601 – 800	1380	2V	355745
1601 – 2000	801 – 1000	1780	2V	795390
2001 – 2400	1001 – 1200	2180	4V	795393
2401 – 2700	1201 – 1350	2180	4V	795393
2 x centre lock, multipart		200	1V	+ 337708

[16] Drilling protection

	Material no.
	770965

[17] Handle, lockable → CTL_1

[4c] T&T espagnolette, centred / variable handle height, custom solution – security

SRH	Handle height	Length	Cam	Material no.
1601 – 2000	801 – 1000	1780	2V	774291
2001 – 2400	1001 – 1200	2180	4V	774292
2401 – 2700	1201 – 1350	2180	4V	774292
2x centre lock, multipart		200	1V	+ 337708

Roto Line Alversa geared-handle set – security*

Pos.		Colour	PU	Material no.
200 geared-handle, lock.	Natural silver	R01.1	1	775943
	Medium bronze	R05.3	1	775944
	Dark bronze	R05.4	1	775945
	Bronze	R05.5	1	775946
	Traffic white	R07.2	1	775947
	Cream	R07.3	1	775948

The Roto Line Alversa geared-handle set comprises:

	Quantity
[48] Alversa 200 geared-handle, lock.	1
[32] T connector	1
[56] Countersunk screws M5x12	2

T connector, aluminium NT

	Material no.
	796152

[6] Centre lock, vertical – security

SRH	Length	Cam	Material no.
600 – 800	590	–	774165
801 – 1000	790	1V	774167
1001 – 1200	990	1V	774168
1201 – 1400	1190	1V	774169
1401 – 1600	1390	2V	774170
1601 – 1800	1590	2V	774171
1801 – 2000	1790	2V	773124
2001 – 2200	1990	3V	774172
2201 – 2400	2190	3V	774173
2401 – 2600	2190	3V	774173
Centre lock, multipart	200	1V	+ 337708
2601 – 2700	2190	3V	774173
Centre lock, multipart	400	1V	+ 337710

[10] Centre lock, horizontal – security

SRW	Length	Cam	Material no.
600 – 800	590	–	603442
801 – 1000	790	1V	603472
1001 – 1200	990	1V	603473
1201 – 1400	1190	1V	603474
1401 – 1650	1490	1V	603475
1651 – 1850	1490	1V	603475
Centre lock, multipart	200	1V	+ 337708
1851 – 2000	1490	1V	603475
Centre lock, multipart	400	1V	+ 337710

[34] Night ventilation strikers → Page 73

Parallel Sliding sliding scissor stay set, night ventilation

Pos.	SRW	Damping	DIN	PU	Material no.
	720 – 900	Yes	Left	1	772220
			Right	1	772225
	901 – 1250	Yes	Left	1	772221
			Right	1	772226
	1251 – 1650	Yes	Left	1	772222
			Right	1	772227
	1651 – 2000	Yes	Left	1	772223
			Right	1	772228

The Parallel Sliding sliding scissor stay set, night ventilation comprises:

	Quantity
[18] Sliding scissor stay, Parallel Sliding	1
[27] Top guide block, fixed	1

Bogie set, Parallel Sliding

Pos.	Weight	Damping	DIN	PU	Material no.
Bogies	Up to 160 kg	Yes	Left	1	799898
			Right	1	799900

The Parallel Sliding bogie set comprises:

	Quantity
[22] Leading bogie	1
[23] Trailing bogie	1
Not sh. Countersunk tapping screws ST4.8x50	8

Tandem bogies

Tandem bogies	Up to 200 kg	Yes	Left	1	799901
			Right	1	799902

The Parallel Sliding tandem bogie set comprises:

	Quantity
Not sh. Leading tandem bogie	1
Not sh. Trailing tandem bogie	1
Not sh. Countersunk tapping screws ST4.8x50	16

Track set → Page 68

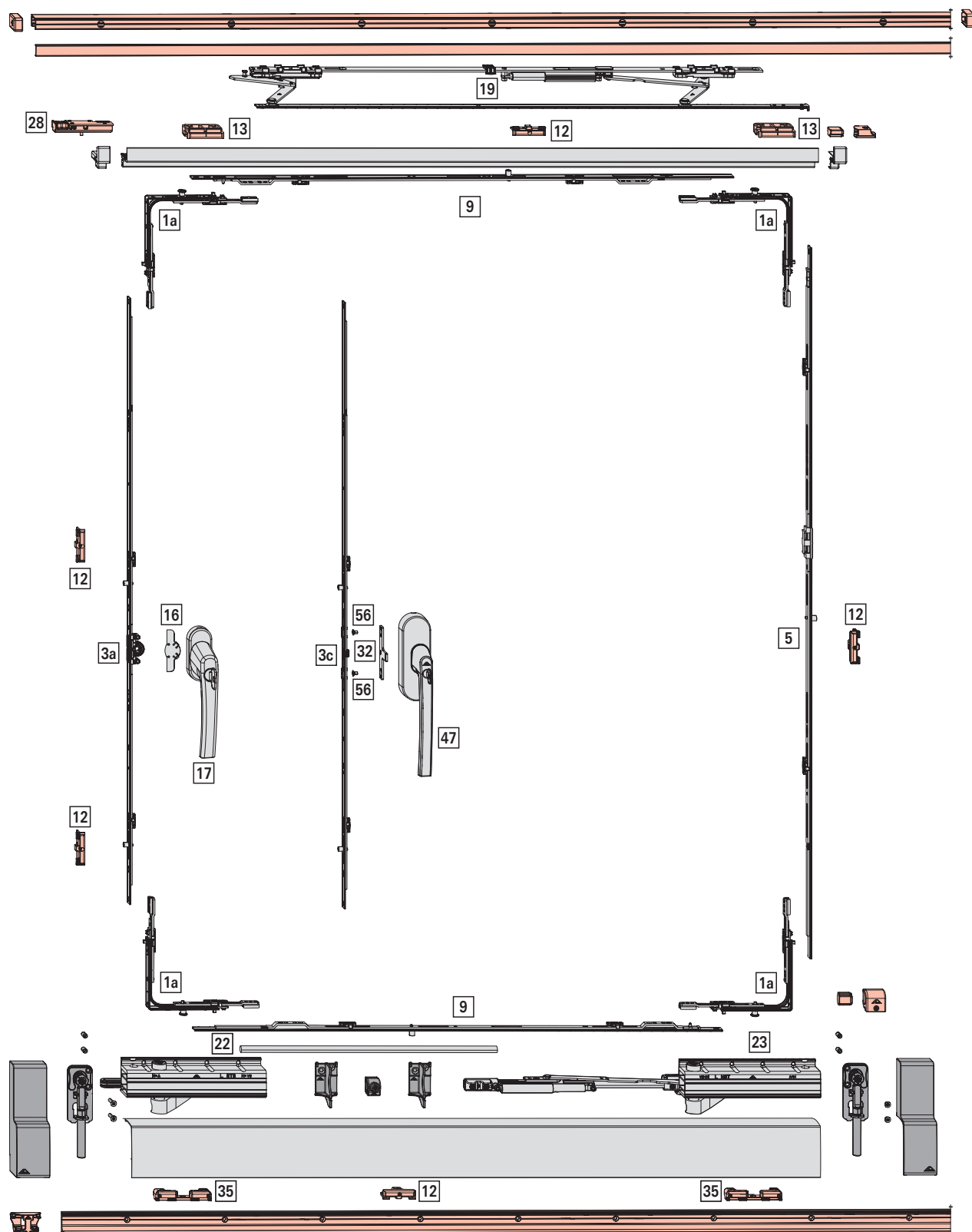
Reinforcement part set → Page 67



INFO

RC 2 / RC 2 N (closed position): night ventilation strikers in every corner. There are “security strikers” at all other locking points.

* The total of the axis dimension and overlap height must be ≥ 25 mm. For dimensions of 15 - 25 mm, order the T connector, aluminium NT, and discard the T connector from the Roto Line Alversa geared-handle set.



Shown: up to 160 kg; RC 1 N; SRW 1450; SRH 1300; T&T espagnolette, centred / variable handle height (a) and T&T espagnolette custom solution (3c)

Roto Patio Alversa - Aluminium with 16mm hardware groove

Subject to change

**Application range**Sash width **SW** 720 – 1650 mmSash height **SH** 600 – 2350 mmSash weight **S.kg** max. 160 kg**[1a] Corner drive, standard**

	Cam	Material no.
	1V	260272

[3a] T&T espagnolette, centred / variable handle height, backset 15

SRH	Handle height	Length	Cam	Material no.
600 – 620	225 – 310	400	–	259718
621 – 800	311 – 400	580	1E	259719
801 – 1200	401 – 600	980	1E	259720
1201 – 1600	601 – 800	1380	2E	259721
1601 – 2000	801 – 1000	1780	2E	795389
2001 – 2400	1001 – 1200	2180	4E	795392
2401 – 2700	1201 – 1350	2180	4E	795392
2x centre lock, multipart		200	1E	+ 450821

[16] Drilling protection**

	Material no.
	770965

[17] Handle, lockable → CTL_1****[3c] T&T espagnolette, centred / variable handle height, custom solution**

SRH	Handle height	Length	Cam	Material no.
801 – 1200	401 – 600	980	1E	778275
1201 – 1600	601 – 800	1380	2E	774288
1601 – 2000	801 – 1000	1780	2E	774289
2001 – 2400	1001 – 1200	2180	4E	774290
2401 – 2700	1201 – 1350	2180	4E	774290
2x centre lock, multipart		200	1E	+ 450821

Roto Line Alversa geared-handle set*

Pos.		Colour	PU	Material no.
200 geared-handle	Natural silver	R01.1	1	775936
	Medium bronze	R05.3	1	775937
	Dark bronze	R05.4	1	775938
	Bronze	R05.5	1	775939
	Traffic white	R07.2	1	775940
	Cream	R07.3	1	775942

The Roto Line Alversa geared-handle set comprises:

	Quantity
[47] Alversa 200 geared-handle	1
[32] T connector	1
[56] Countersunk screws M5x12	2

T connector, aluminium NT

	Material no.
	796152

[5] Centre lock, vertical

SRH	Length	Cam	Material no.
600 – 800	590	–	774165
801 – 1000	790	1E	774174
1001 – 1200	990	1E	774175
1201 – 1400	1190	1E	774176
1401 – 1600	1390	2E	774177
1601 – 1800	1590	2E	774178
1801 – 2000	1790	2E	774179

[5] Centre lock, vertical

SRH	Length	Cam	Material no.
2001 – 2200	1990	3E	774180
2201 – 2400	2190	3E	774181
2401 – 2600	2190	3E	774181
Centre lock, multipart	200	1E	+ 450821
2601 – 2700	2190	3E	774181
Centre lock, multipart	400	1E	+ 280346

[9] Centre lock, horizontal

SRW	Length	Cam	Material no.
600 – 800	590	–	603442
801 – 1000	790	1E	603444
1001 – 1200	990	1E	603447
1201 – 1400	1190	1E	603462
1401 – 1650	1490	1E	603466

[12] Striker, standard → Page 72**[13] Striker, security → Page 73****[65] Retrofit set for lock-in position*****

	Material no.
For Parallel Sliding sliding scissor stay, tilt ventilation: to assist the lock-in function	807166

Parallel Sliding sliding scissor stay set, tilt ventilation

Pos.	SRW	Damping	DIN	PU	Material no.
	720 – 900	Yes	Left	1	808816
			Right	1	808827
	901 – 1250	Yes	Left	1	808824
			Right	1	808828
	1251 – 1650	Yes	Left	1	808825
			Right	1	808829

The Parallel Sliding sliding scissor stay set, tilt ventilation comprises:

	Quantity
[19] Sliding scissor stay, Parallel Sliding	1
[28] Top guide block, tiltable	1

Bogie set, Parallel Sliding

Pos.	Weight	Damping	DIN	PU	Material no.
Bogies					
Bogies	Up to 160 kg	Yes	Left	1	799898
			Right	1	799900

The Parallel Sliding bogie set comprises:

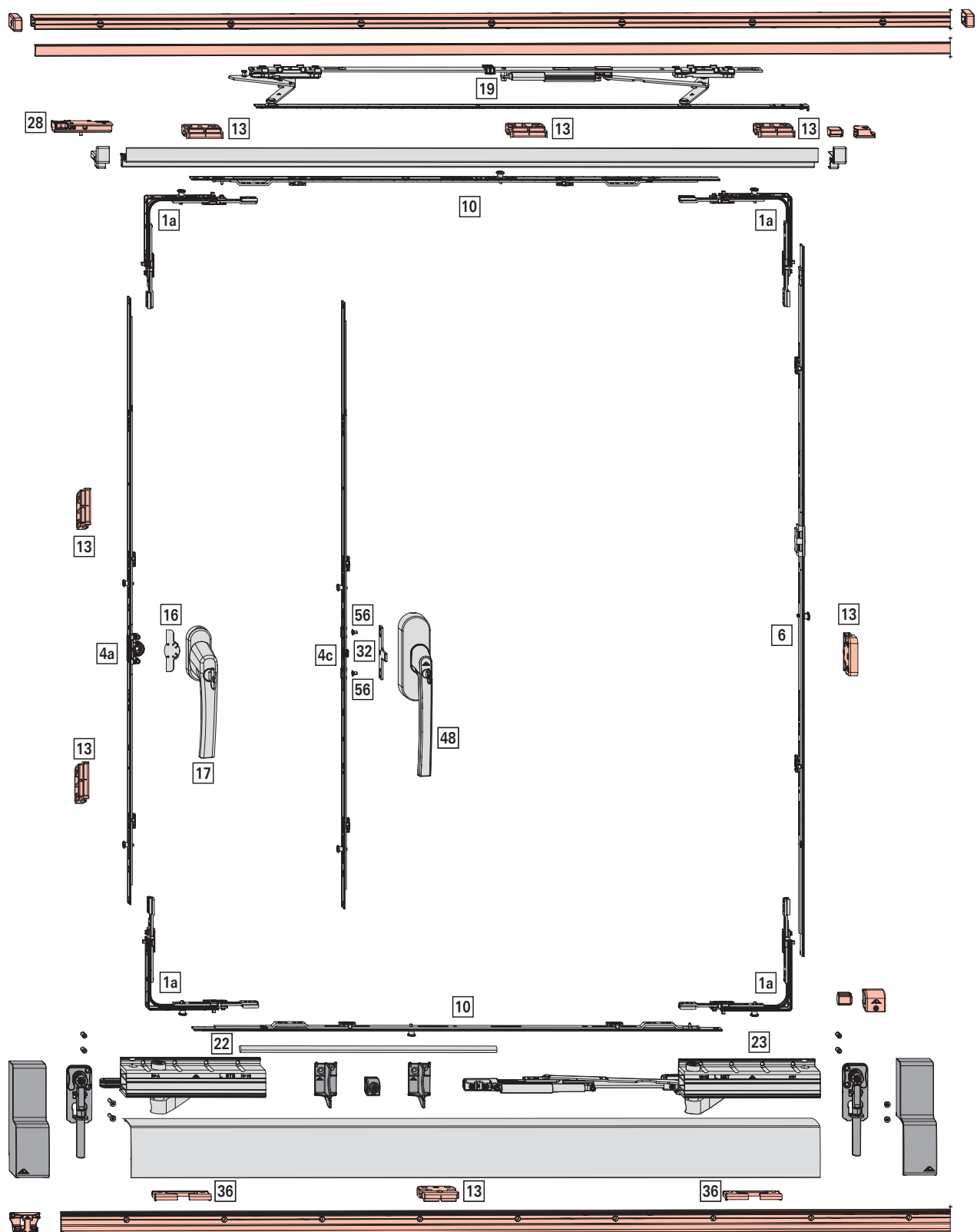
	Quantity
[22] Leading bogie	1
[23] Trailing bogie	1
Not sh. Countersunk tapping screws ST4.8x50	8

[35] Tilt striker, clampable → Page 74**Track set → Page 68****Reinforcement part set → Page 67**

* The total of the axis dimension and overlap height must be ≥ 25 mm. For dimensions of 15 - 25 mm, order the T connector, aluminium NT, and discard the T connector from the Roto Line Alversa geared-handle set.

** Mandatory for RC 1 N.

*** Mandatory from dimension M > 44 mm.



Shown: up to 160 kg; RC 2; SRW 1450; SRH 1300 T&T espagnolette, centred / variable handle height (a) and T&T espagnolette custom solution (4c)

Roto Patio Alversa - Aluminium with 16mm hardware groove

Subject to change

**Application range**Sash width **SW** 720 – 1650 mmSash height **SH** 600 – 2350 mmSash weight **S.kg** max. 160 kg**[1a] Corner drive, standard**

	Cam	Material no.
	1V	260272

[4a] T&T espagnolette, centred / variable handle height, backset 15 – security

SRH	Handle height	Length	Cam	Material no.
621 – 800	311 – 400	580	1V	355743
801 – 1200	401 – 600	980	1V	355744
1201 – 1600	601 – 800	1380	2V	355745
1601 – 2000	801 – 1000	1780	2V	795390
2001 – 2400	1001 – 1200	2180	4V	795393
2401 – 2700	1201 – 1350	2180	4V	795393
2 x centre lock, multipart		200	1V	+ 337708

[16] Drilling protection

	Material no.
	770965

[17] Handle, lockable → CTL_1**[4c] T&T espagnolette, centred / variable handle height, custom solution – security**

SRH	Handle height	Length	Cam	Material no.
1601 – 2000	801 – 1000	1780	2V	774291
2001 – 2400	1001 – 1200	2180	4V	774292
2401 – 2700	1201 – 1350	2180	4V	774292
2x centre lock, multipart		200	1V	+ 337708

Roto Line Alversa geared-handle set – security*

Pos.		Colour	PU	Material no.
200 geared-handle, lock.	Natural silver	R01.1	1	775943
	Medium bronze	R05.3	1	775944
	Dark bronze	R05.4	1	775945
	Bronze	R05.5	1	775946
	Traffic white	R07.2	1	775947
	Cream	R07.3	1	775948

The Roto Line Alversa geared-handle set comprises:

	Quantity
[48] Alversa 200 geared-handle, lock.	1
[32] T connector	1
[56] Countersunk screws M5x12	2

T connector, aluminium NT

	Material no.
	796152

[6] Centre lock, vertical – security

SRH	Length	Cam	Material no.
600 – 800	590	–	774165
801 – 1000	790	1V	774167
1001 – 1200	990	1V	774168
1201 – 1400	1190	1V	774169
1401 – 1600	1390	2V	774170
1601 – 1800	1590	2V	774171
1801 – 2000	1790	2V	773124
2001 – 2200	1990	3V	774172
2201 – 2400	2190	3V	774173
2401 – 2600	2190	3V	774173
Centre lock, multipart	200	1V	+ 337708
2601 – 2700	2190	3V	774173
Centre lock, multipart	400	1V	+ 337710

[10] Centre lock, horizontal – security

SRW	Length	Cam	Material no.
600 – 800	590	–	603442
801 – 1000	790	1V	603472
1001 – 1200	990	1V	603473
1201 – 1400	1190	1V	603474
1401 – 1650	1490	1V	603475

[13] Striker, security → Page 73**[65] Retrofit set for lock-in position****

	Material no.
For Parallel Sliding sliding scissor stay, tilt ventilation: to assist the lock-in function	807166

Parallel Sliding sliding scissor stay set, tilt ventilation

Pos.	SRW	Damping	DIN	PU	Material no.
	720 – 900	Yes	Left	1	808816
			Right	1	808827
	901 – 1250	Yes	Left	1	808824
			Right	1	808828
	1251 – 1650	Yes	Left	1	808825
			Right	1	808829

The Parallel Sliding sliding scissor stay set, tilt ventilation comprises:

	Quantity
[19] Sliding scissor stay, Parallel Sliding	1
[28] Top guide block, tiltable	1

Bogie set, Parallel Sliding

Pos.	Weight	Damping	DIN	PU	Material no.
Bogies					
Bogies	Up to 160 kg	Yes	Left	1	799898
			Right	1	799900

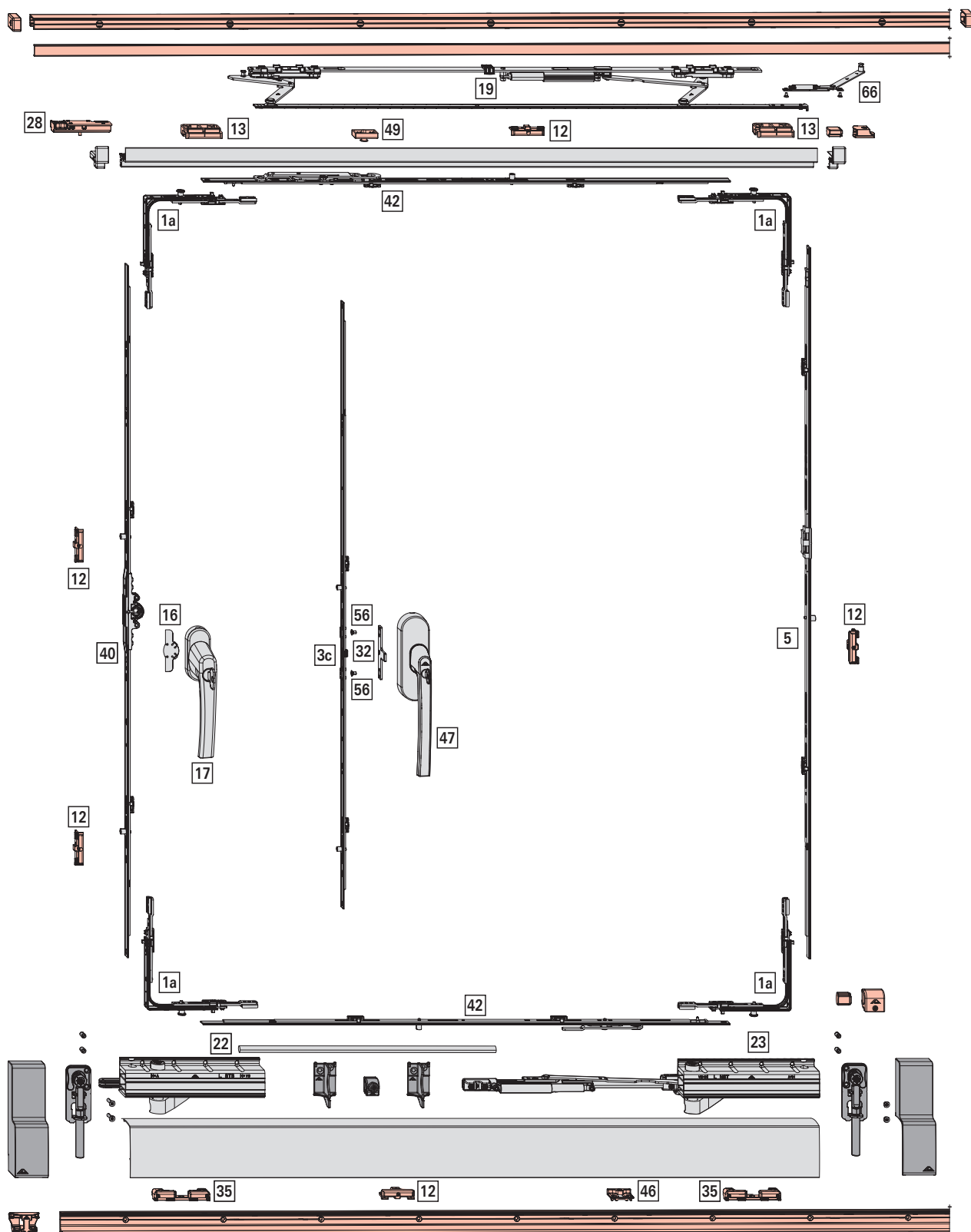
The Parallel Sliding bogie set comprises:

	Quantity
[22] Leading bogie	1
[23] Trailing bogie	1
Not sh. Countersunk tapping screws ST4.8x50	8

[36] Tilt striker, screw-on → Page 74**Track set → Page 68****Reinforcement part set → Page 67**

* The total of the axis dimension and overlap height must be ≥ 25 mm. For dimensions of 15 – 25 mm, order the T connector, aluminium NT, and discard the T connector from the Roto Line Alversa geared-handle set.

** Mandatory from dimension M > 44 mm.



Shown: up to 160 kg; RC 1 N; SRW 1450; SRH 1300; T&T espagnolette, centred / variable handle height, reinforced (40) and T&T espagnolette custom solution (3c).

Roto Patio Alversa - Aluminium with 16mm hardware groove

**Application range**Sash width **SW** 720 – 2000 mmSash height **SH** 600 – 2700 mmSash weight **S.kg** max. 200 kg**[1a] Corner drive, standard**

Cam	Material no.
1V	260272

[40] T&T espagnolette, centred / variable handle height, reinforced, backset 15

SRH	Handle height	Length	Cam	Material no.
801 – 1200	401 – 600	980	1E	774182
1201 – 1600	601 – 800	1380	2E	774183
1601 – 2000	801 – 1000	1780	2E	774184
2001 – 2400	1001 – 1200	2180	4E	774185
2401 – 2700	1201 – 1350	2180	4E	774185
2 x centre lock, multipart		200	1E	+ 450821

[16] Drilling protection**

Material no.
770965

[17] Handle, lockable → CTL_1****INFO**

Only use handles with a length of 200 mm for Patio Alversa | PS Air Com.

[3c] T&T espagnolette, centred / variable handle height, custom solution

SRH	Handle height	Length	Cam	Material no.
801 – 1200	401 – 600	980	1E	778275
1201 – 1600	601 – 800	1380	2E	774288
1601 – 2000	801 – 1000	1780	2E	774289
2001 – 2400	1001 – 1200	2180	4E	774290
2401 – 2700	1201 – 1350	2180	4E	774290
2x centre lock, multipart		200	1E	+ 450821

Roto Line Alversa geared-handle set*

Pos.	Colour	PU	Material no.
200 geared-handle	Natural silver	R01.1	1 775936
	Medium bronze	R05.3	1 775937
	Dark bronze	R05.4	1 775938
	Bronze	R05.5	1 775939
	Traffic white	R07.2	1 775940
	Cream	R07.3	1 775942

The Roto Line Alversa geared-handle set comprises:

	Quantity
[47] Alversa 200 geared-handle	1
[32] T connector	1
[56] Countersunk screws M5x12	2

T connector, aluminium NT

Material no.
796152

[5] Centre lock, vertical

SRH	Length	Cam	Material no.
600 – 800	590	–	774165
801 – 1000	790	1E	774174
1001 – 1200	990	1E	774175
1201 – 1400	1190	1E	774176
1401 – 1600	1390	2E	774177
1601 – 1800	1590	2E	774178
1801 – 2000	1790	2E	774179
2001 – 2200	1990	3E	774180
2201 – 2400	2190	3E	774181
2401 – 2600	2190	3E	774181
Centre lock, multipart	200	1E	+ 450821
2601 – 2700	2190	3E	774181
Centre lock, multipart	400	1E	+ 280346

[42] Comfort set

Contains a centre lock, horizontal, with comfort scissor stay at the top and mishandling device at the bottom

SRW	Length	Cam	DIN	Material no.
600 – 800	590	–	Left	772309
			Right	772310
801 – 1000	790	1E	Left	772311
			Right	772312
1001 – 1200	990	1E	Left	772313
			Right	772314
1201 – 1400	1190	1E	Left	773386
			Right	773388
1401 – 1650	1490	1E	Left	773389
			Right	773390
1651 – 1850	1490	1E	Left	773389
			Right	773390
Centre lock, multipart	200	1E		+ 450821
1851 – 2000	1490	1E	Left	773389
			Right	773390
Centre lock, multipart	400	1E		+ 280346

[12] Striker, standard → Page 72**[13] Striker, security → Page 73****[66] Retrofit set for tilt assistance*****

	DIN	Material no.
for Parallel Sliding sliding scissor stay, tilt ventilation	Left	808699
	Right	808732

Parallel Sliding sliding scissor stay set, tilt ventilation

Pos.	SRW	Damping	DIN	PU	Material no.
	720 – 900	Yes	Left	1	808816
			Right	1	808827
	901 – 1250	Yes	Left	1	808824
			Right	1	808828
	1251 – 1650	Yes	Left	1	808825
			Right	1	808829
	1651 – 2000	Yes	Left		808826
			Right		808830

The Parallel Sliding sliding scissor stay set, tilt ventilation comprises:

	Quantity
[19] Sliding scissor stay, Parallel Sliding	1
[28] Top guide block, tiltable	1

* The total of the axis dimension and overlap height must be ≥ 25 mm. For dimensions of 15 - 25 mm, order the T connector, aluminium NT, and discard the T connector from the Roto Line Alversa geared-handle set.

** Mandatory for RC 1 N.

*** Mandatory from 140 kg.

Bogie set, Parallel Sliding					
Pos.	Weight	Damping	DIN	PU	Material no.
Bogies					
Bogies	Up to 160 kg	Yes	Left	1	799898
			Right	1	799900
The Parallel Sliding bogie set comprises:				Quantity	
[22]	Leading bogie			1	
[23]	Trailing bogie			1	
Not sh.	Countersunk tapping screws ST4.8x50			8	
Tandem bogies					
Tandem bogies	Up to 200 kg	Yes	Left	1	799901
			Right	1	799902
The Parallel Sliding tandem bogie set comprises:				Quantity	
Not sh.	Leading tandem bogie			1	
Not sh.	Trailing tandem bogie			1	
Not sh.	Countersunk tapping screws ST4.8x50			16	

[35] Tilt striker, clampable → Page 74

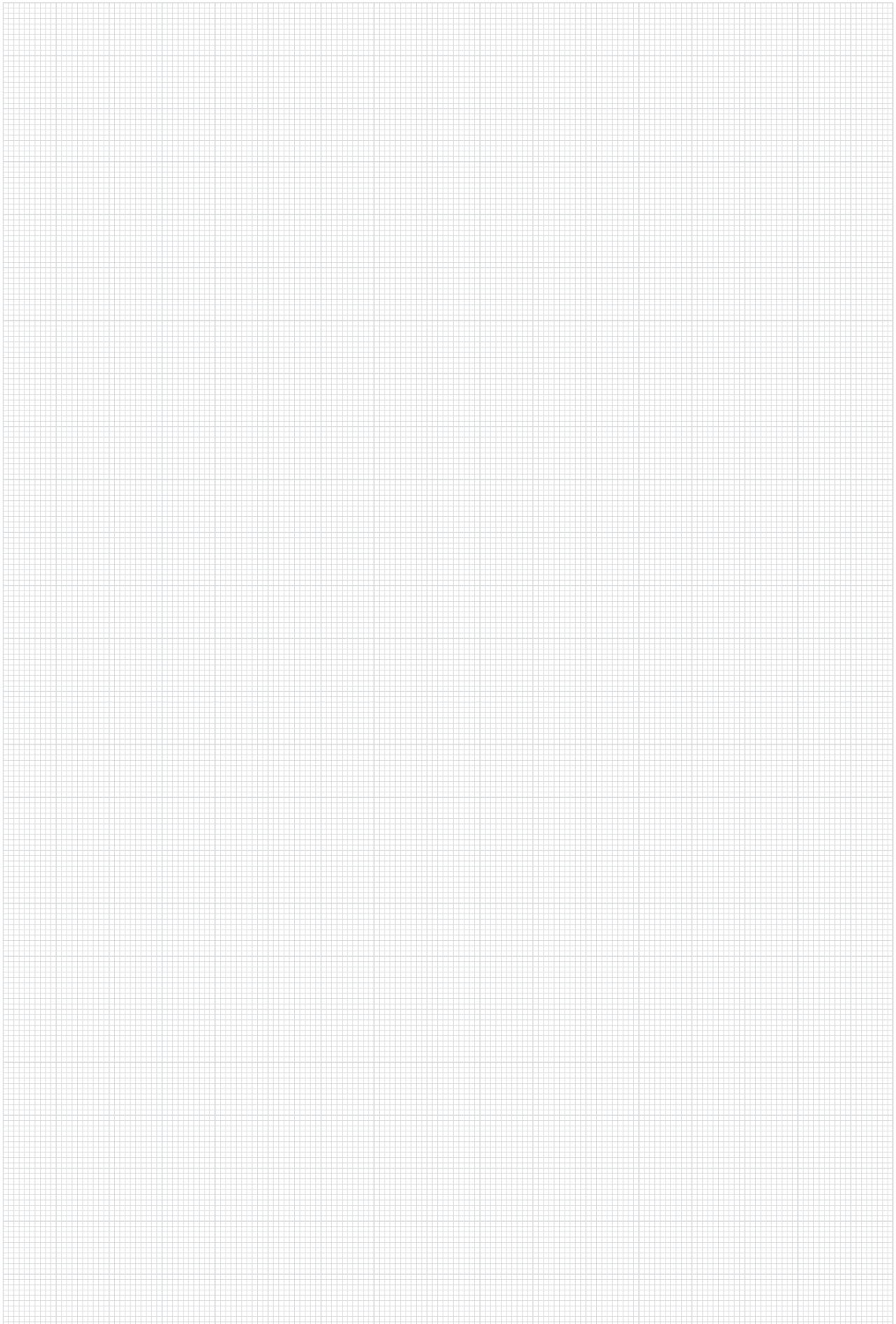
**[46] Mishandling device frame component →
Page 76**

**[49] Comfort scissor stay frame component* →
Page 75**

Track set → Page 68

Reinforcement part set → Page 67

* Two comfort scissor stay frame components are required for a SRW of 1201–2000.



**Application range**Sash width **SW** 720 – 2000 mmSash height **SH** 600 – 2700 mmSash weight **S.kg** max. 200 kg**[1a] Corner drive, standard**

Cam	Material no.
1V	260272

[41] T&T espagnolette, centred / variable handle height, reinforced, backset 15 – security

SRH	Handle height	Length	Cam	Material no.
801 – 1200	401 – 600	980	1V	774186
1201 – 1600	601 – 800	1380	2V	774187
1601 – 2000	801 – 1000	1780	2V	774188
2001 – 2400	1001 – 1200	2180	4V	774189
2401 – 2700	1201 – 1350	2180	4V	774189
2 x centre lock, multipart		200	1V	+ 337708

[16] Drilling protection

Material no.
770965

[17] Handle, lockable → CTL_1**INFO**

Only use handles with a length of 200 mm for
Patio Alversa | PS Air Com.

[4c] T&T espagnolette, centred / variable handle height, custom solution – security

SRH	Handle height	Length	Cam	Material no.
1601 – 2000	801 – 1000	1780	2V	774291
2001 – 2400	1001 – 1200	2180	4V	774292
2401 – 2700	1201 – 1350	2180	4V	774292
2x centre lock, multipart		200	1V	+ 337708

Roto Line Alversa geared-handle set – security*

Pos.	Colour	PU	Material no.
200 geared-handle, lock.	Natural silver	R01.1	1 775943
	Medium bronze	R05.3	1 775944
	Dark bronze	R05.4	1 775945
	Bronze	R05.5	1 775946
	Traffic white	R07.2	1 775947
	Cream	R07.3	1 775948

The Roto Line Alversa geared-handle set comprises:

	Quantity
[48] Alversa 200 geared-handle, lock.	1
[32] T connector	1
[56] Countersunk screws M5x12	2

T connector, aluminium NT

Material no.
796152

[6] Centre lock, vertical – security

SRH	Length	Cam	Material no.
600 – 800	590	–	774165
801 – 1000	790	1V	774167
1001 – 1200	990	1V	774168
1201 – 1400	1190	1V	774169
1401 – 1600	1390	2V	774170
1601 – 1800	1590	2V	774171
1801 – 2000	1790	2V	773124
2001 – 2200	1990	3V	774172
2201 – 2400	2190	3V	774173
2401 – 2600	2190	3V	774173
Centre lock, multipart	200	1V	+ 337708
2601 – 2700	2190	3V	774173
Centre lock, multipart	400	1V	+ 337710

[43] Comfort set

Contains a centre lock, horizontal, with comfort scissor stay at the top and mishandling device at the bottom

SRW	Length	Cam	DIN	Material no.
600 – 800	590	–	Left	772309
			Right	772310
801 – 1000	790	1V	Left	776884
			Right	776915
1001 – 1200	990	1V	Left	776916
			Right	776917
1201 – 1400	1190	1V	Left	776918
			Right	776919
1401 – 1650	1490	1V	Left	776920
			Right	776921
1651 – 1850	1490	1V	Left	776920
			Right	776921
Centre lock, multipart	200	1V		+ 337708
1851 – 2000	1490	1V	Left	776920
			Right	776921
Centre lock, multipart	400	1V		+ 337710

[13] Striker, security → Page 73**[66] Retrofit set for tilt assistance*****

Pos.	SRW	Damping	DIN	PU	Material no.
for Parallel Sliding sliding scissor stay, tilt ventilation			Left		808699
			Right		808732

Parallel Sliding sliding scissor stay set, tilt ventilation

Pos.	SRW	Damping	DIN	PU	Material no.
	720 – 900	Yes	Left	1	808816
			Right	1	808827
	901 – 1250	Yes	Left	1	808824
			Right	1	808828
	1251 – 1650	Yes	Left	1	808825
			Right	1	808829
	1651 – 2000	Yes	Left		808826
			Right		808830

The Parallel Sliding sliding scissor stay set, tilt ventilation comprises:

	Quantity
[19] Sliding scissor stay, Parallel Sliding	1
[28] Top guide block, tiltable	1

*** Mandatory from 140 kg.

Bogie set, Parallel Sliding					
Pos.	Weight	Damping	DIN	PU	Material no.
Bogies					
Bogies	Up to 160 kg	Yes	Left	1	799898
			Right	1	799900
The Parallel Sliding bogie set comprises:				Quantity	
[22]	Leading bogie			1	
[23]	Trailing bogie			1	
Not sh.	Countersunk tapping screws ST4.8x50			8	
Tandem bogies					
Tandem bogies	Up to 200 kg	Yes	Left	1	799901
			Right	1	799902
The Parallel Sliding tandem bogie set comprises:				Quantity	
Not sh.	Leading tandem bogie			1	
Not sh.	Trailing tandem bogie			1	
Not sh.	Countersunk tapping screws ST4.8x50			16	

[36] Tilt striker, screw-on → Page 74

**[46] Mishandling device frame component →
Page 76**

[49] Comfort scissor stay frame component →
Page 75**

Track set → Page 68

Reinforcement part set → Page 67

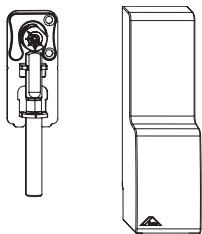
* The total of the axis dimension and overlap height must be ≥ 25 mm. For dimensions of 15 - 25 mm, order the T connector, aluminium NT, and discard the T connector from the Roto Line Alversa geared-handle set.

** Two comfort scissor stay frame components are required for a SRW of 1201–2000.



5 Hardware sets

5.1 Reinforcement part sets



Reinforcement parts and cover caps	For sash weights > 100 kg	Parallel Sliding Tilt&Slide	R01.5	Silver	1 Piece	793515
			R04.4	Black brown	1 Piece	797565
			R05.4	Dark bronze	1 Piece	793516
			R06.2	Jet black	1 Piece	793517
			R07.2	Traffic white	1 Piece	793518

Contents

Figure	Quantity	Description
	2	Reinforcement parts
	2	Cover caps
	4	Rivet nuts
Not sh.	4	Screws M5 x 25

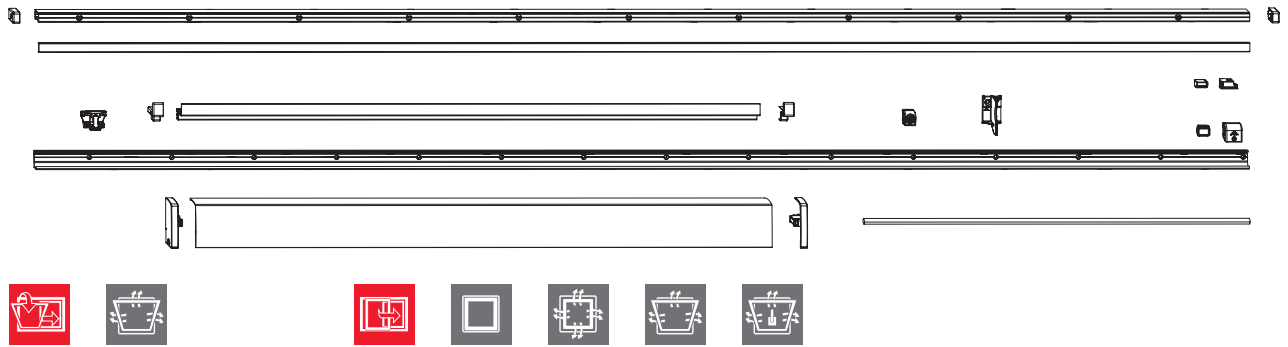


INFO

Using reinforcement parts

- **Tilt&Slide:** for sash weights > 100 kg
- **Parallel Sliding:** must always be used

5.2 Track sets





5.2.1 Track set with retaining track 13

				Nº
R01.5	Silver	600 – 900	1930	767051
		901 – 1050	2230	767052
		1051 – 1250	2630	767053
		1251 – 1450	3030	767054
		1451 – 1650	3430	767075
		1651 – 2000	4130	793580
R04.4	Black brown	600 – 900	1930	797635
		901 – 1050	2230	797636
		1051 – 1250	2630	797637
		1251 – 1450	3030	797638
		1451 – 1650	3430	797639
		1651 – 2000	4130	797640
R05.4	Dark bronze	600 – 900	1930	767076
		901 – 1050	2230	767077
		1051 – 1250	2630	767078
		1251 – 1450	3030	767079
		1451 – 1650	3430	767080
		1651 – 2000	4130	793581
R06.2	Jet black	600 – 900	1930	767081
		901 – 1050	2230	767082
		1051 – 1250	2630	767083
		1251 – 1450	3030	767084
		1451 – 1650	3430	767085
		1651 – 2000	4130	793582
R07.2	Traffic white	600 – 900	1930	767086
		901 – 1050	2230	767087
		1051 – 1250	2630	767088
		1251 – 1450	3030	767089
		1451 – 1650	3430	767090
		1651 – 2000	4130	793583
Roh	Uncoated	600 – 900	1930	767046
		901 – 1050	2230	767047
		1051 – 1250	2630	767048
		1251 – 1450	3030	767049
		1451 – 1650	3430	767050
		1651 – 2000	4130	793579

Contents

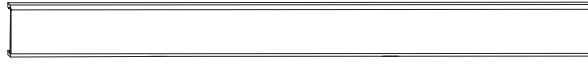
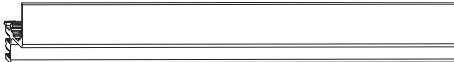
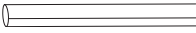
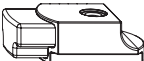
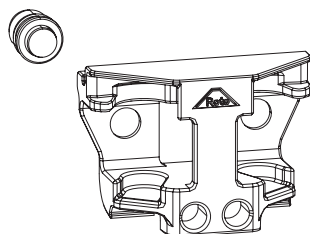
Figure	Quantity	Description
	1	Guide track
	1	Guide track cover profile
	2	End caps for guide track

Figure	Quantity	Description
	1	Roller track
	1	Bogie cover profile
	2	Cover caps for bogie cover profile
	1	Retaining track 13
	2	End caps for retaining track
	1	Connecting rod
	1	Guide block, bottom
	1	Stop part, top
	1	Stop part, bottom
	1	Rubber buffer
	0 [4] 1 [5]	Support block
	1 [6] 2 [7]	Supporting piece
Not sh.	10	Flat-headed self-tapping screws ST3.9 x 9.5 ISR15
Not sh.	40	Countersunk tapping screws ST3.9 x 45 ISR15
Not sh.	4	Countersunk tapping screws ST4.8 x 50 ISR25

5.3 Guide block sets

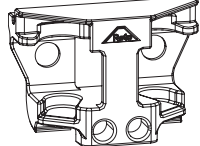
For diagram D



- [4] With SW ≤ 1450 mm
- [5] With SW > 1450 mm
- [6] With SW ≤ 1450 mm
- [7] With SW > 1450 mm



				Nº
Movable bottom guide block and retaining pin	For diagram D	Roto Sil	1 Piece	809477
		Black	1 Piece	809478

Figure	Quantity	Description
	1	Bottom guide block, movable
	2	Retaining pin



6 Frame components



INFO

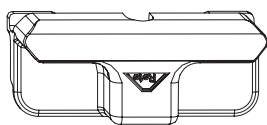
Further frame components are available upon request.

6.1 Aluminium with 16 mm hardware groove

Definition of profile terms → 3.7 "Definition of profile terms" from page 37

6.1.1 Strikers

6.1.1.1 Standard



						Nº
9	Clampable	V.02	–	–	–	629913
		V.01	–	–	–	627148
	Screw-on	–	13	–	–	345473
		–	14	–	–	346971
10	Clampable	V.01	–	–	–	339434
13	Screw-on	V.01	–	–	–	494937
		–	14	4.5	–	491060
		–	14	5	–	451008



INFO

Surface-mounted frame components with 9 mm hardware axis:

Groove width 13: application range 13 – 13.5 mm

Groove width 14: application range 14 – 14.2 mm



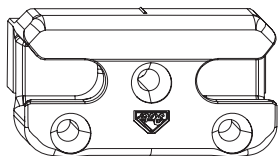
INFO

Surface-mounted frame components with 13 mm hardware axis:

Groove width 5: application range 5.0 – 5.5 mm



6.1.1.2 Security



				Nº
9	Screw-on	13	–	345474
		14	–	346972
13		12	–	735260
		14	5	451009



INFO

Surface-mounted frame components with 9 mm hardware axis:

Groove width 13: application range 13 – 13.5 mm

Groove width 14: application range 14 – 14.2 mm

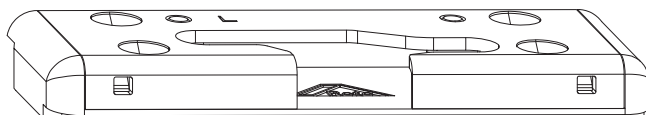


INFO

Surface-mounted frame components with 13 mm hardware axis:

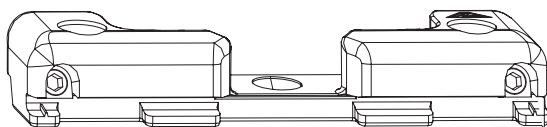
Groove width 5: application range 5.0 – 5.5 mm

6.1.1.3 Night ventilation

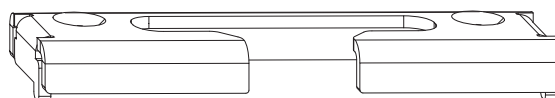


				Nº
13	Screw-on	12	Left	794700
		12	Right	794701
		14	Left	794702
		14	Right	794703

6.1.2 Tilt strikers



A



B

Assignment	Meaning
[A]	Clamp-on
[B]	Surface-mounted



							Nº
9	Clampable	V.02	–	–	–	–	629914
		V.01	–	–	–	–	627150
	Screw-on	–	13	–	–	Left	345475
		–	13	–	–	Right	345476
		–	14	–	–	Left	260523
		–	14	–	–	Right	260524
10	Clampable	V.01	–	–	–	Left	339432
		V.01	–	–	–	Right	339433
13	Screw-on	V.01	–	–	–	–	494938
		–	14	4.5	–	Left	491059
		–	14	4.5	–	Right	491058
		–	14	5	–	Left	451092
		–	14	5	–	Right	451007



INFO

Surface-mounted frame components with 9 mm hardware axis:

Groove width 13: application range 13 – 13.5 mm

Groove width 14: application range 14 – 14.2 mm



INFO

Surface-mounted frame components with 13 mm hardware axis:

Groove width 5: application range 5.0 – 5.5 mm



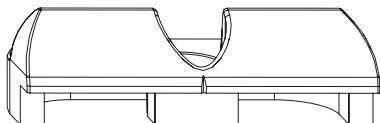
INFO

For the left-hand version of the Parallel Sliding or Tilt&Slide door (DIN 107), order the right-hand frame component.

For the right-hand version of the Parallel Sliding or Tilt&Slide door (DIN 107), order the left-hand frame component.



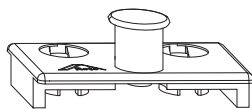
6.1.3 Guide strikers



			Nº
9	Screw-on	10	794698
		14	785686
10		14	792393
13		12	775364
		14	776286

6.1.4 Centre locks

6.1.4.1 Comfort scissor stay



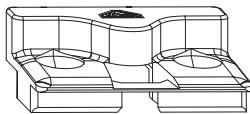
					Nº
9	Clampable	V.02	–	–	786361
		V.01	–	Also hardware axis 10	772684
13	Screw-on	–	12	–	776306
		–	14	–	776310



INFO

From SRW 1201, two comfort scissor stays are mounted on the horizontal centre lock component at the top. One frame component is required for each comfort scissor stay.

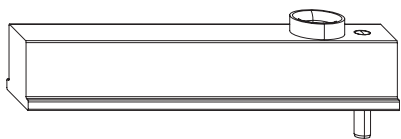
6.1.4.2 Mishandling device



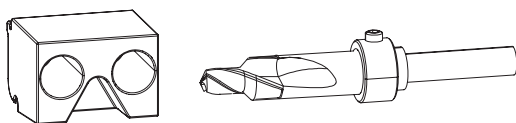
				Nº
9	Clampable	V.01	Also for hardware axis 10 and 13	786328
	Screw-on	V.02		786329
13		V.01	–	794821



INFO
Frame components must be positioned at the rear edge of the frame groove.

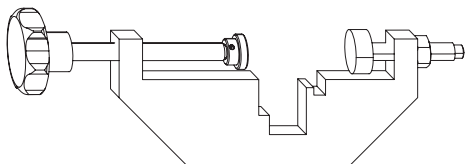


		Nº
Scissor stay retention		778523

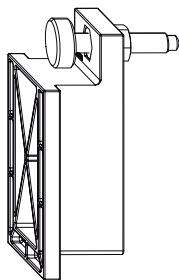


			Nº
Drilling jig with step drill		For diagram D	794249

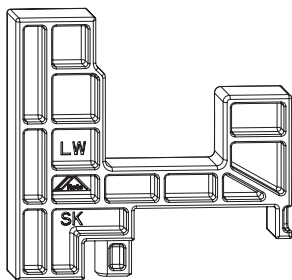
7.2 Installation jigs



		Nº
Roller track and guide track		778520



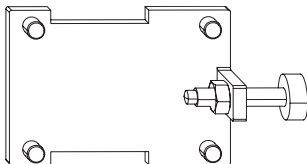
for installation



for adjustment

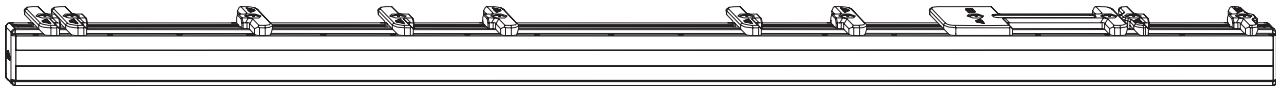


	Nº
Top guide block for installation	806975
Top guide block for adjustment	782190

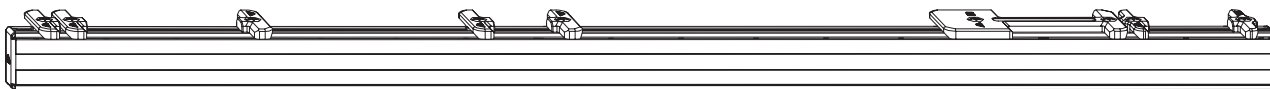


	Nº
Bottom guide block	778524

7.3 Positioning jigs



		↔	Nº
Horizontal frame components	–	600 – 800	786188
		801 – 1000	786189
		1001 – 1200	786190
		1201 – 1400	786191
		1401 – 1650	786192



			Nº
Horizontal frame components	—	720 – 800	776086
		801 – 1000	776087
		1001 – 1200	776088
		1201 – 1400	776089
		1401 – 1650	776090



			Nº
Vertical frame components	Fixed handle height	600 – 800	388127
		801 – 1400	388126
		1401 – 2000	388125
		2001 – 2400	388124
	Centred / variable handle height	621 – 1200	268943
		1201 – 1600	268944
		1601 – 2000	787401
		2001 – 2400	787402

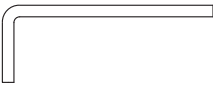


INFO
On T&T espagnolette – vertical tilting, use jigs for fixed handle height.

7.4 Tools



	Nº
Drilling aid for roller track and guide track	778521



		Nº
Hexalobular socket screwdriver ISR10		625172
Hexalobular socket screwdriver ISR15		625173
Hexalobular socket screwdriver ISR25		563971



8 Brief instructions

8.1 Roto Patio Alversa | Overall

Summary of IMO 409

	Installation sequence	Note	Page reference	KS	PS without / with SPL	PS Air	PS Air Com
Sash	Prepare the espagnolette		→ from page 89	■	■	■	■
	Install the retaining track	Length: sash width - 16 mm Crop DIN L left. Crop DIN R right. Secure with screws so that it is centred.	→ from page 94	■	■	■	■
	Crop the hardware components		→ from page 98	■	■	■	■
	Install the corner drives	Align the cam horizontally.	→ from page 99	■	■	■	■
	Install the travel restrictor	Only for PS without night ventilation. Place on the corner drive at the bottom of the locking side.	→ from page 100	–	■	–	–
	Install the espagnolette	Insert with the arrow pointing up.	→ from page 101	■	■	■	■
	Install the centre locks	Position horizontally at the top of the locking side. Position horizontally at the bottom of the hinge side. Position vertically at the top.	→ from page 102	■	■	■	■
	Install the handle		→ from page 104	■	■	■	■
	Install the bogie	KS without damping. PS with damping.	→ from page 108	■	■	■	■
	Install the reinforcement part	KS > 100 kg	→ from page 115	■	■	■	■
	Install the supporting piece	Install one supporting piece up to SRW ≤ 1450 mm. Always install two supporting pieces from SRW > 1450 mm.	→ from page 117	■	■	■	■
	Install the connecting rod with support block	Measure the length of the connecting rod using the "VS" marking on the bogies. Only for PS: VS - 315 mm Support block from SRW > 1450 mm.	→ from page 118	■	■	■	■



	Installation sequence	Note	Page reference	KS	PS without / with SPL	PS Air	PS Air Com
Frame	Install strikers	Note the point of entry.	→ from page 123	■	■	■	■
	Install the guide plates	Note the point of entry.	→ from page 128	■	–	–	–
	Install the night ventilation strikers	Only for PS with night ventilation. Note the point of entry.	→ from page 123	–	■	–	–
	Install the tilt strikers	Note the point of entry.	→ from page 123	–	–	■	■
	Install the comfort scissor stay frame components	Note the point of entry. SRW < 1201 mm: install one comfort scissor stay frame component. SRW ≥ 1201 mm: install two comfort scissor stay frame components.	→ from page 129	–	–	–	■
	Install the mishandling device frame component	Note the point of entry.	→ from page 129	–	–	–	■
	Install the guide track	Length: FIW + (2 x coverage) - 8 mm Secure with screws so that it is centred.	→ from page 132	■	■	■	■
	Prepare the sliding scissor stay	PS Air: Mandatory from dimension M 44 mm retrofit set for the lock-in position. PS Air Com: Mandatory from S.kg >140 kg retrofit set for tilt assistance.	→ from page 136	–	–	■	■
	Preassemble the sliding scissor stay	KS without damping. PS with damping and fitted top guide block. Installation of top guide block (use jig). The scissor stay retention must be located on the hinge side.	→ from page 138	■	■	■	■
	Install the roller track	Length: FIW + (2 x coverage) Secure with screws so that it is centred.	→ from page 141	■	■	■	■
	Preassemble the bottom guide block		→ from page 144	■	■	■	■
Joining the sash and frame	Place the sash on the roller track	Move the handle to the sliding position.	→ from page 146	■	■	■	■
	Install the sliding scissor stay	 Correctly lock the safety pin into the drill hole on the retaining track.	→ from page 148	■	■	■	■
	Install end caps for the retaining track	Check the end caps to ensure that they lie flush with the sash.	→ from page 150	■	■	■	■
	Install the stop parts		→ from page 155	■	■	■	■
	Install the covers	Without reinforcement part: mark and crop the cover profile at the outer edges of the bogie profiles. With reinforcement part: crop the cover profile according to the markings "A" on the bogies.	→ from page 156	■	■	■	■

	Installation sequence	Note	Page reference	KS	PS without / with SPL	PS Air	PS Air Com
Final acceptance	Adjust		→ from page 159	■	■	■	■
	Screw down the bottom guide block		→ from page 144	■	■	■	■
	Lubricate the hardware		→ from page 170	■	■	■	■



9 Installation

9.1 Processing instructions

Maximum sash sizes and weights

The specifications, application diagrams and component assignments which can be found in the hardware manufacturer's product-specific documents provide information on the maximum permitted sash sizes and weights. The component with the lowest permitted load bearing capacity determines the maximum permitted sash weight.

- Before using electronic data records and implementing them in window construction programs in particular, check that they match the specifications, application diagrams and component assignments.
- Never exceed the maximum permitted sash sizes and weights. If any points are unclear, contact the hardware manufacturer.

Specifications from profile manufacturers

The window and balcony door manufacturer must comply with all specified system dimensions (e.g. gasket gap dimensions or locking distances).

They must continue to ensure and check this on a regular basis, especially when new hardware components are used for the first time, during production and on a continuous basis, up to and including window installation.



INFO

The hardware components are always designed in such a way that any system dimensions affected by the hardware can be adjusted. The hardware manufacturer shall not be liable for any additional expenses incurred if a deviation from these dimensions is not discovered until after the windows have been installed.

Assembling hardware

Burglar-inhibiting windows and balcony doors need hardware which meets special requirements.

Windows and balcony doors for wet rooms and those for use in environments with aggressive, corrosive constituents in the air require hardware that meets special requirements.

The resistance of windows and balcony doors to wind loads when they are closed and locked depends on the individual design of the windows and balcony doors. The hardware system is capable of handling wind loads specified by legislation and standards (for example in accordance with EN 12210 – in particular test pressure P3).

Coordinate suitable hardware combinations and installation procedures in windows and balcony doors with the hardware manufacturer and profile manufacturer for the areas listed above, and conclude a separate agreement for them.



INFO

The hardware manufacturer's specifications on the combination of hardware (e.g. the use of additional scissor stays, the design of hardware for burglar-inhibiting window sashes and balcony door sashes, etc.) are binding.

Lubricating the hardware



ATTENTION

Using incorrect lubricants may cause property damage.

Substandard lubricants can prevent the hardware from working properly.

- ▶ Use high-quality lubricants.
- ▶ Only use resin-free and acid-free lubricants.

Ease of movement is improved by lubricating or adjusting the hardware. All functional hardware components must be lubricated after installation in accordance with the specifications in the "Maintenance" chapter.

Recommended lubricants

- Roto NX / NT grease

For recommended lubrication points, see the "Maintenance" chapter → 12.3 "Care" from page 170.

9.2 Screw connections



DANGER

Incorrectly installed or screwed-in hardware components present a risk of death.

Installing and screwing hardware components into place improperly may lead to hazardous situations and cause serious accidents or even death.

- ▶ During installation and screwdriving work in particular, observe the specifications provided by the profile manufacturer.
- ▶ Use the recommended screws.



CAUTION

Over-tightened screws may cause property damage.

Over-tightened screws lose their hold and no longer provide the necessary strength.

- ▶ Note the torques.
- ▶ Do not over-tighten screws.



CAUTION

Protruding screw heads may cause property damage.

Protruding screw heads can damage adjoining materials.

- ▶ Tighten screw heads until they are flush with the surface.



INFO

The length of the fixing screws must be selected according to the profiles used.

Fasten hardware components with the screws supplied. Observe the screwdriving specifications (→ from page 87) while doing so. Otherwise, select spare screws with an adapted length. Use fixing screws with additional sealing in more challenging climatic conditions.

The manufacturer must ensure that the hardware components are adequately secured and if necessary contact the screw manufacturer. Do not use any acid cross-linked sealing compounds that could lead to corrosion of the hardware components.



9.2.1 Screw connections for aluminium profiles with 16 mm hardware groove



WARNING

Incorrect screw connections may lead to serious injuries.

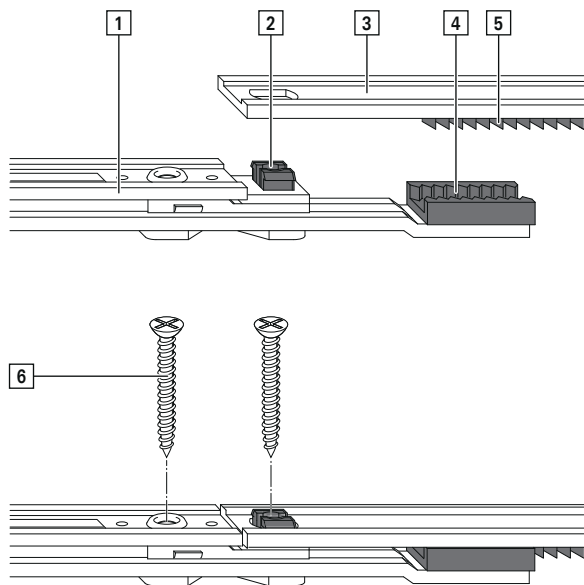
The hardware components can be pulled out of the sash if they are not screwed through a profile wall that is at least 6 mm thick in total or screwed down using rivet nuts.

- Select the length of the screws so that they will hold in the aluminium profile. Alternatively, insert additional aluminium profiles.

Components	Quantity	Size	d _h	Diameter to be drilled	Drive
Supporting piece	2	ST4.8 x 50	7.0 – 9.5	4.2	ISR 25
Guide track	...	ST3.9 x 45	7,0	3.0	ISR 15
Retaining track	...	ST3.9 x 9.5	7,0	4.2	ISR 15
Bogie	4	ST4.8 x 50	7.0 – 9.5	4.2	ISR 25
Roller track	...	ST3.9 x 45	7,0	3.0	ISR 15
Roto Line Alversa geared-handle	4	ST4.8 x 45	7.0 – 9.5	4.2	ISR 25
	2	M5 x 12	–	–	ISR 25
Roto Line handle	2	M5 x ...	–	10.1 / 12	Cross-headed screw
Roto Line handle for internal and external use	4	M5 x ...	–	10.1 / 12	Cross-headed screw
Tandem bogie	8	ST4.8 x 50	7.0 – 9.5	4.2	ISR 25
Reinforcement part	2	M5 x 25 + Rivet nuts	7.0 – 9.5	7.1 (for rivet nut)	ISR 25

9.3 Force-fit connection

Coupleable hardware components always require a force-fit connection.



Assignment	Description
[1]	Component A
[2]	Screw guide with clamp
[3]	Component B
[4]	Component A toothed segment
[5]	Component B toothed segment
[6]	Screw

Force-fit connections are formed by screwing down components A and B so that forces and movements are transferred without loss.



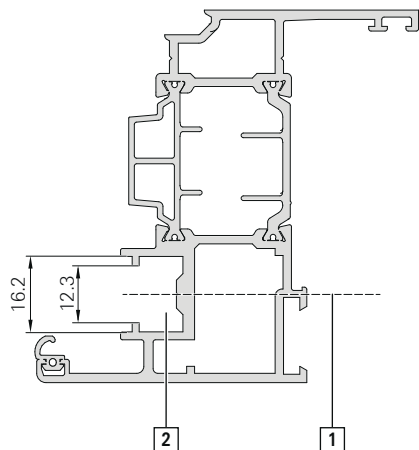
INFO

All coupleable components are delivered attached in the centre.



9.4 Drilling and routing dimensions

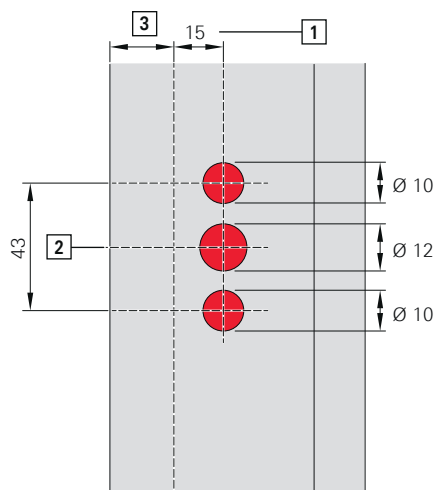
9.4.1 T&T espagnolettes



Sash profile cross section, dimensions for hardware

[1] Hardware axis

[2] Hardware groove



Drill holes for the handle's sprocket and lugs

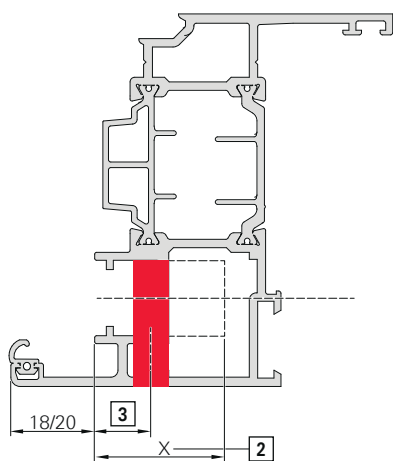
[1] Backset

[2] Handle height

[3] Overlap width: 16 to 20 mm

Drill hole Ø 10: drilling depth = overlap height + 16 for countersunk screws (ISO 7046-1 M5 x ...)

Drill hole Ø 12: drilling depth = overlap height + 16



Gearbox routing

[2] Routing depth (X) min. 28 mm

[3] Backset

[6] Routing length (Y)

Backset 8 = Y min. 30 mm

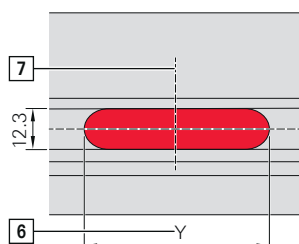
Backset 15 = Y min. 65 mm

Backset 25 to backset 50 = Y min. 100 mm

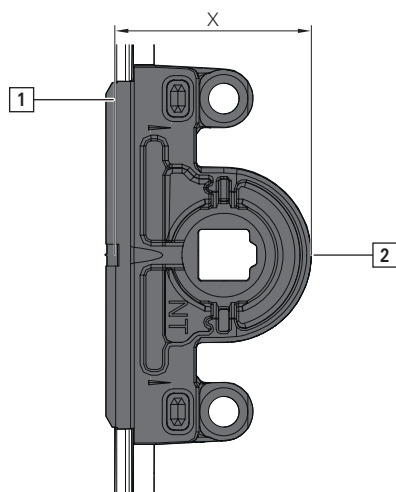


INFO

For reinforced espagnolettes, routing length = Y + 2 mm



[7] Centre of gearbox



Gearbox routing depth

[1] Top edge of floating mullion

[2] Bottom edge of espagnolette

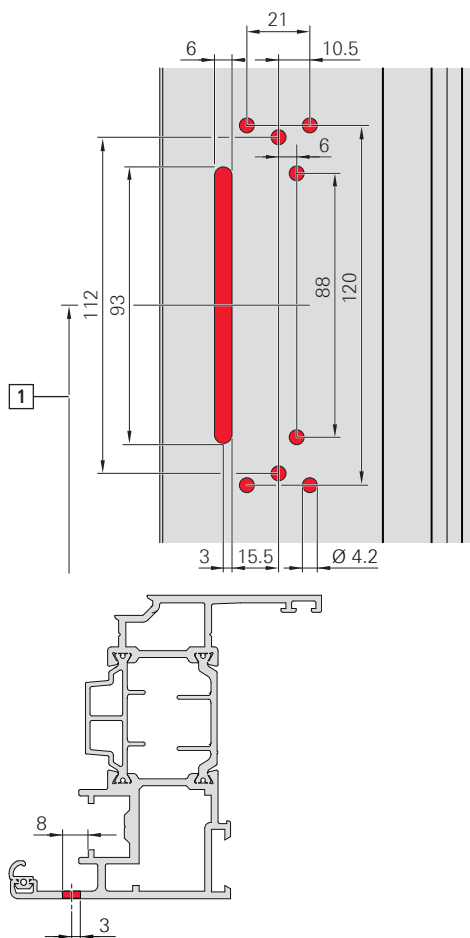
$X = BS + 13$

BS 15, fixed and centred / variable handle height; $X = 28$ mm

BS 45, centred / variable handle height, diagram C; $X = 58$ mm

BS 50, centred / variable handle height, diagram C; $X = 63$ mm

9.4.2 Geared-handle



Geared-handle drilling and routing dimensions

[1] Handle height



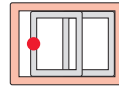
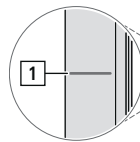
9.5 Sash

9.5.1 Preparing the sash for the T&T espagnolette

9.5.1.1 Handle drillings

Creating the drillings for the handle

1. Mark the handle-height position on the inside of the sash [1].



2. Create the drillings.
Note any different drilling dimensions. → 9.4
"Drilling and routing dimensions" from page 89
3. Deburr the drillings.

9.5.1.2 Gearbox cutout

Routing the gearbox cutout

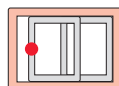
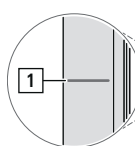
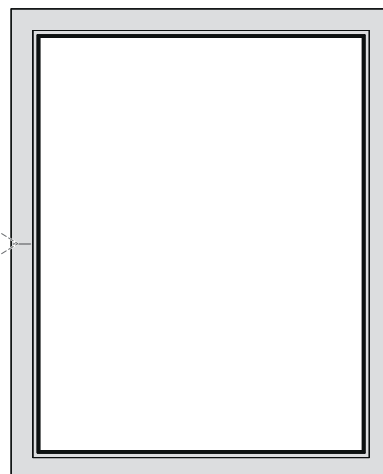
1. Route the espagnolette cutout.
Observe the routing dimensions. → 9.4 *"Drilling and routing dimensions" from page 89*
2. Deburr the espagnolette cutout.

9.5.2 Preparing the sash for the geared-handle

9.5.2.1 Handle drill holes

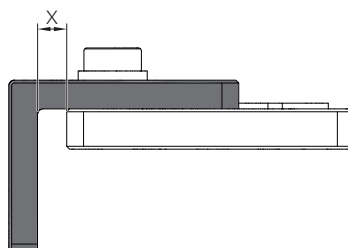
Drilling the holes for the handle

1. Mark the handle height on the inside of the sash [1].

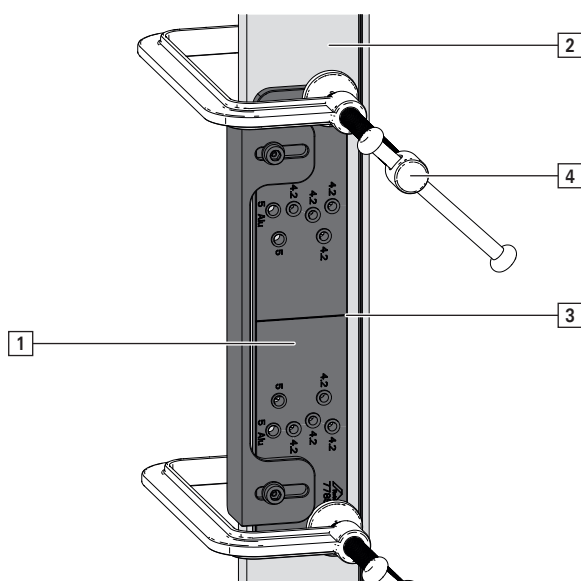


2. Adjust the drilling jig depending on the overlap width.

$X = \text{overlap width} - 15.5$



3. Position the drilling jig:
 - a. Place the drilling jig [1] on the sash [2].
 - b. Align the drilling jig on the marking [3].
 - c. Fix the drilling jig in place using the screw clamp [4].





-

Routing the longitudinal groove for the geared-handle

-

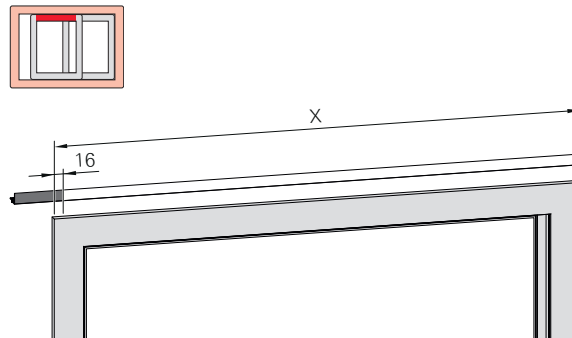
2. Route the longitudinal groove.
Observe the routing dimensions. → 9.4.2
"Geared-handle" from page 90
3. Deburr the longitudinal groove.

9.5.3 Stay-connecting profile

9.5.3.1 Cropping the stay-connecting profile

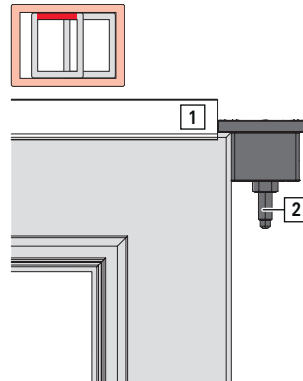
6 mm holes for securing the scissors-slider are provided at both ends of the stay-connecting profile at the factory.
Alternatively, drill the hole. → 9.5.3.4 "Retaining track (storage length)" from page 96

1. Crop the stay-connecting profile to the width of the sash, minus 16 mm [1].
Crop the stay-connecting profile for sash DIN L on the left.
Crop the stay-connecting profile for sash DIN R on the right.

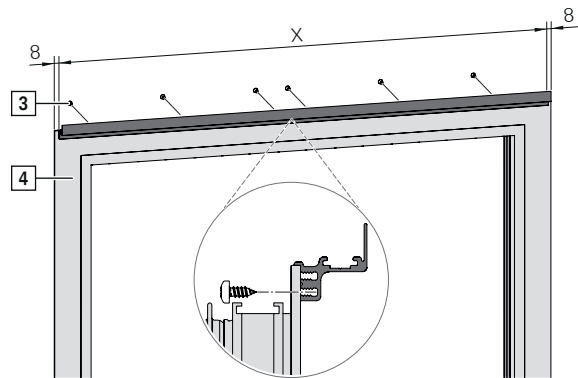


9.5.3.3 Installing the retaining track

1. Place the retaining track [1] on the top of the outer edge of the sash. (Jig [2] "Top guide block / installation" as installation aid)



2. Secure the retaining track in the centre of the sash [4] using screws [3].



9.5.3.4 Retaining track (storage length)

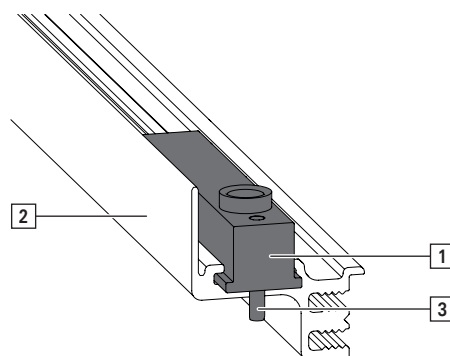
Drilling the hole in the retaining track (storage length)

1. Crop → 9.5.3.1 "Cropping the stay-connecting profile" from page 94 and install → 9.5.3.3

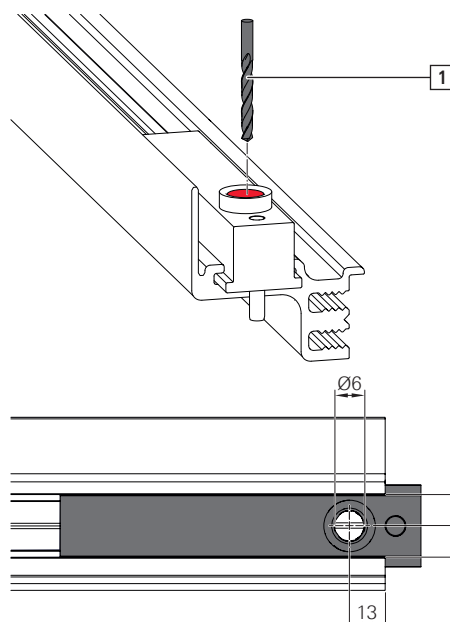


"Installing the retaining track" from page 96 the retaining track.

2. Insert the drilling jig [1] into the retaining track [2] on the hinge side.
3. Position the drilling jig stop [3] on the retaining track.



4. Drill into the retaining track using a Ø 6 mm drill [1].



9.5.4 Crop the hardware components



CAUTION

Incorrect cropping methods may result in property damage.

Do not insert the hardware components into the sash before they have been cropped. The screw guide engages and can be destroyed when it is removed.

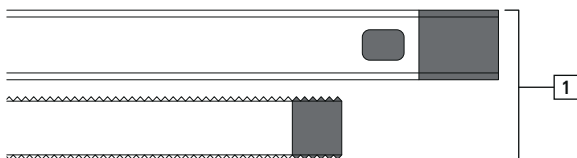
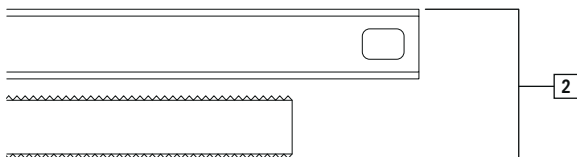
- ▶ Only lay out the hardware components and do not insert them into the sash before they have been cropped.

The following hardware components are cropped:

- Espagnolettes
- Centre locks

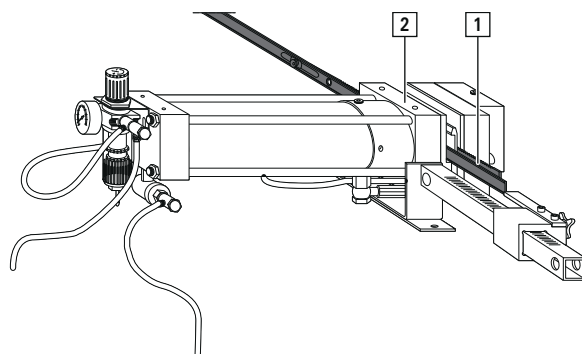
Cropping with a pneumatic punch (hole punching)

Hardware components are delivered 10 mm longer than the nominal dimension.



Assignment	Description
[1]	Hardware delivery state
[2]	Cropped hardware

1. Place the hardware component in the required position.
2. Mark the length on the hardware component.
3. Insert the hardware component [1] into the pneumatic punch [2].



4. Align the hardware component.
5. Crop the hardware component.



9.5.5 Corner drives



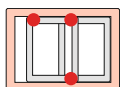
INFO

All components are manufactured with centre fixing.

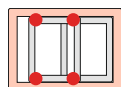
9.5.5.1 Standard corner drive



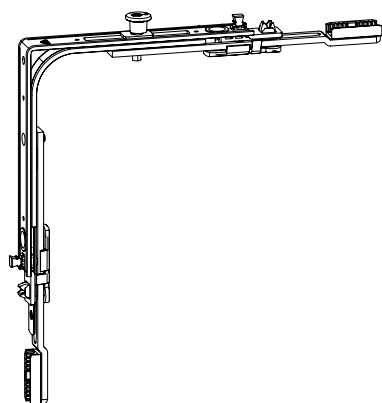
Position of the corner drives



Fixed handle height



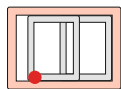
Centred / variable handle height



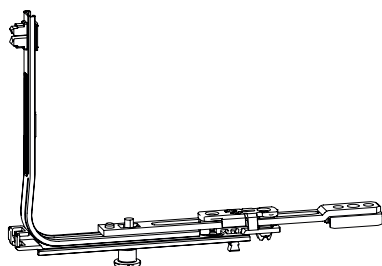
9.5.5.2 Tilt&Turn corner drive



Position of the corner drives



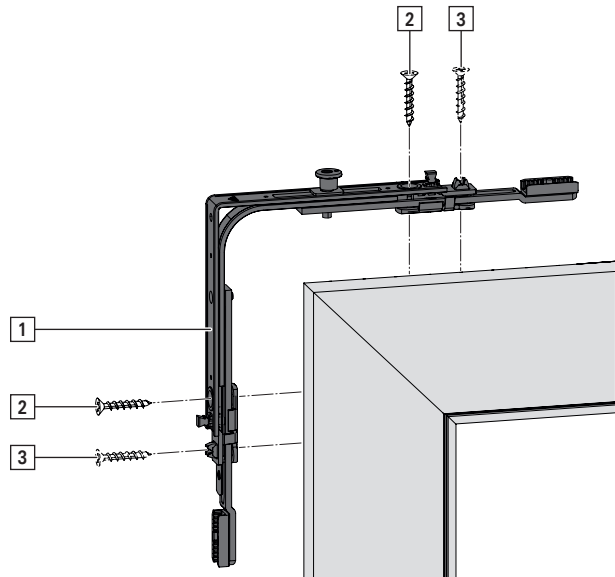
Fixed handle height



9.5.5.3 Corner drive

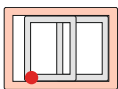
Installing the corner drive

1. Insert the corner drives [1] and screw them down with two screws [2].



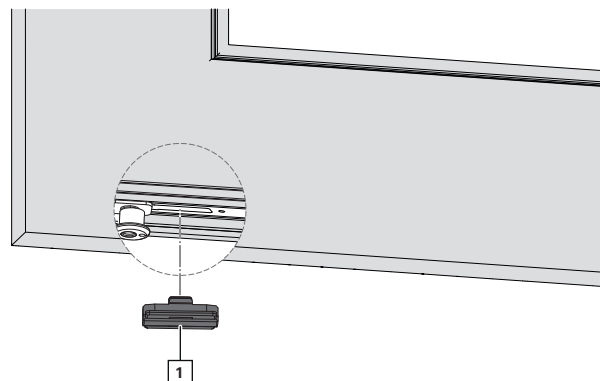
2. After all of the connector components have been installed, screw down the corner drives with a further two screws [3]. → 9.3 "Force-fit connection" from page 88

9.5.6 Travel restrictor



Installing the travel restrictor

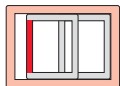
1. Insert the travel restrictor [1] into the centre-fixed corner drive on the locking side.





9.5.7 T&T espagnolettes

9.5.7.1 Fixed handle height



Installing the T&T espagnolette

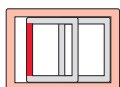
1. Place the espagnolette in the required position, mark the length and crop it on one side. → 9.5.4 "Crop the hardware components" from page 98.
2. Insert the espagnolette with the cropped side facing upwards and create a strong interlocking hardware connection. → 9.3 "Force-fit connection" from page 88



PRECONDITION

At an SRH of > 2400 mm, insert the multipart centre lock at the top on the locking side and create a strong interlocking hardware connection.

9.5.7.2 Centred / variable handle height

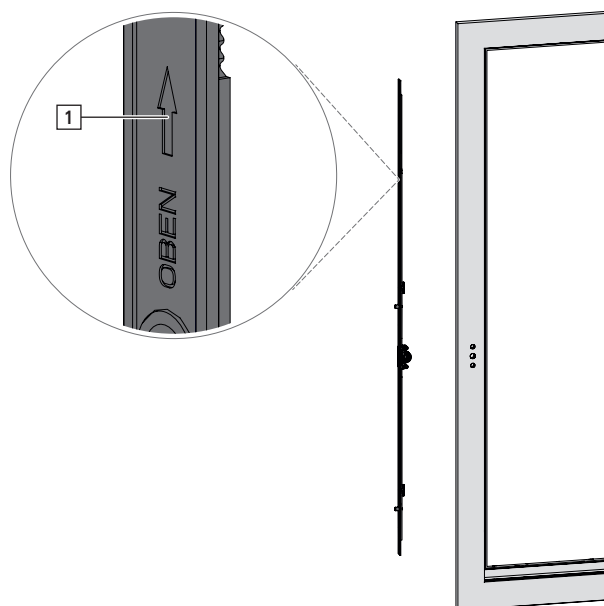


Installing the T&T espagnolette

1. Place the espagnolette or centre lock for the geared-handle in the required position, mark the length, remove it and crop it on both sides. →

9.5.4 "Crop the hardware components" from page 98.

2. Insert the espagnolette or centre lock for the geared-handle. Ensure it is installed in the correct direction, with the arrow [1] pointing upwards.
Create a strong interlocking hardware connection. → 9.3 "Force-fit connection" from page 88

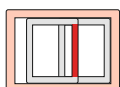


PRECONDITION

At an SRH of > 2400 mm, insert two multipart centre locks at the top and bottom on the locking side and create a strong interlocking hardware connection.

9.5.8 Centre locks

9.5.8.1 Vertical centre lock



Installing the vertical centre lock

1. Place the centre lock in the required position on the hinge side, mark the length, remove it and crop it on one side. → 9.5.4 "Crop the hardware components" from page 98
2. Insert the centre lock with the cropped side facing downwards and create a strong interlocking hardware connection. → 9.3 "Force-fit connection" from page 88

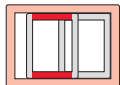


PRECONDITION

At an SRH of > 2400 mm, insert the multipart centre lock at the bottom on the hinge side and create a strong interlocking hardware connection.



9.5.8.2 Horizontal centre lock



CAUTION

Selecting incorrect components may lead to property damage.

The horizontal CL with comfort scissor stay must only be installed together with the horizontal CL with mishandling device. Failure to do so may result in damage to the frame and hardware components.

- ▶ Only install the horizontal CL with comfort scissor stay together with the horizontal CL with mishandling device.

Variant	Component	Position
Roto Patio Alversa KS	Horizontal CL	Top
	Horizontal CL with bullet catch	Bottom
Roto Patio Alversa PS without night ventilation	Horizontal CL	Top + bottom
Roto Patio Alversa PS with night ventilation		
Roto Patio Alversa PS Air		
Roto Patio Alversa PS Air Com	Horizontal CL with comfort scissor stay	Top
	Horizontal CL with mishandling device	Bottom

Installing the horizontal centre lock

1. Place the centre lock at the bottom on the hinge side and at the top on the locking side, mark the length, remove it and crop it on one side. → 9.5.4 "Crop the hardware components" from page 98
2. Insert the centre locks and create a strong interlocking hardware connection. → 9.3 "Force-fit connection" from page 88



PRECONDITION

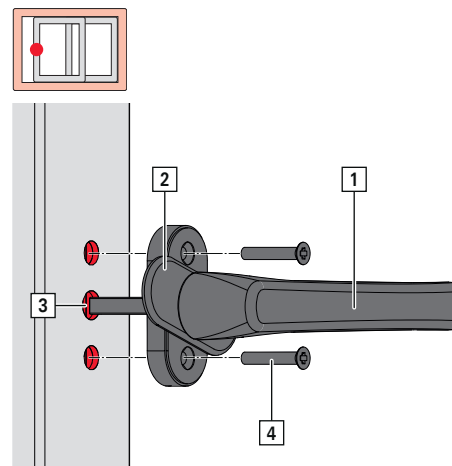
At an SRW of > 1650 mm, insert the multipart centre lock at the bottom on the locking side or at the top on the hinge side and create a strong interlocking hardware connection.

9.5.9 Handle

9.5.9.1 Handle – T&T espagnolette

Installing the handle – T&T espagnolette

1. Move the handle [1] to the sliding position (horizontally aligned with the escutcheon).
2. Rotate the cover [2] on the handle 90°.



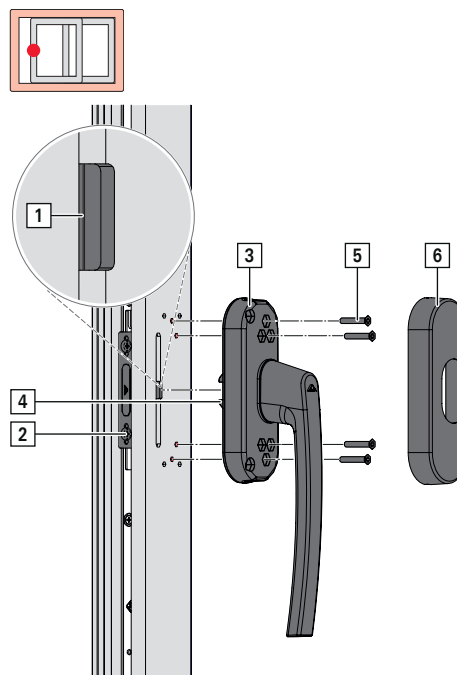
3. Insert the handle into the sash [3].
4. Secure the handle using two screws [4].
5. Rotate the cover on the handle 90°.



9.5.9.2 Handle – Geared-handle

Installing the handle – Geared-handle

1. Move the handle to the sliding position (horizontally aligned with the escutcheon).



2. On a 9 mm hardware axis: crop the connector [1] at the notch provided.
3. Secure the connector to the centre lock for the geared-handle with two screws [2].
4. Place the espagnolette [3] on the sash.
The connector engages in the coupling point [4].
5. Secure the espagnolette with four screws [5].
6. **CAUTION**
Take note of the following section before moving on to the next task. → 9.5.9.3 "Centre-fixing" from page 106
Undo the centre fixing.
7. Move the handle to the closed position and fit the cover [6].
8. Move the handle to the sliding position.

9.5.9.3 Centre-fixing



CAUTION

Undoing the centre-fixing incorrectly may result in property damage.

If the mishandling device at the bottom is not operated so that the centre-fixing on a Roto Patio Alversa | PS Air Com can be undone, this can damage the hardware components.

- ▶ To undo the centre-fixing on a Roto Patio Alversa | PS Air Com, operate the mishandling device at the bottom.
- ▶ Ensure that the comfort scissor stay can move freely.



INFO

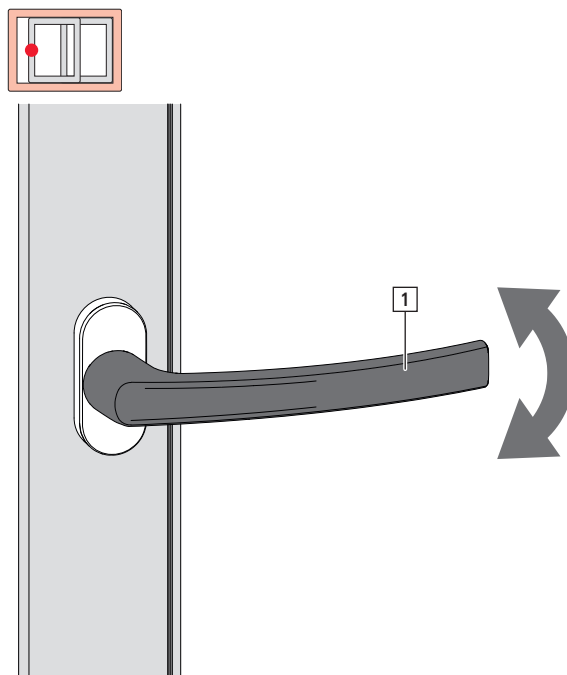
All components are manufactured with centre-fixing.

Undoing the centre-fixing

Turning the handle undoes the centre-fixing of the hardware components.

Audible cracking noise.

1. Move the handle [1] to the sliding position (horizontally aligned with the escutcheon cover).



2. Turn the handle in one direction until it reaches the stop.
Audible cracking noise.
3. Turn the handle in the opposite direction until it reaches the stop.
Audible cracking noise.
4. Turn the handle in both directions again and check for ease of movement.

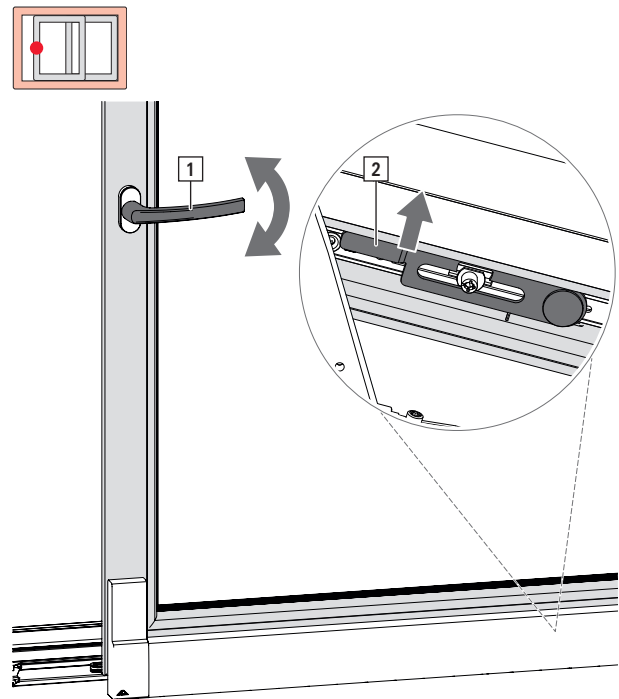
Undoing the centre fixing (Roto Patio Alversa | PS Air Com)

Turning the handle undoes the centre-fixing of the hardware components.

Audible cracking noise.



1. Move the handle [1] to the sliding position (horizontally aligned with the escutcheon cover).



2. Operate the mishandling device [2] at the bottom.
Ensure that the comfort scissor stay can move freely.
3. Turn the handle in one direction until it reaches the stop.
Audible cracking noise.
4. Turn the handle in the opposite direction until it reaches the stop.
Audible cracking noise.
5. Turn the handle in both directions again and check for ease of movement.

9.5.10 Bogies / reinforcement brackets

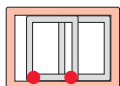
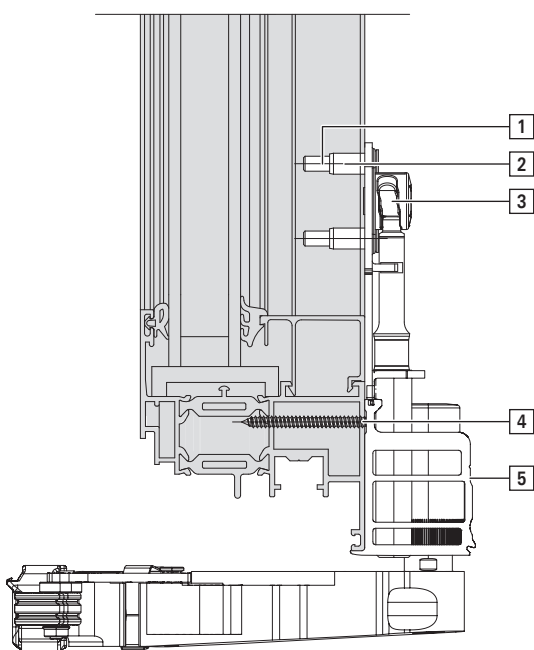


WARNING

Incorrect screw connections may lead to serious injuries.

The hardware components can be pulled out of the sash if they are not screwed through a profile wall that is at least 6 mm thick in total or screwed down using rivet nuts.

- ▶ Select the length of the screws so that they will hold in the aluminium profile. Alternatively, insert additional aluminium profiles.



Assignment	Designation
[1]	Screw for reinforcement bracket
[2]	Rivet nut
[3]	Reinforcement bracket
[4]	Screw
[5]	Bogie

The following installation sequence applies to the following components:

- Bogies up to 160 kg (with / without damping)
- Tandem bogies up to 200 kg (with damping)



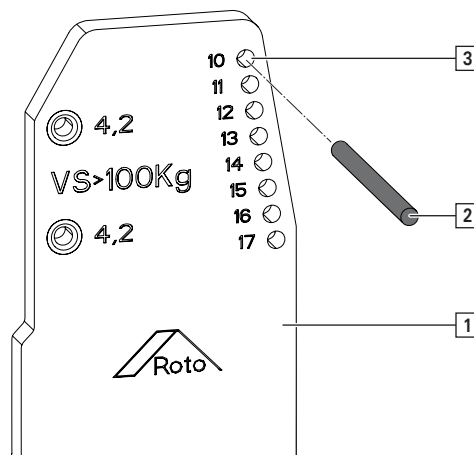
INFO

Leading bogies are installed on the locking side.
Trailing bogies are installed on the hinge side.



9.5.10.1 Preparing the drilling jig

1. Insert the dowel pin [2] into the dowel pin position 10 [3] on the drilling jig [1].



INFO

Two drilling jigs are required for each sash side on tandem bogies. Only insert the dowel pin into the outer drilling jig.



INFO

Drill holes on the side of the sash that is facing the frame.



INFO

Always install two reinforcement parts for Roto Patio Alversa | PS.

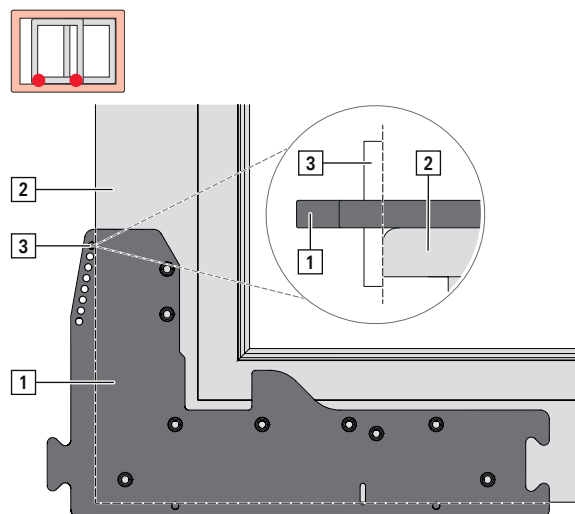
The following drill holes are required:

Determining the drill holes

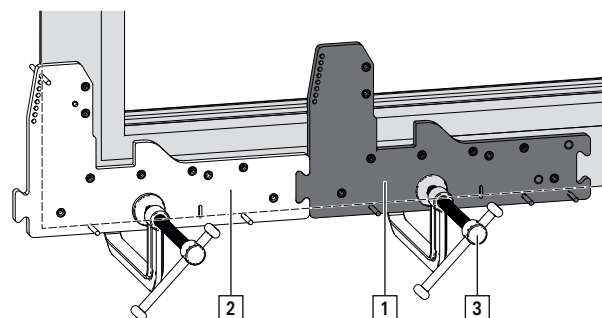
Sash weight	Bogies	Reinforcement parts
Up to 100 kg For: Roto Patio Alversa KS	2 bogies 4 drill holes each	without
Up to 160 kg	2 bogies 4 drill holes each	2 reinforcement parts 2 drill holes each
over 160 kg	2 tandem bogies 8 drill holes each	2 reinforcement parts 2 drill holes each

Positioning the drilling jig

1. Position the drilling jig [1] on the lower edge of the sash [2].
The dowel pin [3] is located on the outside of the sash.



2. For tandem bogies, insert the second drilling jig [1] into the first drilling jig [2].



3. Check that the drilling jig is seated correctly.
4. Fasten the drilling jig(s) using a screw clamp [3].



9.5.10.2 Drilling the holes



WARNING

Incorrect screw connections may lead to serious injuries.

The hardware components can be pulled out of the sash if they are not screwed through a profile wall that is at least 6 mm thick in total or screwed down using rivet nuts.

- ▶ Select the length of the screws so that they will hold in the aluminium profile. Alternatively, insert additional aluminium profiles.



INFO

2 drilling jigs are required for each sash side on tandem bogies. Only insert the dowel pin into the outer drilling jig.



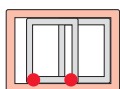
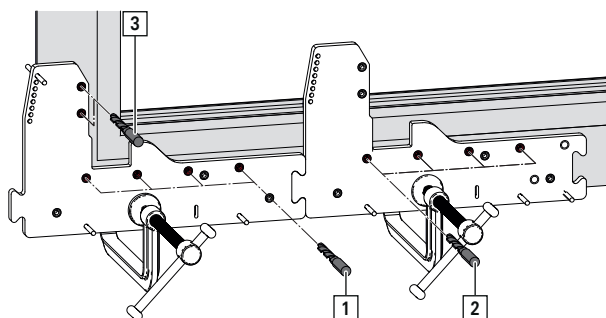
INFO

Drill holes on the inside of the sash.



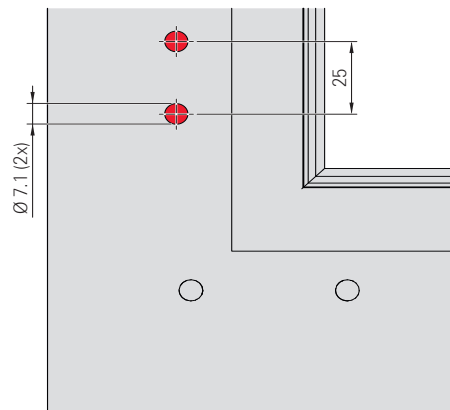
INFO

Drill holes for reinforcement brackets in Tilt&Slide systems with a sash weight of over 100 kg.



1. Drill the holes [1] for the bogies, or
Drill the holes [1] and [2] for the tandem bogie.
S.kg > 100 kg: drill the holes [3] for the
reinforcement brackets.
Drill: Ø 4.2 mm

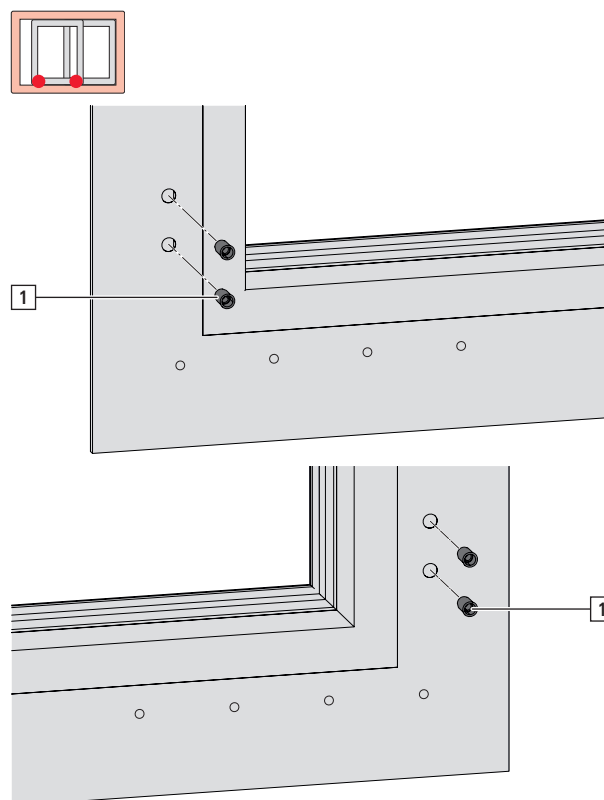
2. Drill $\varnothing 4.2$ mm inner holes with a $\varnothing 7.1$ mm drill.



9.5.10.3 Rivet nuts

Fitting rivet nuts

1. Fit rivet nuts [1] in the drill holes for the reinforcement brackets.

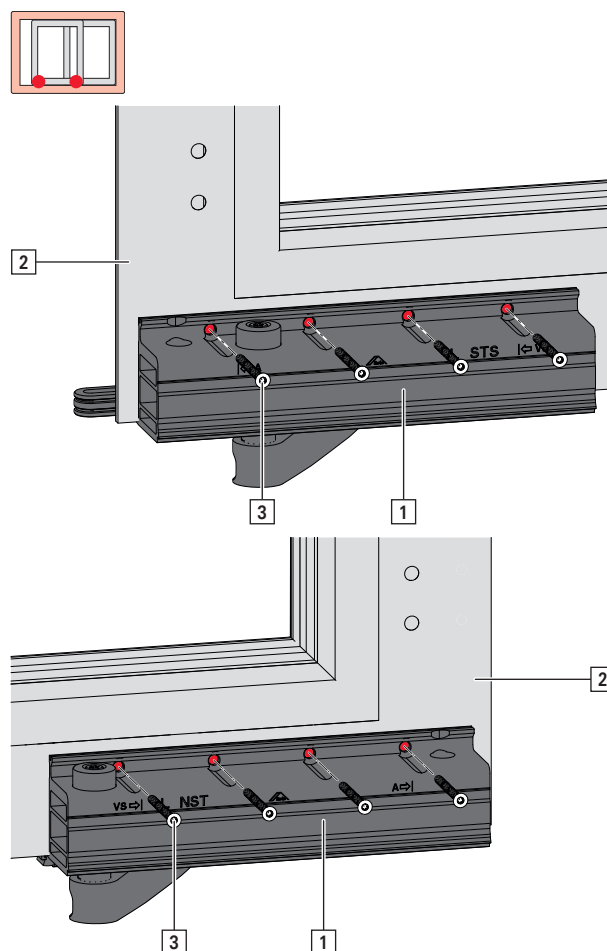




9.5.10.4 Bogies

Installing the bogies

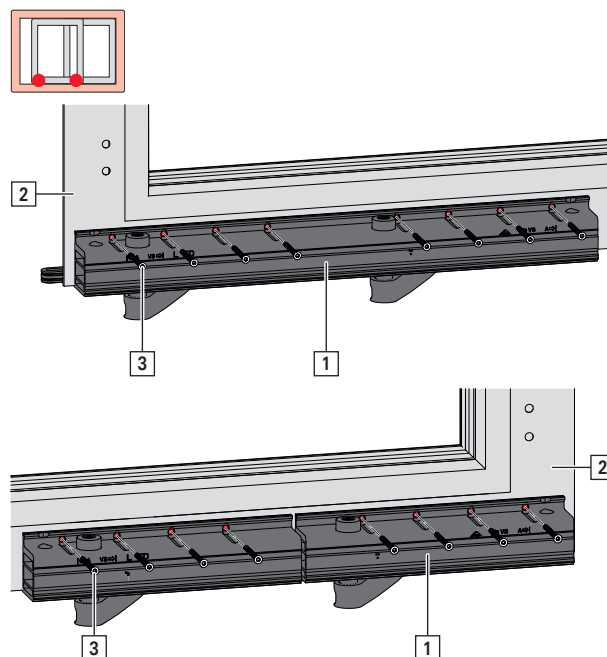
1. Place the bogies [1] on the sash [2].



2. Check that the bogies are seated correctly:
 - Distance from the outer edges of the sash. → 9.5.10.1 "Preparing the drilling jig" from page 109
 - Flush with the lower edge of the sash frame.
3. Screw down each bogie with 4 screws [3].

Installing the tandem bogies

1. Place the tandem bogies [1] on the sash [2].

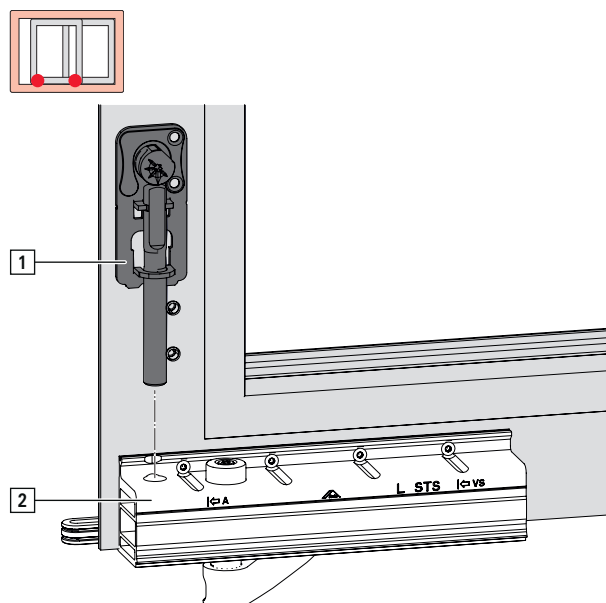
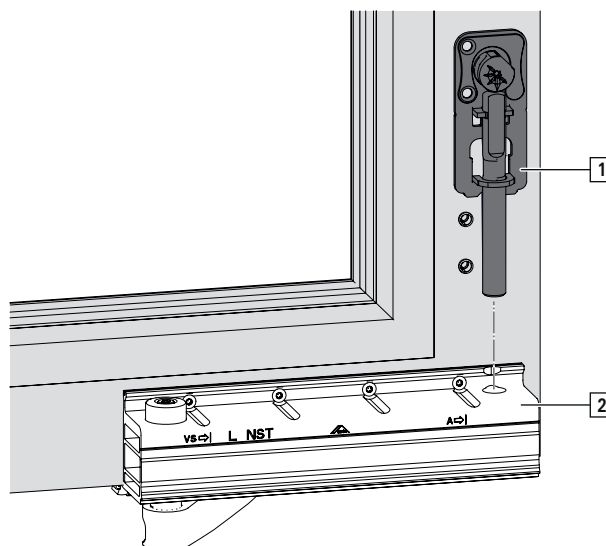


2. Check that the tandem bogies are seated correctly:
 - Distance from the outer edges of the sash. → *9.5.10.1 "Preparing the drilling jig" from page 109*
 - Flush with the lower edge of the sash frame.
3. Screw down each tandem bogie with 8 screws [3].

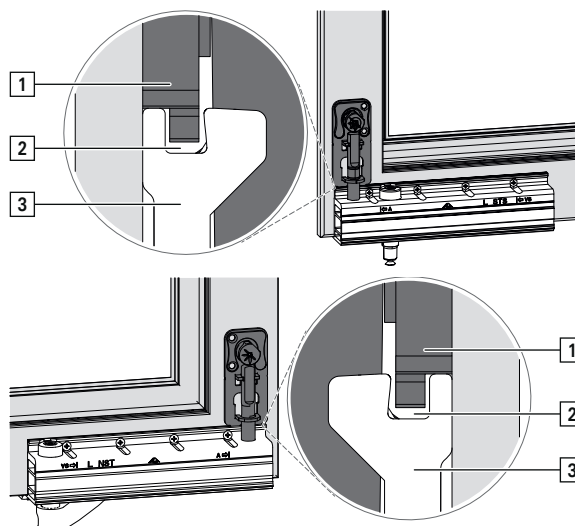


9.5.10.5 Installing the reinforcement parts

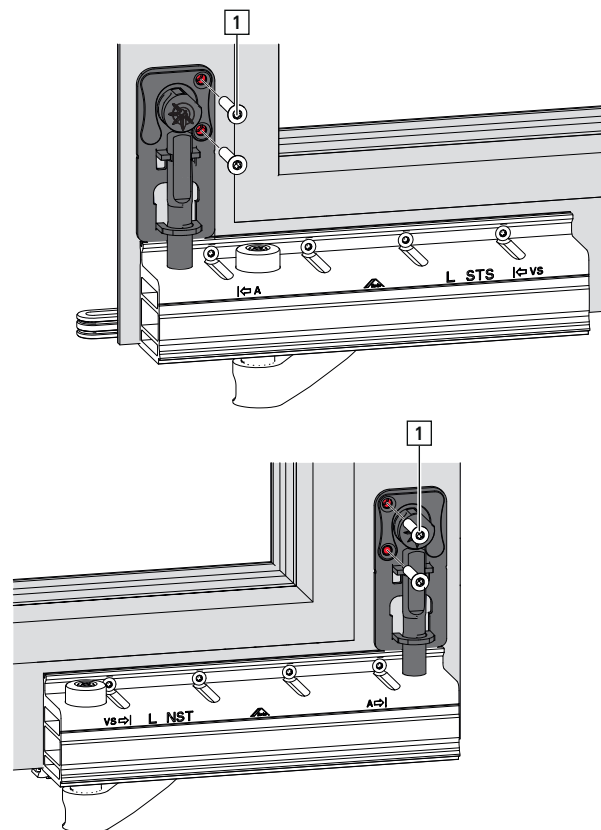
1. Insert the reinforcement parts [1] into the bogies [2].



2. Check that the reinforcement parts are seated correctly.
 Has the reinforcement part [1] been inserted into the guide groove [2] in the bogie [3]?



3. Screw down the reinforcement parts with 2 screws [1].



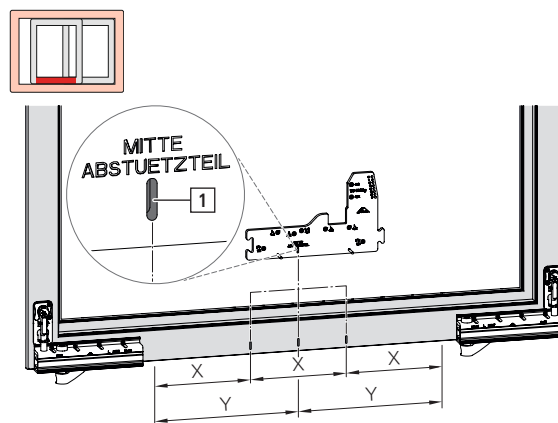


9.5.11 Support bracket

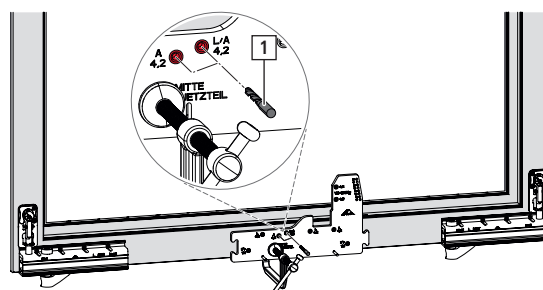
9.5.11.1 Supporting piece drill holes

Drilling the holes for the supporting piece

1. Determine the position of the supporting pieces with the same distance on the right and left.
2. Mark the position of the supporting pieces.
3. Place the drilling jig on the marking [1].



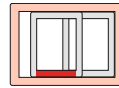
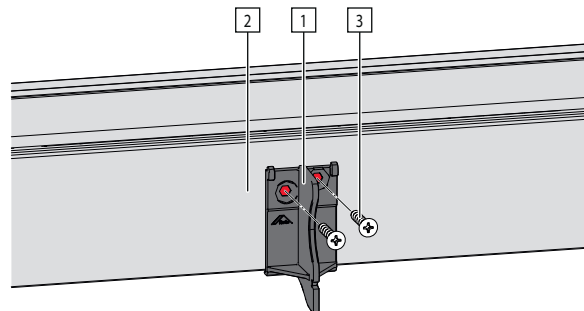
4. Fix the drilling jig in place using the screw clamp.
5. Drill the holes [1] for the supporting pieces.



9.5.11.2 Support bracket

Installing the support bracket

1. Place the support bracket [1] on the sash [2].



2. Screw down the support bracket with 2 screws [3].

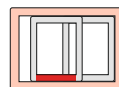
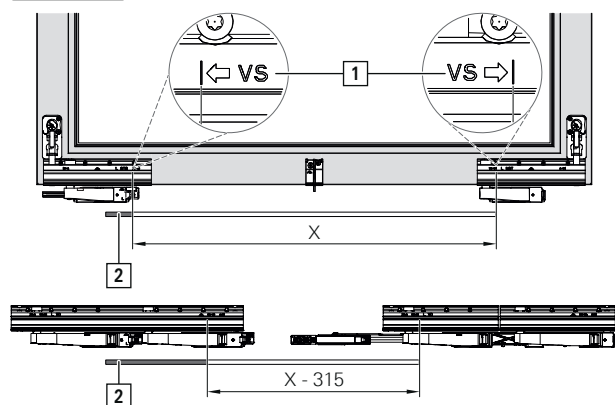
9.5.12 Connecting rod / connecting-rod support-block

9.5.12.1 Connecting rod

Cropping the connecting rod

Connecting rod for	Length
Bogies without damping (Roto Patio Alversa KS only)	according to the marking
Bogies with damping (Roto Patio Alversa PS only)	according to the marking, minus 315 mm

1. Mark the connecting rod according to the bogie markings [1].



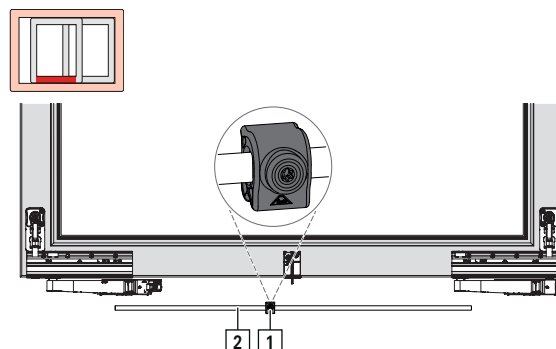
2. Crop the connecting rod [2].



9.5.12.2 Connecting-rod support-block

Installing the connecting-rod support-block

1. From an SRW of > 1450 mm: push an additional connecting-rod support-block [1] to the centre of the connecting rod [2].



2. Align the connecting-rod support-block with the bogie.

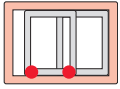


INFO

Position the threaded pin so that it is perpendicular to the inside of the sash.

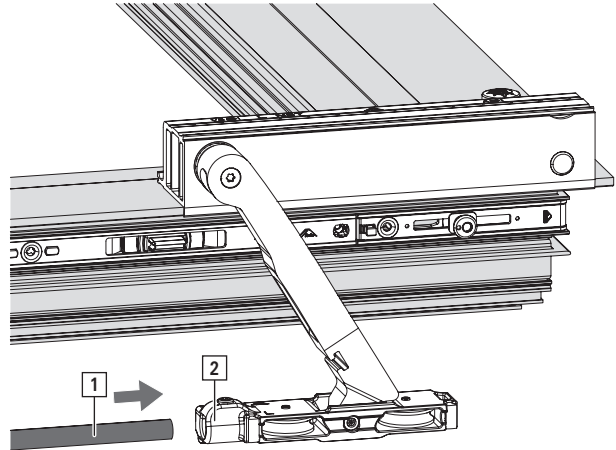
3. Screw down the connecting-rod support-block on the connecting rod (torque: 2 – 3 Nm).

9.5.12.3 Connecting rod

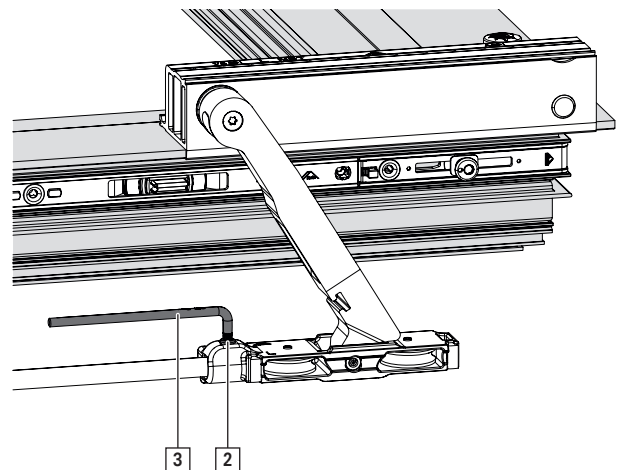


Installing the connecting rod

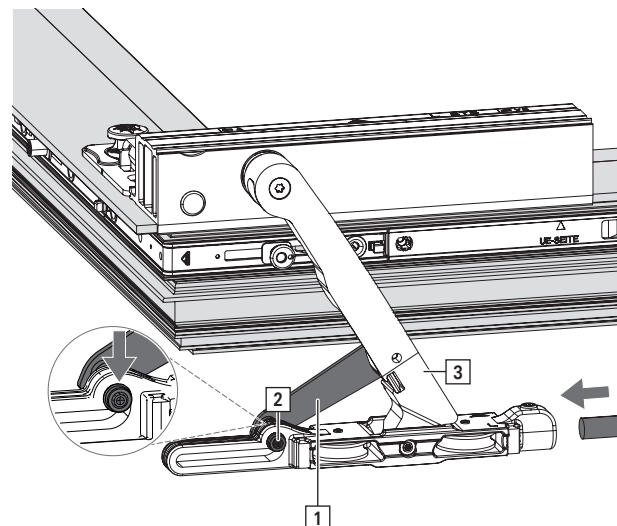
1. Insert the connecting rod [1] into the bogie roller unit [2] on the hinge side.



2. Secure the connecting rod with a screw [1] using a T25 hexalobular socket screwdriver [2] (torque: 5 – 7 Nm).



3. Insert the connecting rod into the bogie roller unit on the locking side.
If the control arm [1] is engaged in the roller unit, push on the cam [2] to unlock it and fold up the support arm [3].





4. Fold in the support arms and align them so that they are parallel to the frame.

i INFO

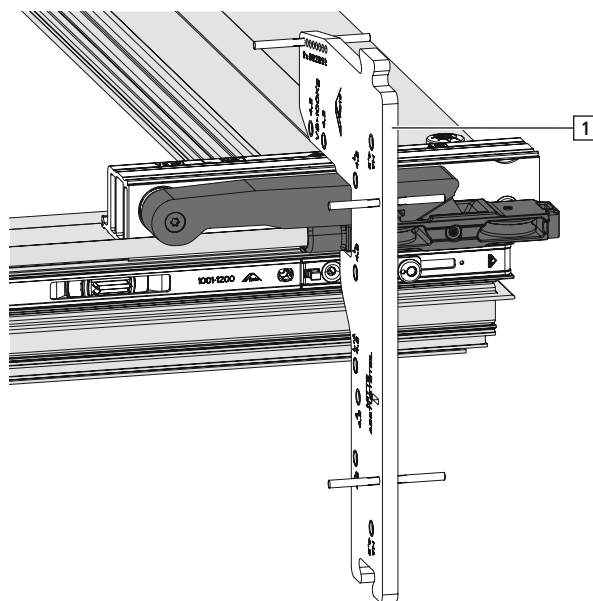
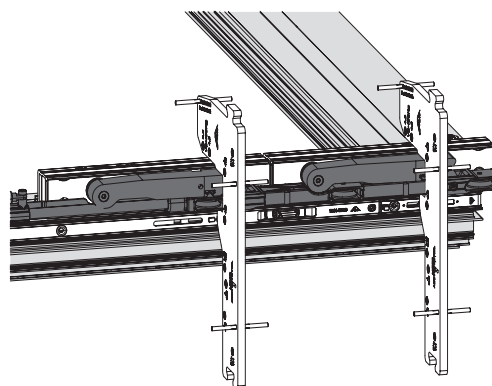
The “drilling jig for bogies” or the “installation jig for the top guide block” can be used to align the support arms on the bogies. While doing so, ensure that the jig rests flat on the sash component of the bogie.

Place the drilling jig [1] for fixing the folded-in support arm on the roller units on the hinge side.

Check that the jig is resting flat on the sash component of the bogie.

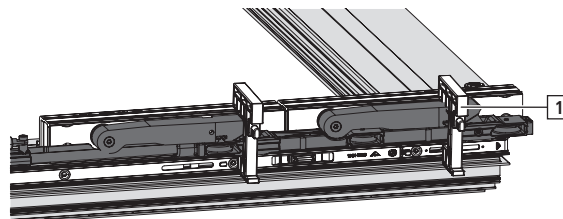
If necessary, place a second drilling jig on the bogie on the locking side in order to fix the support arm.

- a. Tandem bogies: place two drilling jigs for fixing the folded-in support arms on the roller units on the hinge side.

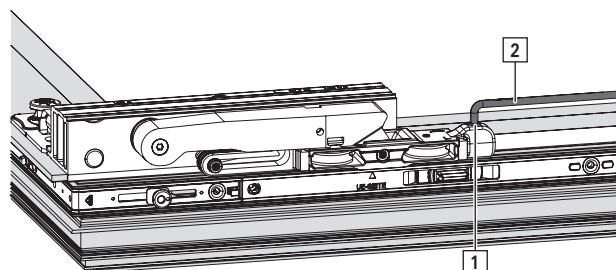


- b. **Alternatively:**

Place installation jigs for the top guide block [1] on the roller units on the hinge side to fix the folded-in support arms.



5. Tighten the screw [1] on the locking side using a T25 hexalobular socket screwdriver [2] (torque: 5 – 7 Nm).



9.6 Frame



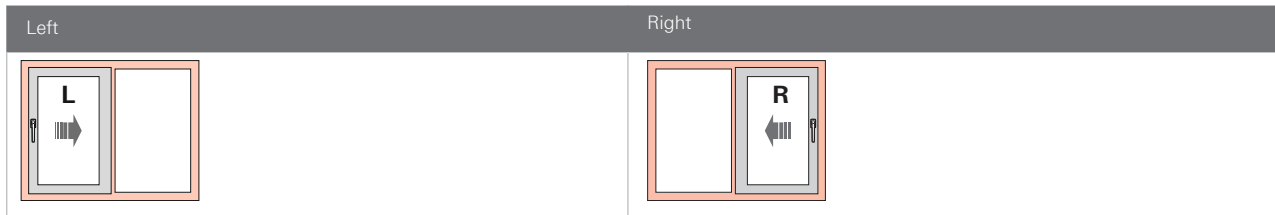
INFO

Install the frame components when the frame is horizontal (workshop).

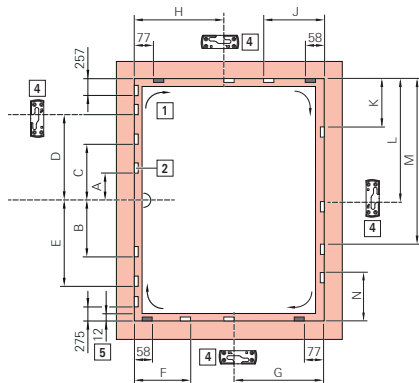
Once the frame is fitted, the reveal may prevent frame components from being installed correctly.

9.6.1 Frame components

Explanation of the markings



Explanation of frame component positioning



The locking direction [1] indicates the direction in which the element locks and how the frame components must be turned in order to achieve the correct point of entry.

The frame component item number [2] represents all frame components shown.

The item number [3] shows the handle centre.

The point of entry [4] illustrates the edge to which the dimensional guide line refers for the different frame components.

The dimensioning illustrates where a frame component is positioned and the SRH or SRW in question. The dimensions can be found in the tables below. The dimensions apply to a rebate clearance of 12 mm [5].

Installing frame components

1. Use the jigs according to the overviews of jigs for frame components. → 9.6.5 “Overview with positioning jigs” from page 130
2. Position strikers, guide plates, tilt strikers, frame component for the mishandling device and frame component for the comfort scissor stay according to the overview of the relevant frame component.

Variant	Frame component including cross reference to the overview with dimensional drawing
Rotopatio Alversa KS	Strikers → <i>from page 123</i> Guide plates → <i>from page 128</i>
Rotopatio Alversa PS without night ventilation	Strikers → <i>from page 123</i>
Rotopatio Alversa PS with night ventilation	Strikers → <i>from page 123</i> Night ventilation strikers → <i>from page 123</i>
Rotopatio Alversa PS Air	Strikers → <i>from page 123</i> Tilt strikers → <i>from page 123</i>
Rotopatio Alversa PS Air Com	Strikers → <i>from page 123</i> Tilt strikers → <i>from page 123</i> Comfort scissor stay and mishandling device frame component → <i>from page 129</i>



9.6.2 Strikers, night ventilation strikers and tilt strikers

9.6.2.1 Overview with dimensional drawing



INFO

The overview shows the security grades from basic security to RC 2 / RC 2 N.
The dimensions given refer to the point of entry of the striker.

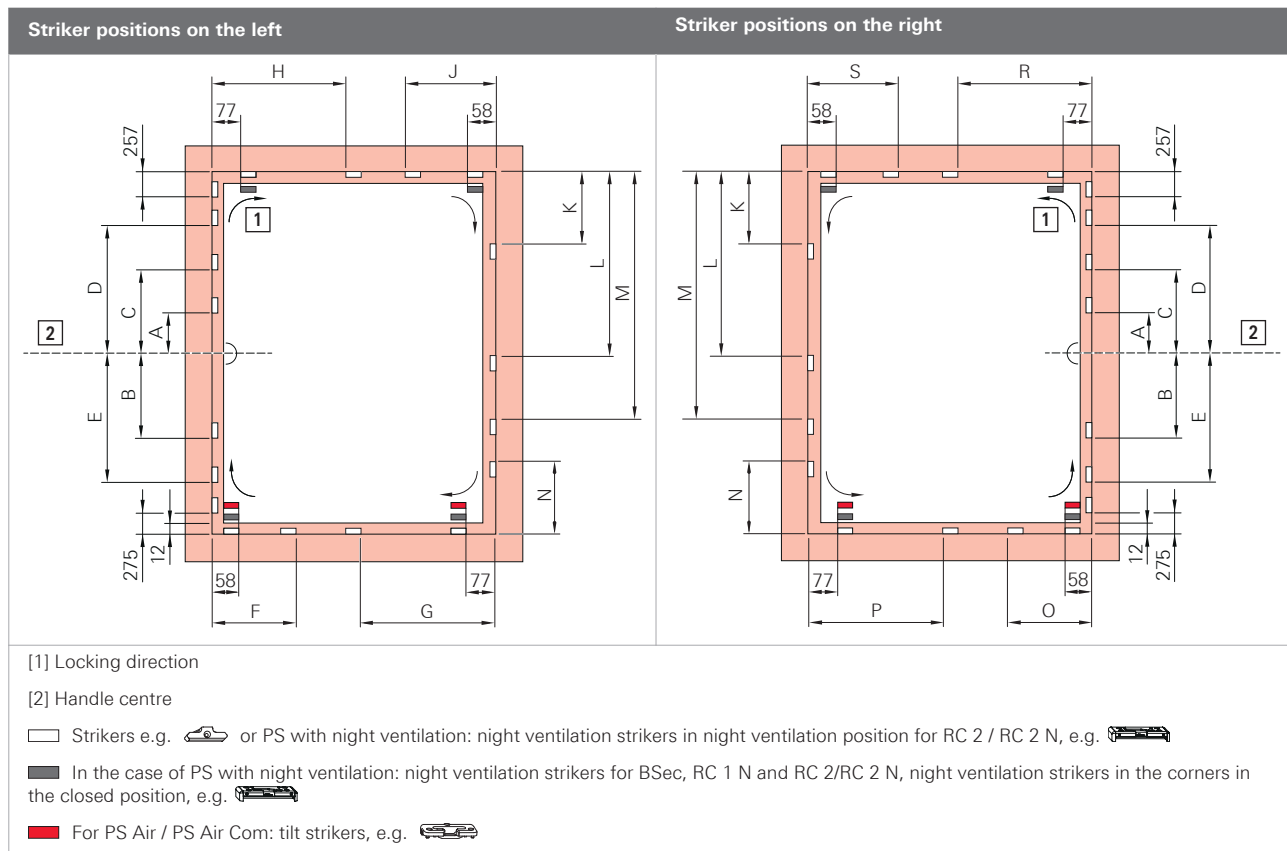
E.g. PVC

	Strikers	Night ventilation strikers	Tilt strikers
			<p>[A] With base [B] Without base</p>
Positioning of the components (DIN L shown here) on the basis of the point of entry [1] (= dimensional guide line) of the cams:			

E.g. timber

	Strikers	Night ventilation strikers	Tilt strikers
	<p>[A] Hardware axis 9 (Euro-rebate / Euro-groove) [B] Hardware axis 13 (Euro-rebate / Euro-groove)</p>		
Positioning of the components (DIN L shown here) on the basis of the point of entry [1] (= dimensional guide line) of the cams:			

Diagram A – Centred / variable handle height



T&T espagnolette, centred / variable handle height

SRH / mm	A	B	C	D	E
600 – 1200	125	–	–	–	–
1201 - 1600	125	340	–	–	–
1601 - 2000	–	312	358	–	–
2001 - 2400	–	312	358	758	740
2401 - 2600	–	312	358	758	740
With extension	–	–	–	–	–
2601 - 2700	–	312	358	758	740
With extension	–	–	–	–	–



INFO

The handle height is 280 mm with SRH 600 - 620 mm.

Centre lock, vertical – Diagram A

SRH / mm	K	L	M	N
600 - 800	–	–	–	–
801 - 1000	550	–	–	–
1001 - 1200	700	–	–	–
1201 - 1400	700	–	–	–
1401 - 1600	700	1170	–	–

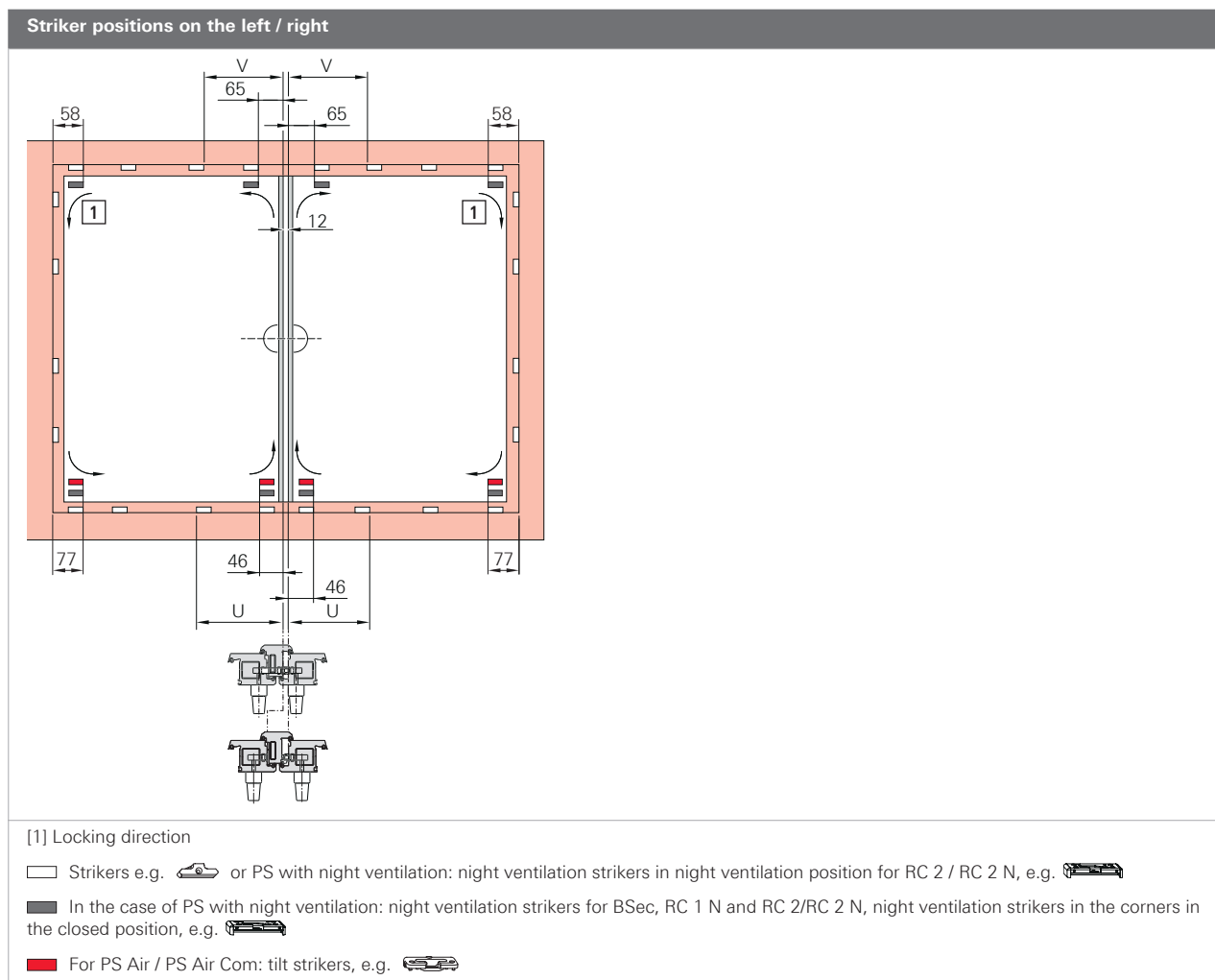


SRH / mm	K	L	M	N
1601 - 1800	700	1370	–	–
1601 - 1800	700	1370	–	–
1801 - 2000	700	1370	–	–
2001 - 2200	700	1370	1770	–
2201 - 2400	700	1370	1770	–
2401 - 2600	700	1370	1770	–
With extension	–	–	–	257
2601 - 2700	700	1370	1770	–
With extension	–	–	–	457

Centre lock, horizontal

SRW / mm	F DIN L	G DIN L	H DIN L	Y DIN L	O DIN R	P DIN R	R DIN R	S DIN R
600 - 800	–	–	–	–	–	–	–	–
801 - 1000	–	468	468	–	–	468	468	–
1001 - 1200	–	618	618	–	–	618	618	–
1201 - 1400	–	618	618	–	–	618	618	–
1401 - 1650	–	868	868	–	–	868	868	–
1651 - 1850	–	868	868	–	–	868	868	–
With extension	257	–	–	257	257	–	–	257
1851 - 2000	–	868	868	–	–	868	868	–
With extension	457	–	–	457	457	–	–	457

Diagram C – Centred / variable or fixed handle height



Centre lock, horizontal – Diagram C

SRW / mm	U	V
600 - 800	–	–
801 - 1000	–	456
1001 - 1200	–	606
1201 - 1400	–	606
1401 - 1650	–	856
1651 - 1850	–	856
With extension	245	–
1851 - 2000	–	856
With extension	445	–



INFO

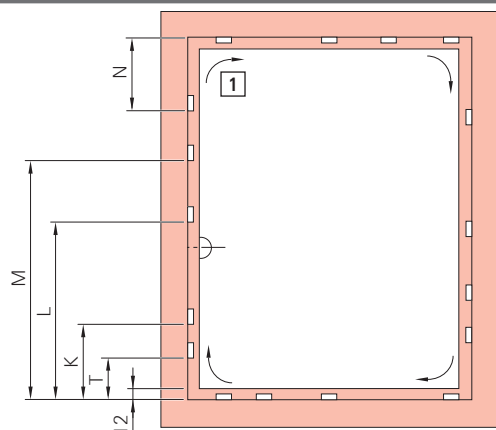
For other striker positions for the T&T espagnolette and vertical and horizontal centre locks, see the tables for diagram A.



Diagram A – Fixed handle height



Striker positions on the left / right



[1] Locking direction

□ Strikers e.g.

T&T espagnolette, fixed handle height

SRH / mm	T ^[8]	K	L	M	N
600 - 800	–	383	–	–	–
801 - 1000	160	550	–	–	–
1001 - 1200	160	700	–	–	–
1201 - 1400	160	700	–	–	–
1401 - 1600	160	700	1170	–	–
1601 - 1800	160	700	1370	–	–
1601 - 1800	160	700	1370	–	–
1801 - 2000	160	700	1370	–	–
2001 - 2200	160	700	1370	1770	–
2201 - 2400	160	700	1370	1770	–
2401 - 2600	160	700	1370	1770	–
With extension	–	–	–	–	257
2601 - 2700	160	700	1370	1770	–
With extension	–	–	–	–	457



INFO

For striker positions for vertical and horizontal centre locks, see the tables for diagram A – Centred / variable handle height.

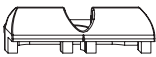
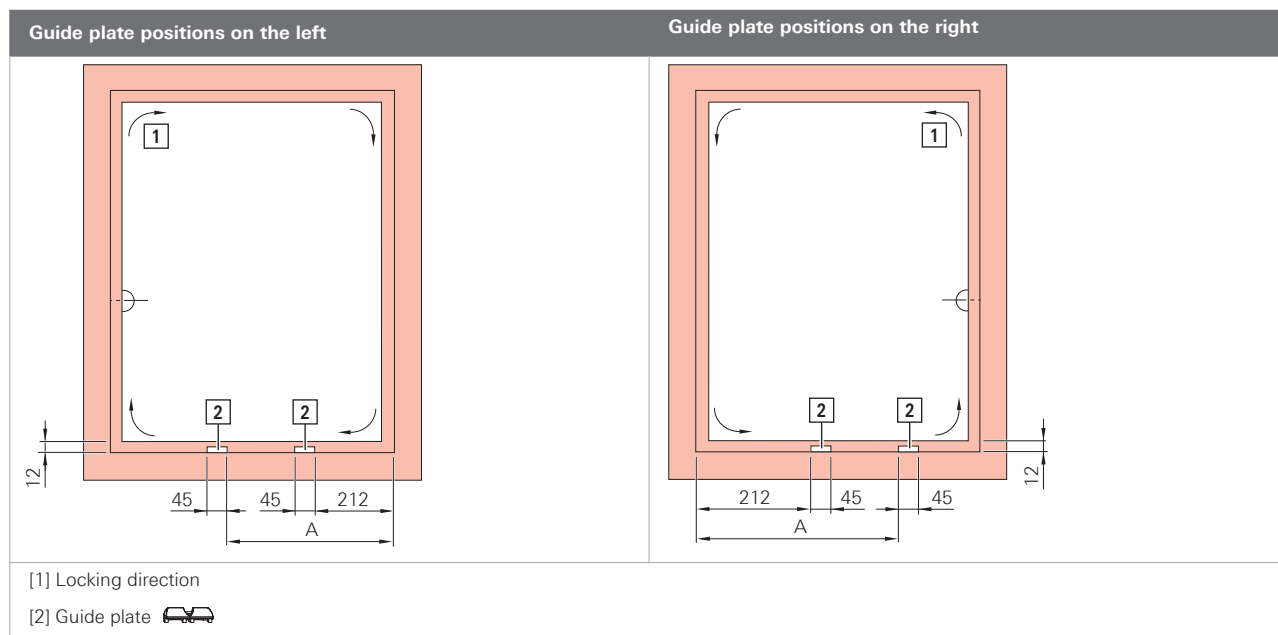
[8] Only T&T espagnolette RC 2

9.6.3 Guide plates



9.6.3.1 Overview with dimensional drawing

E.g. PVC



Centre lock, horizontal, bottom, with bullet catch

SRW / mm	A DIN L / R
600 - 800	392
801 - 1000	592
1001 - 1200	792
1201 - 1400	992
1401 - 1650	1192

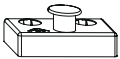
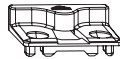
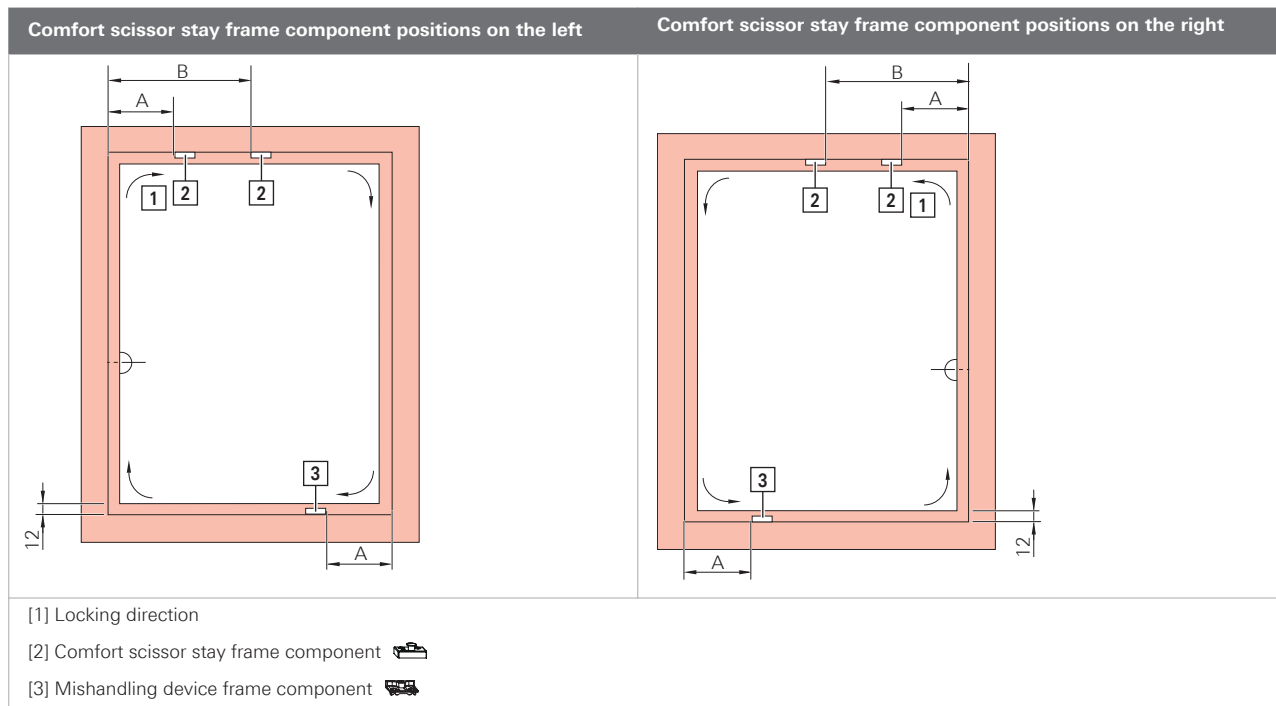


9.6.4 Comfort scissor stay and mishandling device



9.6.4.1 Overview with dimensional drawing

E.g. PVC



Centre lock, horizontal, with comfort scissor stay at the top and mishandling device at the bottom

SRW / mm	A	B
600 - 800	359	–
801 - 1000	359	–
1001 - 1200	359	–
1201 - 1400	359	960
1401 - 1650	359	1160

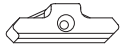
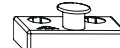
9.6.5 Overview with positioning jigs



INFO

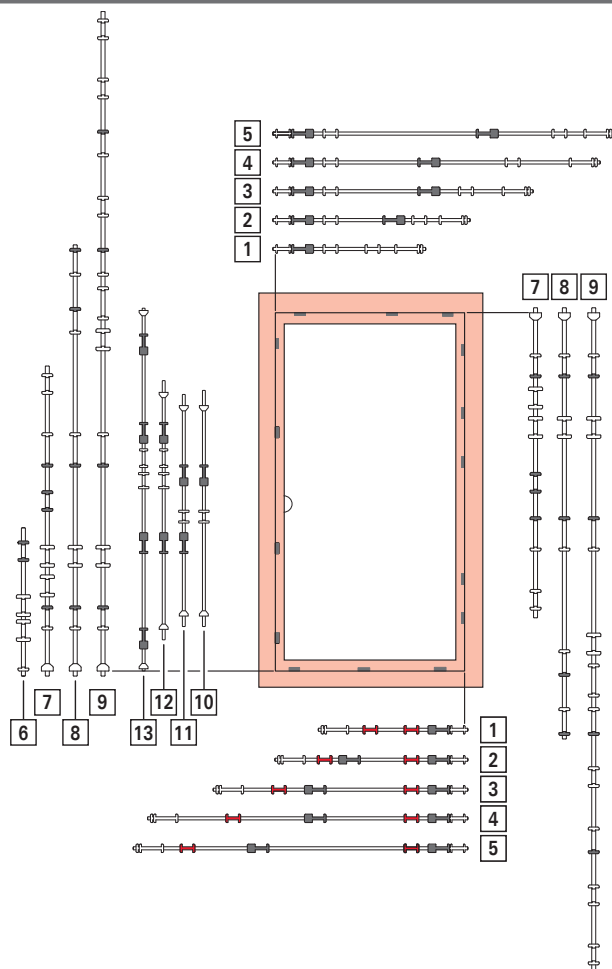
The right-hand version is mirror-inverted.

E.g. PVC



Roto Patio Alversa | KS

Left-hand version



Positioning jigs, horizontal (for CL at the top / bottom)

Assignment	SRW / mm
[1]	600 - 800
[2]	801 - 1000
[3]	1001 - 1200
[4]	1201 - 1400
[5]	1401 - 1650



Positioning jigs, vertical (for CL, vertical; T&T espagnolette, fixed handle height)

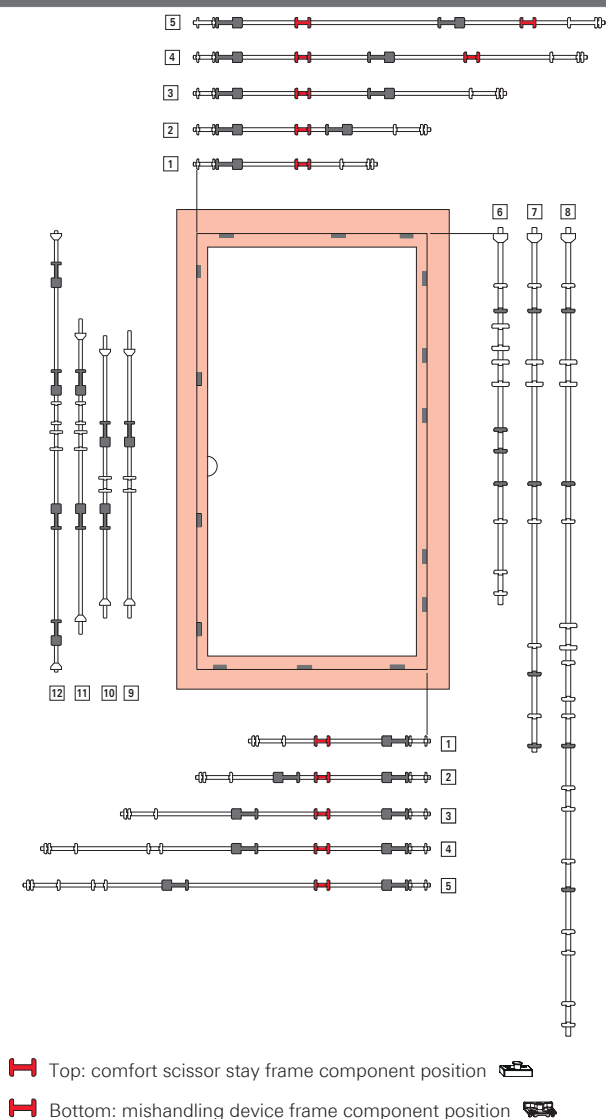
Assignment	SRH / mm
[6]	600 - 800 ^[9]
[7]	801 - 1400
[8]	1401 - 2000
[9]	2001 - 2400

Positioning jigs, vertical (for T&T espagnolette, centred / variable handle height)

Assignment	SRH / mm
[10]	621 - 1200
[11]	1201 - 1600
[12]	1601 - 2000
[13]	2001 - 2400

Roto Patio Alversa | PS

Left-hand version



[9] Not for CL, vertical



INFO

At an SRH of 2401 to 2700 mm and an SRW of 1601 to 2000 mm, manually place additional strikers. On frame components with a width of more than 50 mm, jigs can only be used for the frame component's point of entry.
 Do not work on night ventilation strikers using jigs.

Positioning jigs, horizontal (for CL at the top / bottom)

Assignment	SRW / mm
[1]	720 - 800
[2]	801 - 1000
[3]	1001 - 1200
[4]	1201 - 1400
[5]	1401 - 1600

Positioning jigs, vertical (for CL, vertical)

Assignment	SRH / mm
[6]	801 - 1400
[7]	1401 - 2000
[8]	2001 - 2400

Positioning jigs, vertical (for T&T espagnolette, centred / variable handle height)

Assignment	SRH / mm
[9]	650 - 1200
[10]	1201 - 1600
[11]	1601 - 2000
[12]	2001 - 2400

9.6.6 Guide track



WARNING

Incorrect screw connections may lead to serious injuries.

The hardware components can be pulled out of the sash if they are not screwed through a profile wall that is at least 6 mm thick in total or screwed down using rivet nuts.

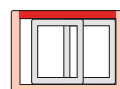
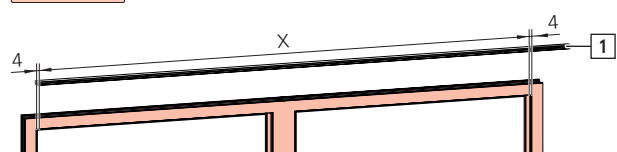
- ▶ Select the length of the screws so that they will hold in the aluminium profile. Alternatively, insert additional aluminium profiles.

9.6.6.1 Preparing the guide track

Cropping the guide track

1. Crop the guide track [1].

$$X = \text{frame internal width} + (2 \times \text{coverage}) - 8$$

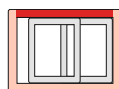
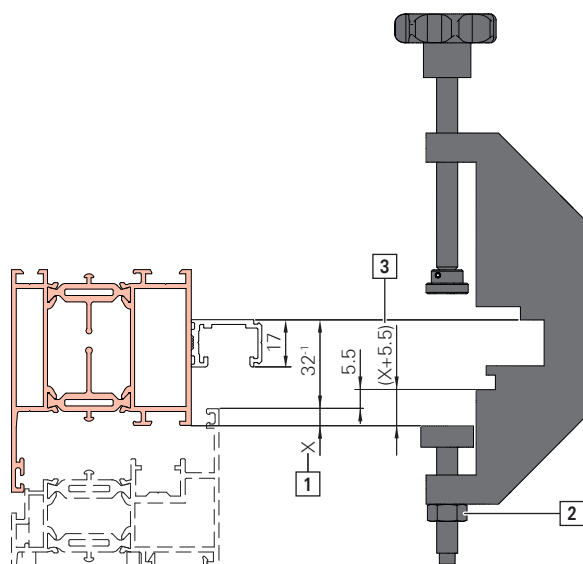




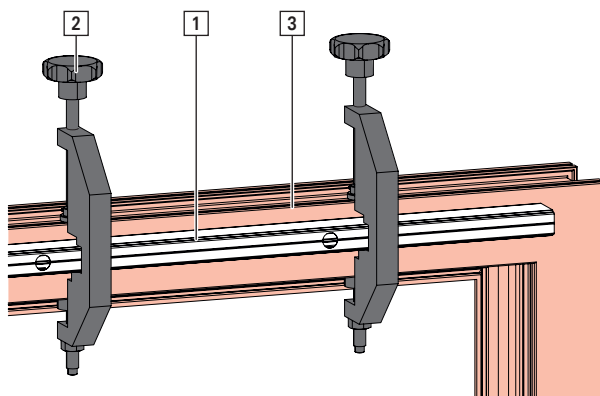
9.6.6.2 Guide track drill holes

Drilling the holes for the guide track

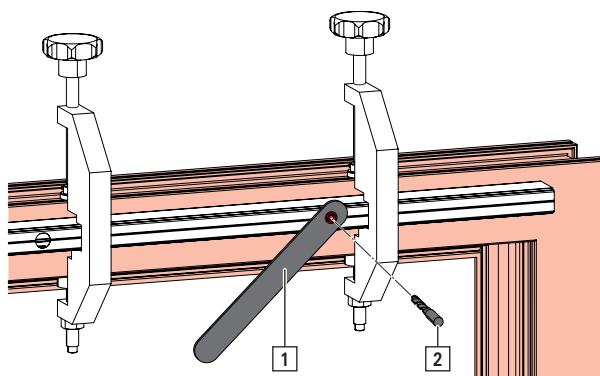
1. Adjust the jig for the guide track.
- a. Determine coverage X [1] with a rebate clearance of 12 mm.
- b. Undo the nut [2].
- c. Adjust dimension X + 5.5 [3] for the guide track.
- d. Tighten the nut.



2. Align the guide track [1] with jigs [2] in the centre of the frame [3].
- a. Position the guide track in two jigs.
- b. Place the jigs with the guide track on the frame from below.
- c. Secure the jigs to the frame.

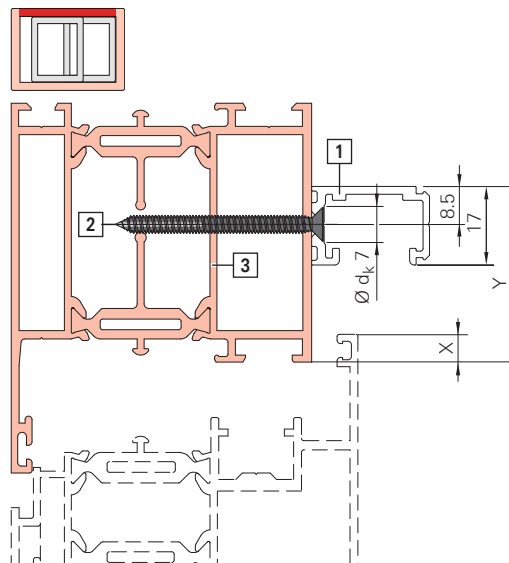


3. Use a drilling aid [1] to drill holes in the guide track.
Drill [2]: Ø 3.0 mm



9.6.6.3 Installing the guide track

1. Fasten the guide track to the frame with the distance dimension Y. Note coverage X.
 With coverage 6: Y = 38 mm.
 With coverage 8: Y = 40 mm.



2. Screw down the guide track [1] with screws [2] in all of the predrilled holes in two profile walls [3].

9.6.7 Sliding scissor stay

9.6.7.1 Inserting the KS sliding scissor stay



WARNING

Trapped limbs may result in injuries.

When being transported, the sliding scissor stay can open and close uncontrollably. This can result in limbs being trapped and seriously injured.

- ▶ Note the danger zone in the sliding scissor stay.
- ▶ Close the sliding scissor stay after installation and secure it in place for transport.
- ▶ Wear safety gloves.

The scissor stay retention must always be located on the hinge side.

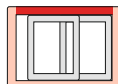
The Roto Patio Alversa | KS sliding scissor stay can be pushed past the middle (dead centre) and be used for left and right-hand sashes. Always note the correct side during insertion.

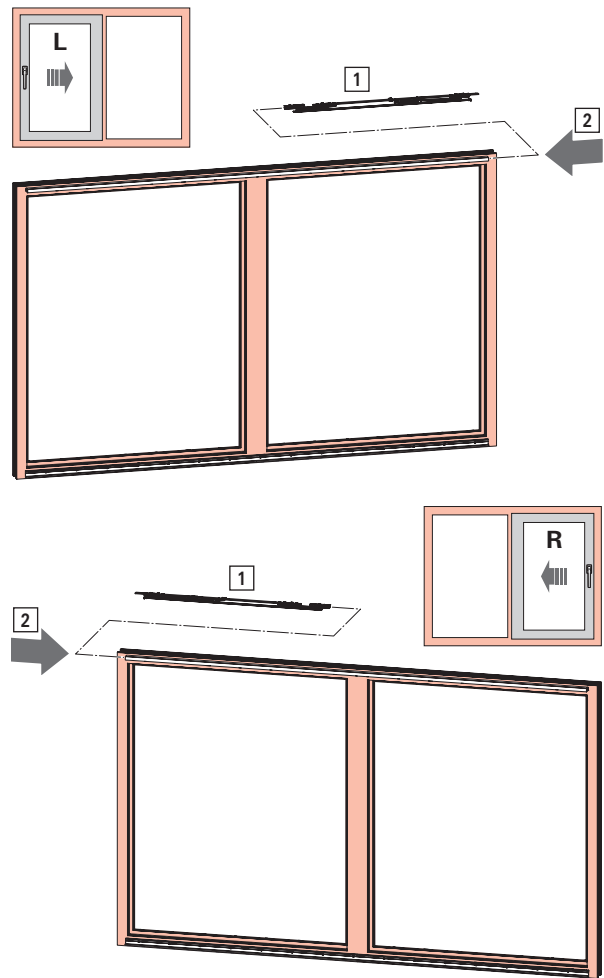


INFO

Slide the sliding scissor stay onto the frame when it is horizontal (workshop).

1. Open the sliding scissor stay [1].
 Insert the sliding scissor stay into the guide track from the hinge side [2].





2. Secure the sliding scissor stay for transport to prevent it from opening and falling out.

9.6.7.2 Preassembling the PS sliding scissor stay with retrofit set

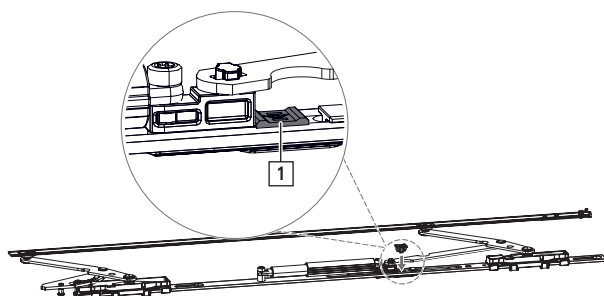
Choosing a retrofit set

Variant	Requirements
Lock-in position	Mandatory from dimension M > 44 mm
Tilt assistance	Mandatory from S.kg > 140 kg

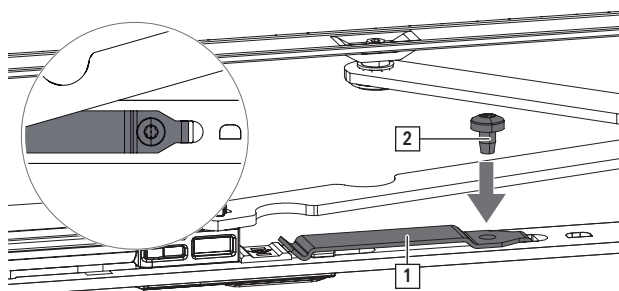
Installing the retrofit set for lock-in position



1. Open the PS sliding scissor stay.
 Clip the catch cam [1] into the slot next to the damper.



2. Place the leaf spring [1] with lug into the opening and align it so that it is parallel.
 Secure to the sliding scissor stay with the self-tapping screw provided [2] using a T20 hexalobular socket screwdriver.



Installing the retrofit set for tilt assistance



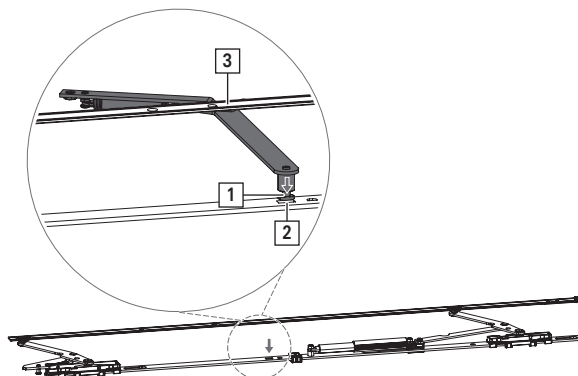
1. Open the PS sliding scissor stay.



INFO

Guide the retrofit set underneath the floating mullion connecting rod [3]. This is no longer possible at a later point.

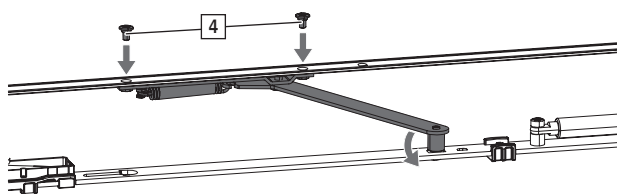
Insert the mounting bolt [1] from the retrofit set into the slot on the scissor stay connecting rod [2].





2. Turn the installed retrofit set until its drill holes are located beneath those of the floating mullion connecting rod.

Secure in the floating mullion connecting rod with two screws [4] using a T25 hexalobular socket screwdriver.



9.6.7.3 Inserting the PS sliding scissor stay and installing the top guide block



WARNING

Trapped limbs may result in injuries.

When being transported, the sliding scissor stay can open and close uncontrollably. This can result in limbs being trapped and seriously injured.

- ▶ Note the danger zone in the sliding scissor stay.
- ▶ Close the sliding scissor stay after installation and secure it in place for transport.
- ▶ Wear safety gloves.

The scissor stay retention must always be located on the hinge side.

The Roto Patio Alversa | PS sliding scissor stay is available in left or right-hand variants. During insertion, ensure that the guide block is preassembled.

Preparing the PS sliding scissor stay

1. Mount the top guide block [1] into the sliding scissor stay bolt [2].

Variant	Guide block	Figure
Roto Patio Alversa PS without night ventilation Roto Patio Alversa PS with night ventilation	Top guide block, fixed	
Roto Patio Alversa PS Air Roto Patio Alversa PS Air Com	Top guide block, tiltable	

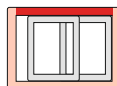
Inserting the PS sliding scissor stay and installing the top guide block

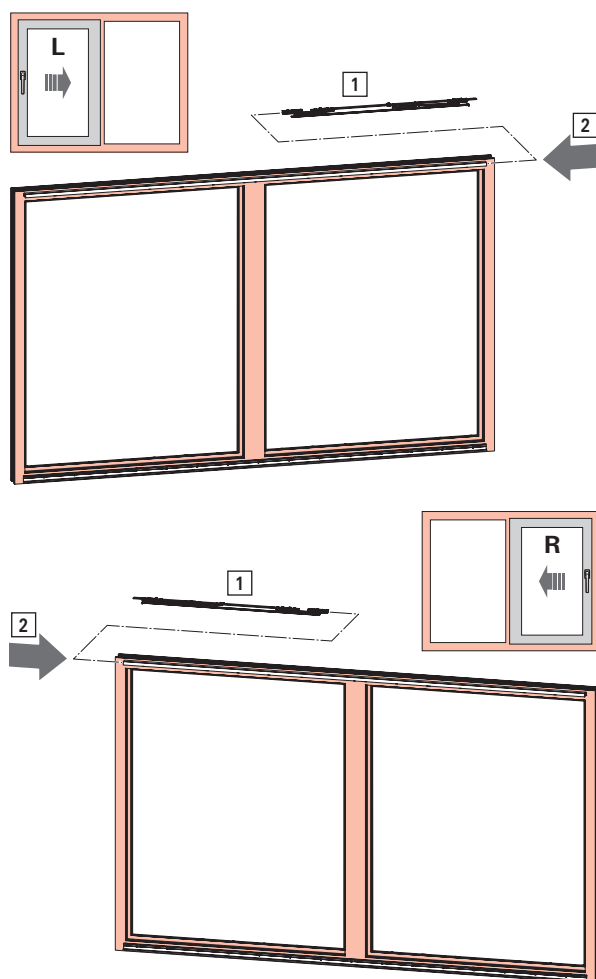


INFO

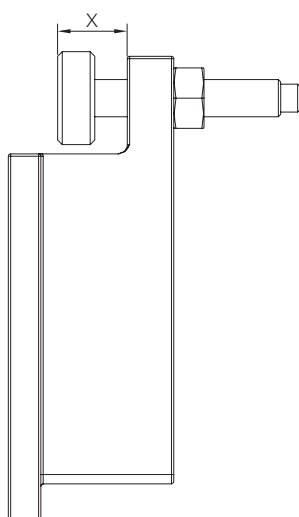
Slide the closed sliding scissor stay onto the frame when it is horizontal (workshop).

1. Insert the closed sliding scissor stay [1], with fitted guide block, into the guide track [2] from the hinge side.

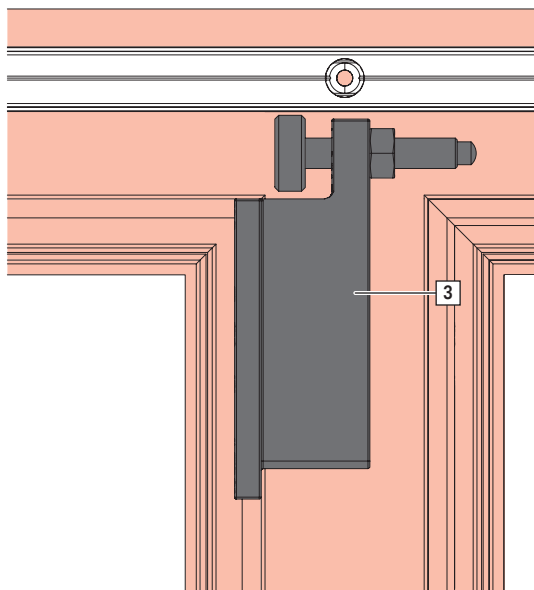




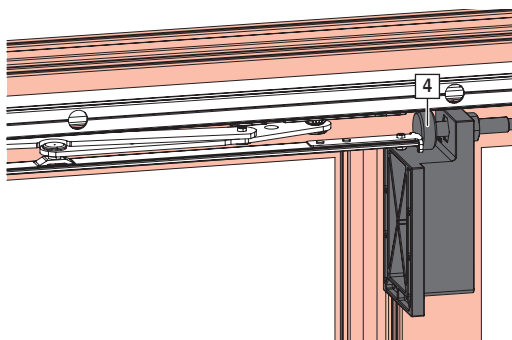
2. Adjust the installation jig for the top guide block.
 $X = 23 + \text{rebate clearance} - \text{overlap width}$
 (e.g.: $X = 23 + 12 - 20 = 15 \text{ mm}$)



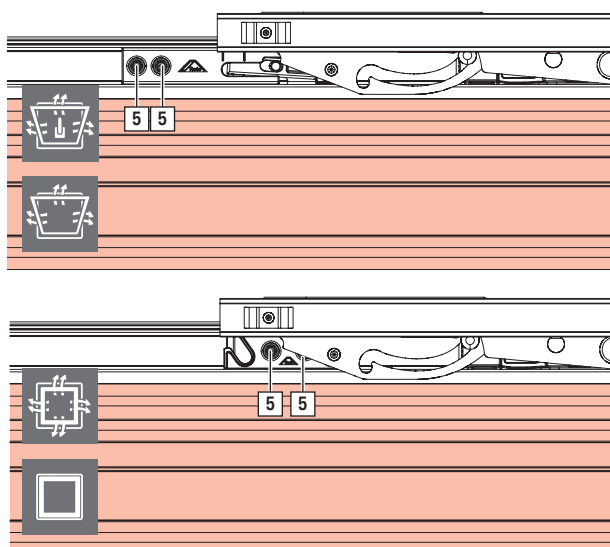
3. Place the installation jig [3] on the frame.



4. Push the sliding scissor stay towards the installation jig [4] as far as it will go.



5. Tighten both screws [5] on the top guide block using a T25 hexalobular socket screwdriver (torque: max. 3 - 4 Nm).



6. Secure the sliding scissor stay for transport to prevent it from opening and falling out.



9.6.8 Roller track



WARNING

Incorrect screw connections may lead to serious injuries.

The hardware components can be pulled out of the sash if they are not screwed through a profile wall that is at least 6 mm thick in total or screwed down using rivet nuts.

- ▶ Select the length of the screws so that they will hold in the aluminium profile. Alternatively, insert additional aluminium profiles.



CAUTION

Inadequate load transfer may lead to crushing and property damage.

If no underlay is present between the roller track and base, this can cause the sash to fall.

- ▶ Underlay the roller track over the entire length on site in order to transfer the load.

9.6.8.1 Preparing the roller track

Cropping the roller track

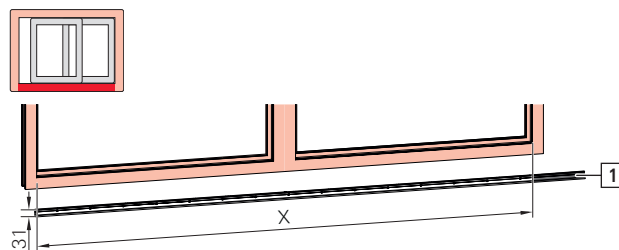


INFO

Install the roller track on the frame when it is horizontal (workshop).

Roto Patio Alversa | KS: leave the roller track for diagram D 55 mm longer on the locking side.

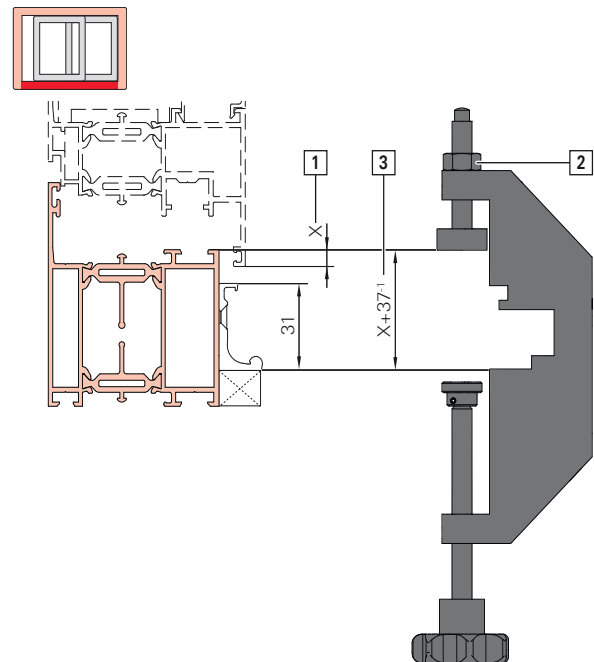
1. Crop the roller track [1].
 $X = \text{frame internal width} + (2 \times \text{coverage})$



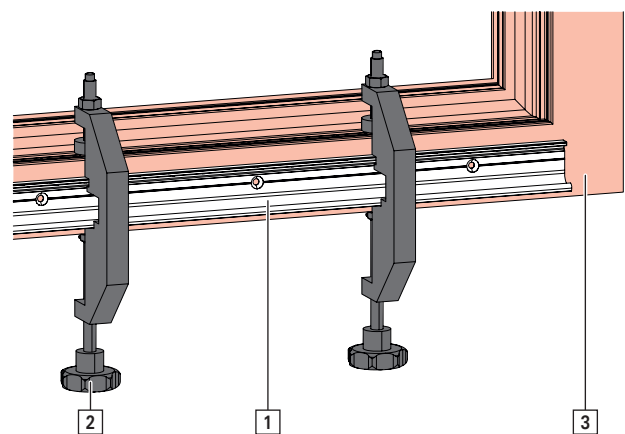
9.6.8.2 Roller track drill holes

Drilling the holes for the roller track

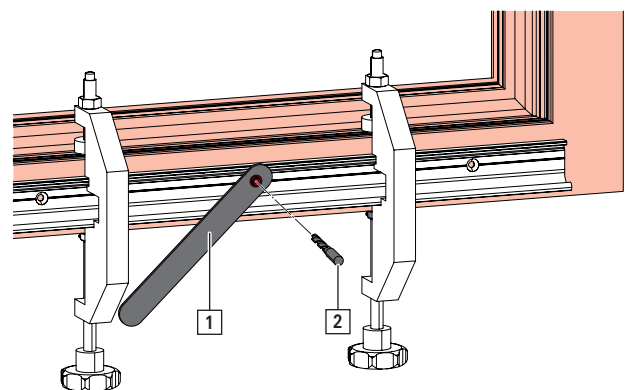
1. Adjust the jig for the roller track.
- a. Determine coverage X [1] with a rebate clearance of 12 mm.
- b. Undo the nut [2].
- c. Adjust dimension $X + 37^{-1}$ [3] for the roller track.
- d. Tighten the nut.



2. Align the roller track [1] with jigs [2] in the centre of the frame [3].
- a. Position the roller track in two jigs.
- b. Place the jigs with the roller track on the frame from above.
- c. Secure the jigs to the frame.



3. Use a drilling aid [1] to drill holes in the roller track.
 Drill [2]: $\varnothing 3.0$ mm





9.6.8.3 Roller track

Installing the roller track



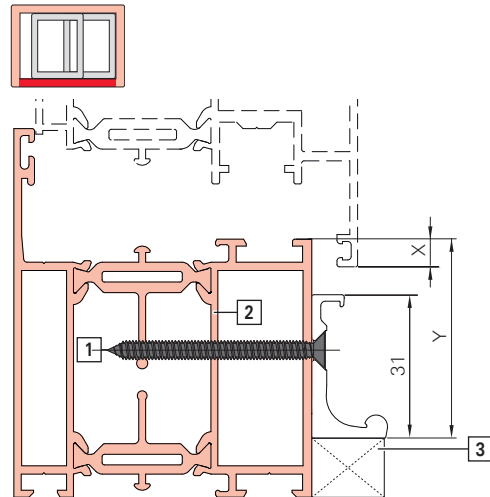
CAUTION

Inadequate load transfer may lead to crushing and property damage.

If no underlay is present between the roller track and base, this can cause the sash to fall.

- Underlay the roller track over the entire length on site in order to transfer the load.

1. Fasten the roller track to the frame with the distance dimension Y. Note coverage X.
With coverage 6: Y = 43 mm.
With coverage 8: Y = 45 mm.
Screw down the roller track with screws [1] in all of the predrilled holes in two profile walls [2].



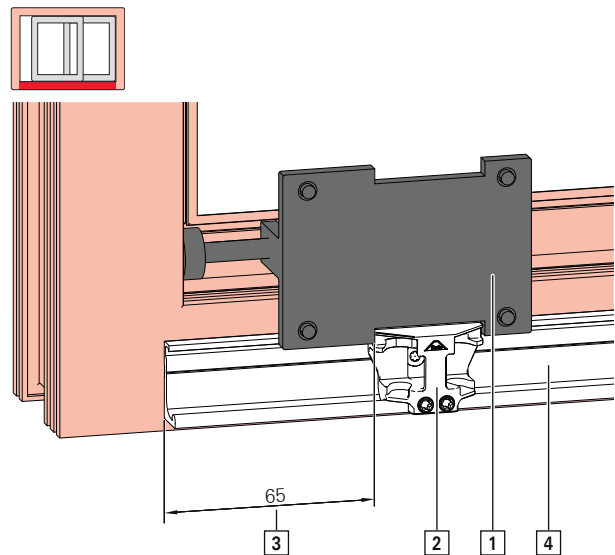
2. Underlay the roller track over the entire length on site in order to transfer the load [3].

9.6.9 Bottom guide block

9.6.9.1 Installing the bottom guide block

1. Diagram A: installation using a positioning jig

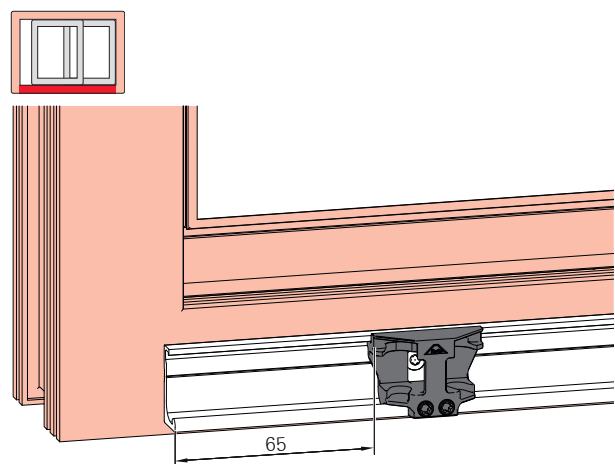
- a. Adjust the jig [1] for the guide block [2] to approximately 65 mm [3] according to the figure.



- b. Insert the guide block in the roller track [4].
- c. Place the jig for the guide block on the roller track.

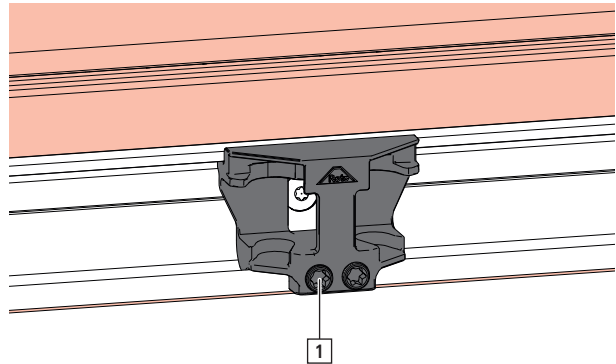
2. Diagram A (alternative): installation using a dimensional drawing

- a. Insert the guide block [2] on the locking side without a jig.
- b. Position the guide block approximately 65 mm from the outer edge of the roller track on the locking side.





3. Gently tighten one of the two screws [1] on the guide block using a T25 hexalobular socket screwdriver (torque: max. 1 Nm).



INFO

Join the sash and frame. Performing adjustment
Then tighten both screws on the guide block using a T25 hexalobular socket screwdriver (torque: max. 3 - 4 Nm).

9.7 Joining the sash and frame



WARNING

Heavy loads pose the risk of injury and property damage.

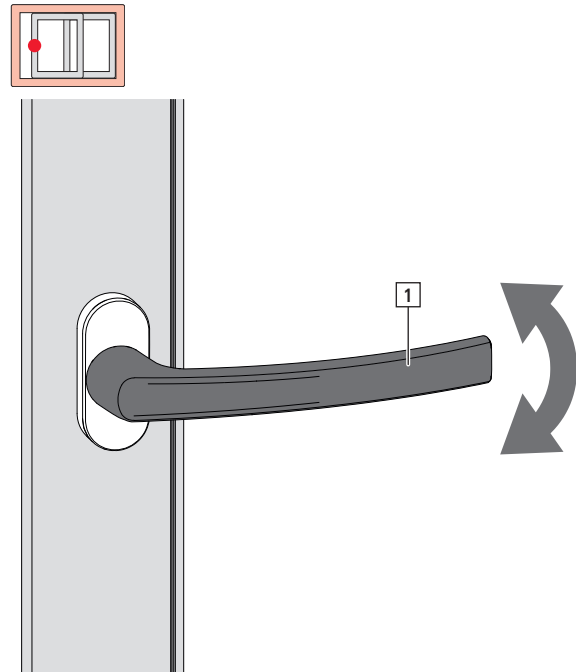
Lifting and carrying heavy loads in an uncontrolled manner may lead to physical injury and property damage.

- ▶ Transport and installation must be carried out by at least two people.
- ▶ Do not rest sashes on the bogies.
- ▶ Use transportation means. → 14 "Transport" from page 178

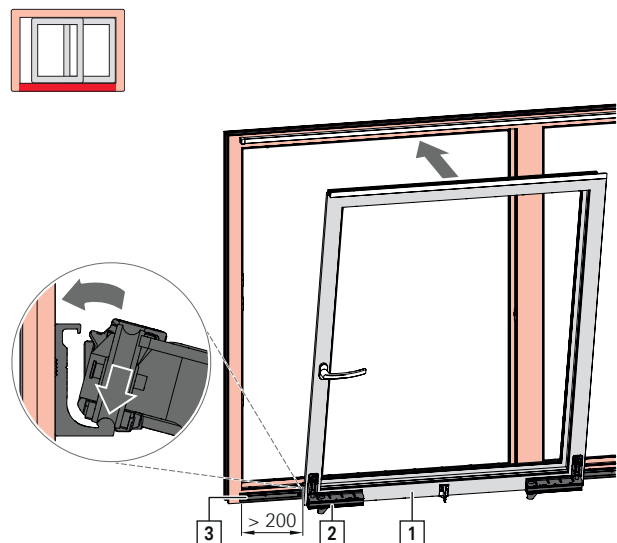
9.7.1 Sash

Placing the sash on the roller track

1. Move the handle [1] into the sliding position.



2. Lock the bogies in the stopped position.
3. Place the sash in front of the frame.
 - a. Use a clean underlay.
 - b. Only use a support-brace in the centre of the frame so that the bogies can hang free.
4. Lift the sash at a slight incline.
5. Place the sash [1] with the bogie rollers [2] on the front edge of the roller track [3].



6. Check that the bogie rollers are correctly positioned on the roller track by pushing the sash.



The bogies must run smoothly.

9.7.2 Sliding scissor stay



DANGER

Connecting the sliding scissor stay to the sash incorrectly presents an immediate risk of death and may cause serious injuries.

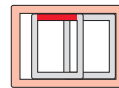
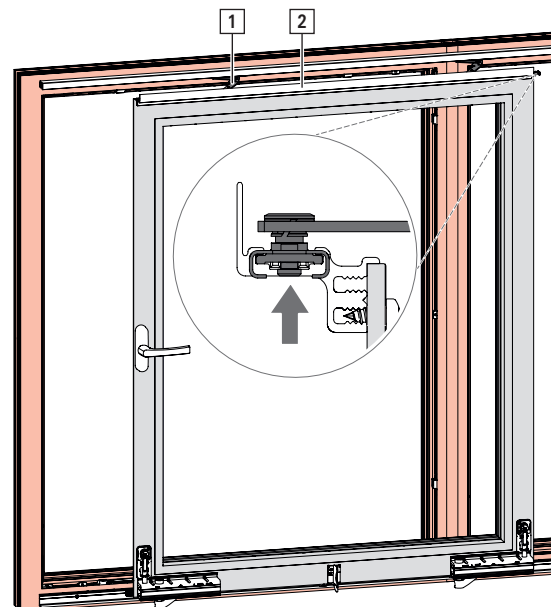
The window sash can fall out if the sliding scissor stay is not engaged correctly or not engaged at all in the drill hole in the retaining track, and if the end caps for the retaining track have not been installed. This results in an immediate risk of death.

- ▶ Engage the sliding scissor stay safety pin in the drill hole in the retaining track correctly (see the following figure).
- ▶ Install the end caps for the retaining track with the preassembled locking plate. → 9.7.3 "End caps for retaining track" from page 150

Inserting the sliding scissor stay into the sash

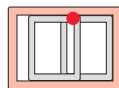
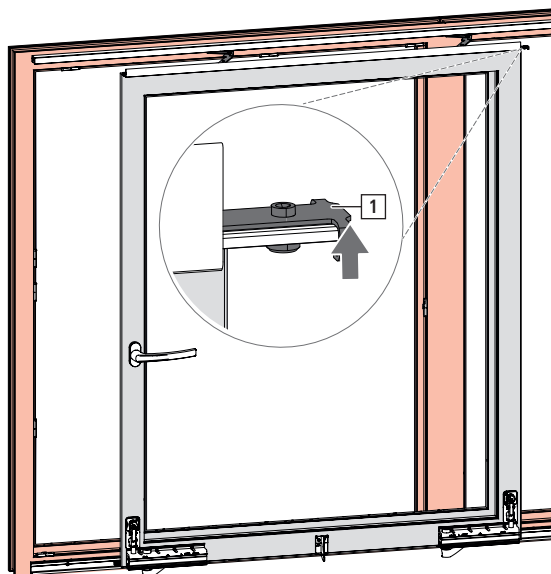
Drill hole in the retaining track. → 9.5.3.4 "Retaining track (storage length)" from page 96

1. Push the sliding scissor stay [1] towards the fixed glazing.
Insert the sliding scissor stay into the groove of the retaining track [2] from the hinge side.



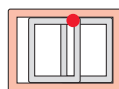
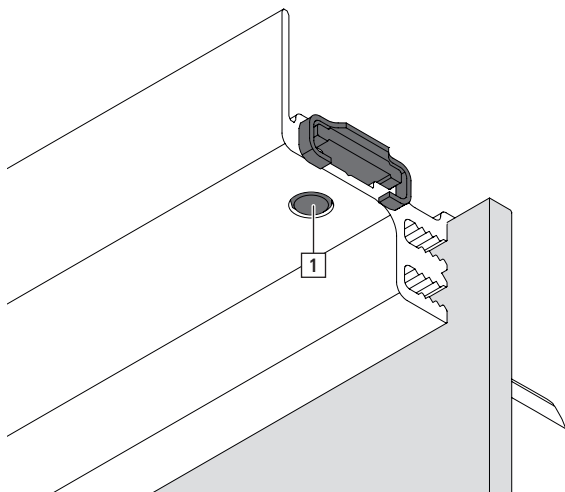


2. Push the sliding scissor stay spring [1] upwards.



3. Continue to push the sliding scissor stay until the sliding scissor stay safety pin engages in the drill hole in the retaining track.

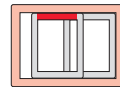
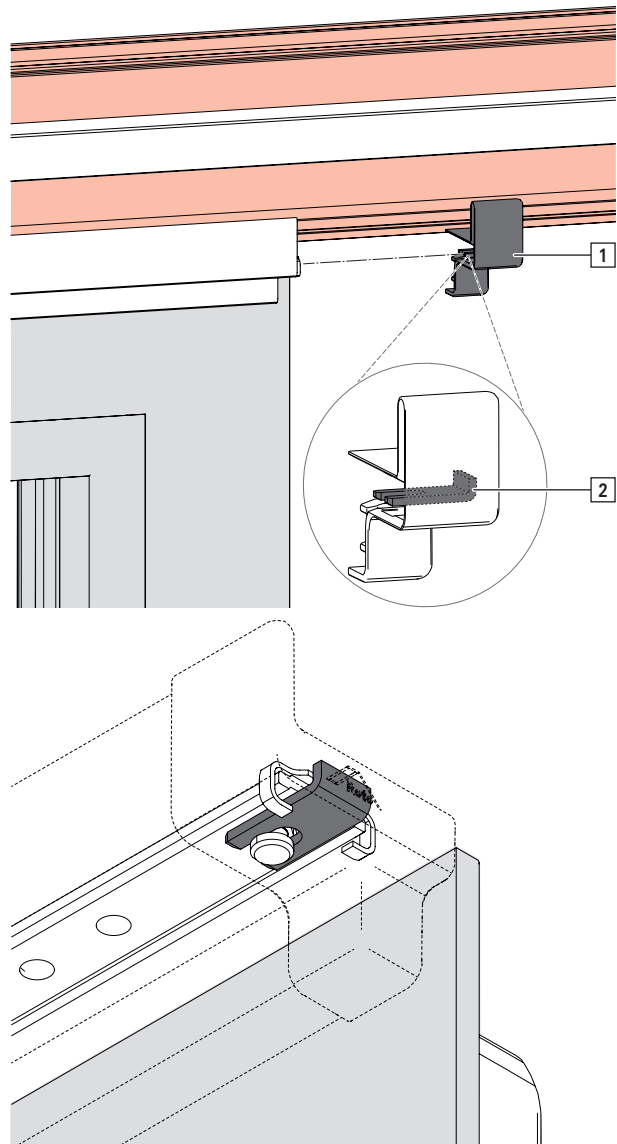
4. Check that the sliding scissor stay has been installed correctly.
The safety pin must be visibly engaged in the drill hole [1] in the retaining track from below.



9.7.3 End caps for retaining track

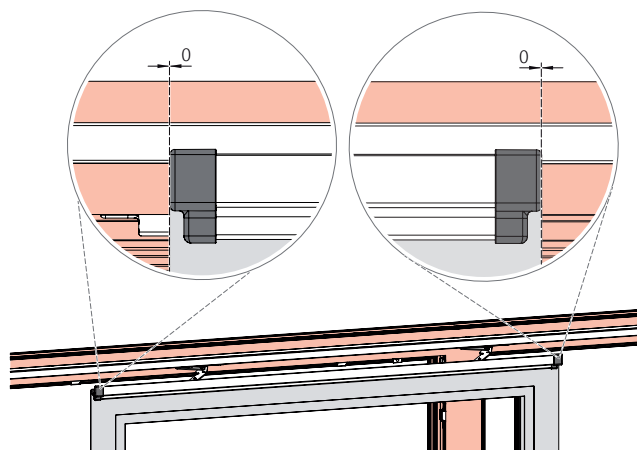
Installing end caps for the retaining track

1. Place the end caps [1] on the left and right ends of the retaining track.
The locking plate [2] in the end caps prevents the safety pin from inadvertently coming out of the retaining track.





2. Check the end caps to ensure that they lie flush with the sash.



INFO

Roto Patio Alversa | PS:

Check for 12 mm rebate clearance on both sides.

Check that the top and bottom guide blocks are installed in the same way.

If necessary, reposition the top guide block.

→ 10.5 "Top guide block, fixed" from page 162

→ 10.6 "Top guide block, tiltable" from page 163

9.7.4 Bottom guide block, movable



INFO

Turn-Only sash (diagram D) can be opened for cleaning and maintenance work.

9.7.4.1 Bottom guide block, movable

Drilling the hole for the movable bottom guide block



PRECONDITION

Adjustment completed. → 10 "Adjustment" from page 159

■ Bogies, horizontal

■ Rebate clearance, horizontal

The bottom guide block is installed. → 9.6.9 "Bottom guide block" from page 144

Roto Patio Alversa | KS: leave the roller track for diagram D 55 mm longer on the locking side.

1. Move the sash into the sliding position.
2. Check for 12 mm rebate clearance on both sides.

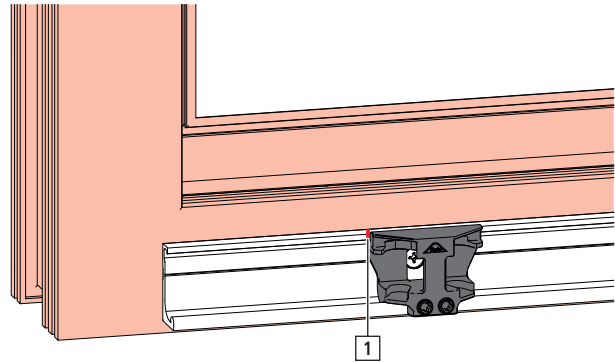
Installation

Joining the sash and frame

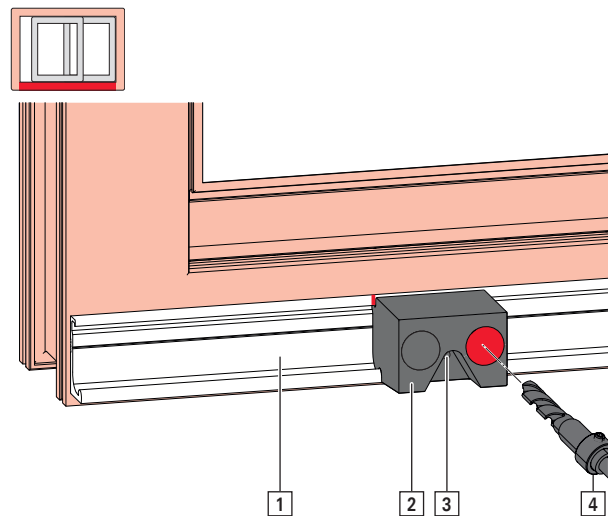
Bottom guide block, movable

If necessary, reposition the bottom guide block.

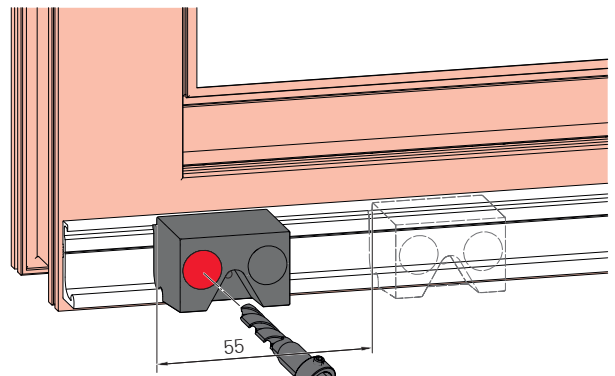
3. Mark the position of the bottom guide block [1].
Remove the bottom guide block.



4. Insert the drilling jig for the movable bottom guide block in the roller track [2].
Align the drilling jig for the movable bottom guide block [1] on the marking.
Fix the drilling jig in place using a threaded pin [3].
Use a special step drill [4] to drill into the roller track up to the stop.



5. Move the drilling jig 55 mm to the left.
Drill up to the stop again in the second hole on the drilling jig.
Remove the drilling jig for the movable bottom guide block.

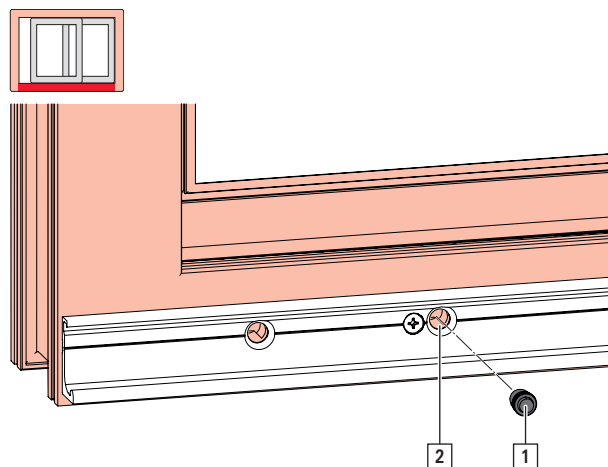




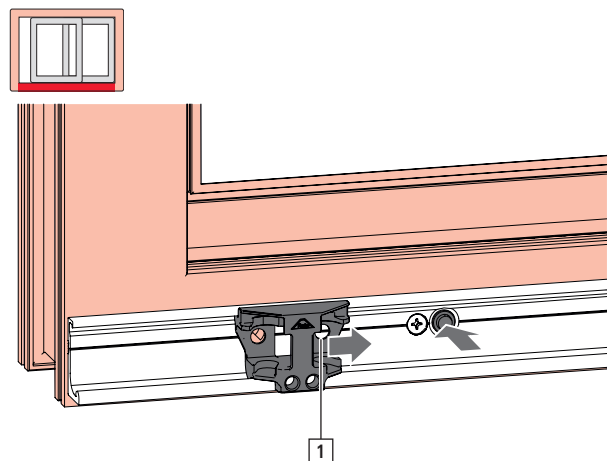
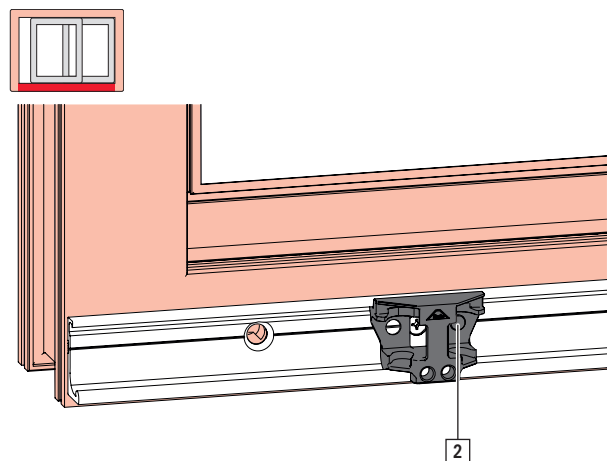
9.7.4.2 Bottom guide block, movable

Installing the movable bottom guide block

1. Insert the locking mechanism [1] for the movable bottom guide block into the drill hole [2].



2. Insert the movable bottom guide block [1] into the roller track.
Let the locking mechanism of the movable bottom guide block engage in the drill hole [2].

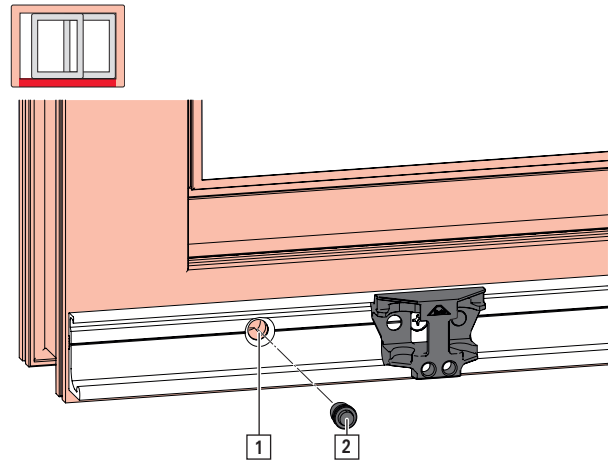


Installation

Joining the sash and frame

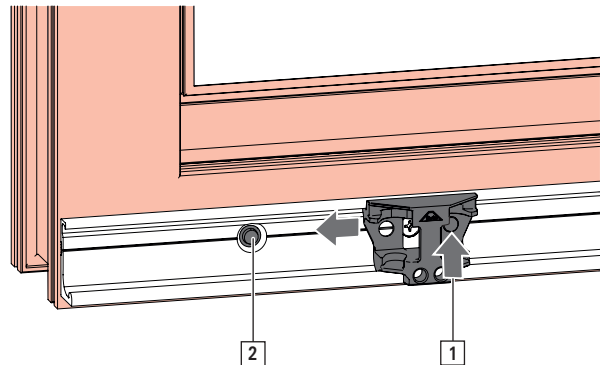
Bottom guide block, movable

3. Insert the additional locking mechanism [2] for the movable bottom guide block into the outer drill hole [1].

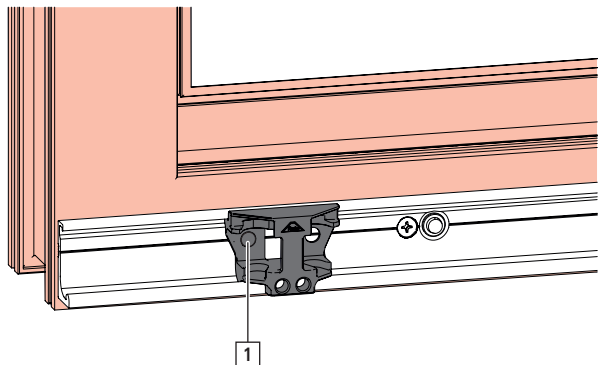


Opening the Turn-Only sash (diagram D) for cleaning and maintenance work

1. Open the window sash in the sliding position.
2. Push out the locking mechanism for the movable bottom guide block [1] and move it [2].



3. Let the movable bottom guide block engage in the outer locking mechanism [1].



4. Slowly push the window sash in the locking direction until the roller unit reaches the movable bottom guide block.
5. Open the Turn-Only sash.



INFO

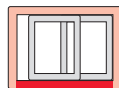
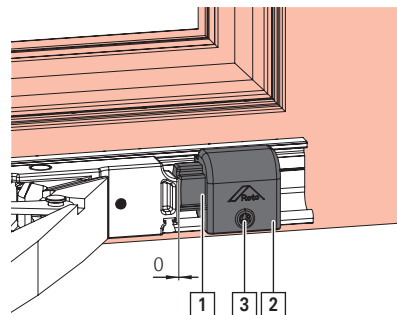
When closing, ensure that the movable bottom guide block is locked back in the original position.



9.7.5 Buffer stops

Installing the bottom buffer stop

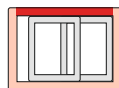
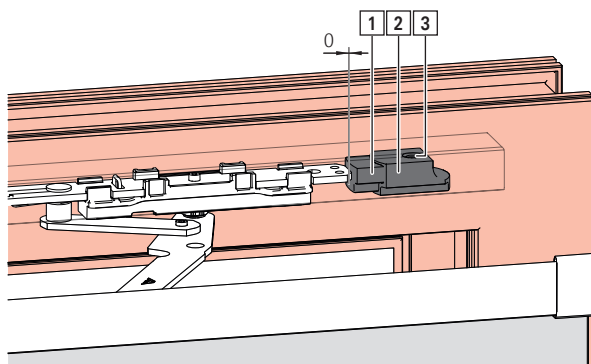
1. Insert the rubber buffer [1] into the buffer stop [2].



2. Insert the bottom buffer stop into the required position in the roller track.
3. Tighten the screw [3] using a T25 hexalobular socket screwdriver (torque: 2 - 3 Nm).

Installing the top buffer stop

1. Insert the rubber buffer [1] into the buffer stop [2].
2. Open the sash until it reaches the buffer stop.
3. Insert the top buffer stop into the guide track until it reaches the scissors-slider.



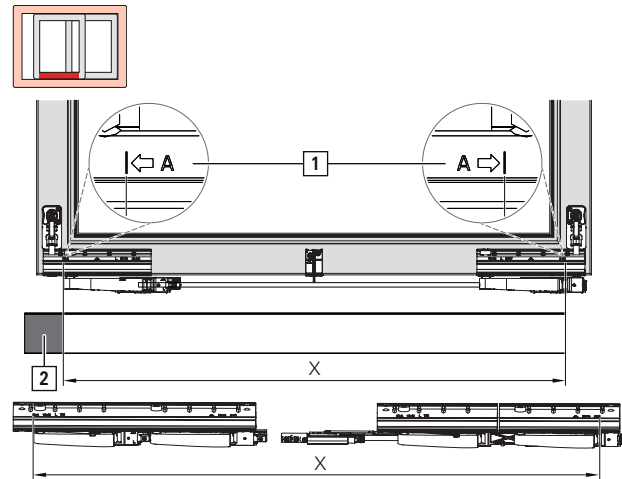
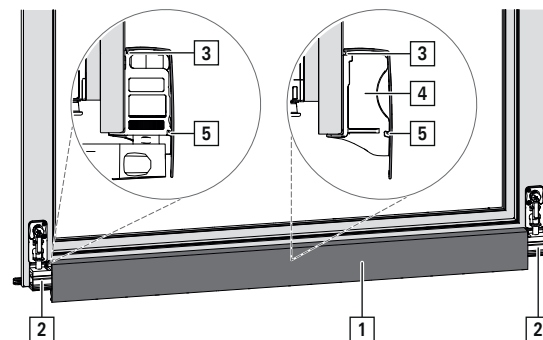
4. Tighten the screw [3] using a T25 hexalobular socket screwdriver (torque: 2 - 3 Nm).
5. Check whether the sash touches the top and bottom buffer stop at the same time.
If necessary, realign the top buffer stop.

9.7.6 Covers

9.7.6.1 Bogie cover profile

Installing the bogie cover profile

1. Carry out the necessary adjustments before installing the bogie cover. → 10 "Adjustment" from page 159
2. Crop the cover profile.
 - a. Without reinforcement part: mark and crop the cover profile at the outer edges of the bogie profiles.
 - b. With reinforcement part: crop the cover profile according to the markings [1] on the bogies [2].
3. Move the cover profile into place.
 - a. Align the cover profile [1] with the markings on the bogies [2].
 - b. Insert the top of the cover profile [3] into the bogie and the supporting piece [4].
 - c. Clip the bottom of the cover profile into the bogie and the supporting piece [5].



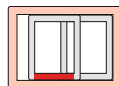
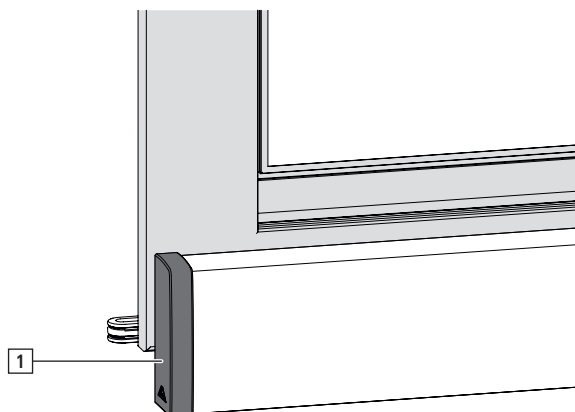


9.7.6.2 Cover caps for bogies without a reinforcement bracket



Installing cover caps for bogies without a reinforcement bracket

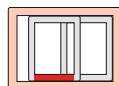
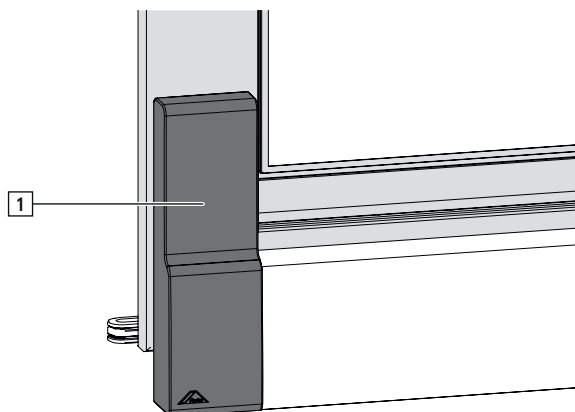
1. Place the corresponding cover caps [1] on the left and right of the cover profile bogies.



9.7.6.3 Cover caps for bogies with a reinforcement bracket

Installing cover caps for bogies with a reinforcement bracket

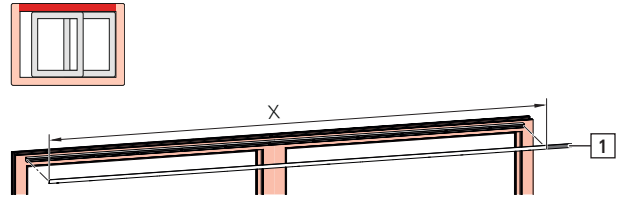
1. Clip the corresponding cover caps [1] to the left and right of the reinforcement brackets.



9.7.6.4 Guide track cover profile

Installing the guide track cover profile

1. Crop the cover to the dimension of the guide track [1].

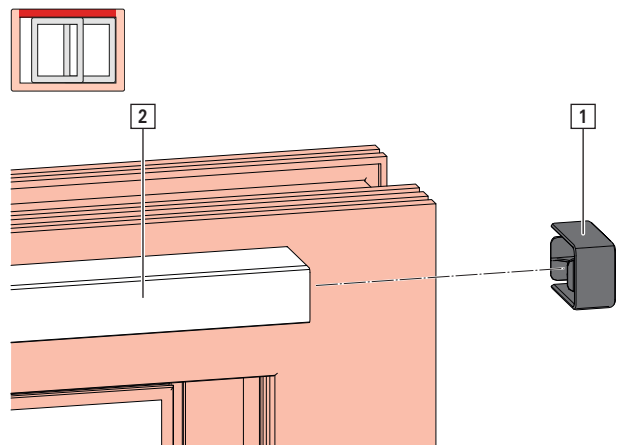


2. Place the cover on the guide track.

9.7.6.5 Guide track end caps

Installing guide track end caps

1. Place the end caps [1] on the right and left of the guide track [2].





10 Adjustment

10.1 Aligning the sash horizontally



ATTENTION

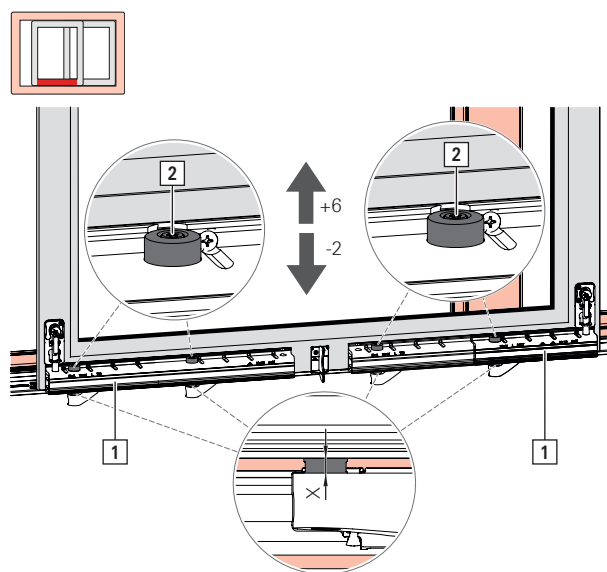
Uneven adjustment may result in property damage.

The bogies are preset evenly at the factory. To correctly align the sash, adjust the bogies evenly – in order to avoid jamming – using their adjusting screws.

- ▶ Align both bogies evenly using their adjusting screws.

Setting the height of the sash in the frame

1. Check the bottom horizontal rebate clearance.
2. Use a T25 hexalobular socket screwdriver on the adjusting screws [2] to align the bogies [1].
 - 1 adjusting screw per bogie
 - 2 adjusting screws per tandem bogie
 - a. Too little rebate clearance:
Evenly adjust the adjusting screws in a clockwise direction.
 - b. Too much rebate clearance:
Evenly adjust the adjusting screws in an anticlockwise direction.



INFO

Adjusting screw initial position $X \sim 5 \text{ mm}$

$X_{\text{max.}} = 11 \text{ mm}$

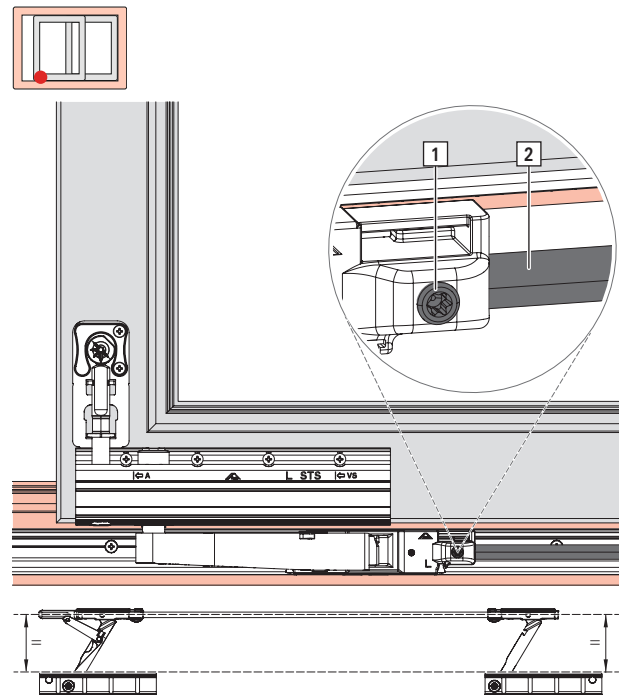
$X_{\text{min.}} = 3 \text{ mm}$

10.2 Aligning the bogies parallel

Setting the sash to run into the frame evenly

1. Move the sash into the sliding position.

2. Adjust the connecting rod.
 - a. Loosen the screw [1] on the connecting rod [2] using a T25 hexalobular socket screwdriver on the locking-side bogie.
 - b. Align the bogie on the hinge side to be parallel by moving the connecting rod to the left or right.
 - c. Tighten the screw on the connecting rod using a T25 hexalobular socket screwdriver (torque: max. 5 - 7 Nm) on the locking-side bogie.

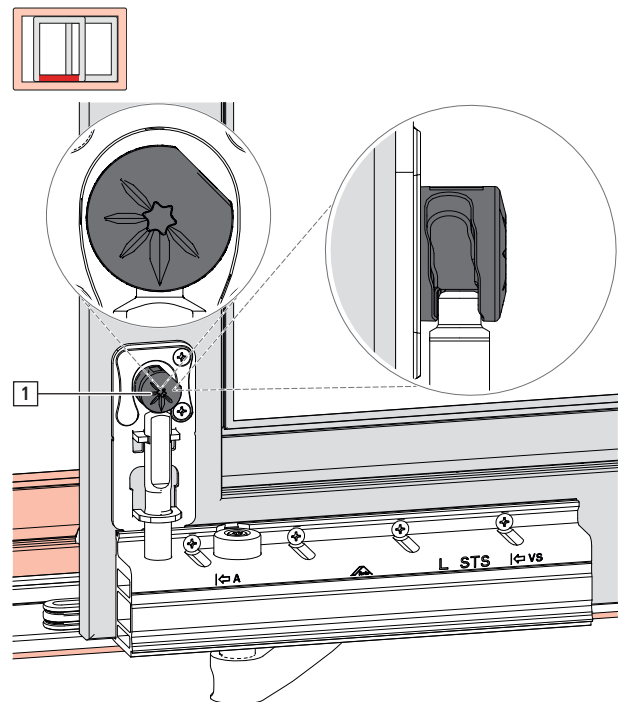


10.3 Adjusting reinforcement brackets

Adjust the reinforcement brackets to optimise the smooth running of the sash into the frame.

Adjusting reinforcement brackets from their original position

1. Adjust both reinforcement brackets evenly [1].
 The markings must be in the same position on both sides of the sash.



2. Adjust by turning counterclockwise with a T25 hexalobular socket screwdriver and the sash will close more easily.

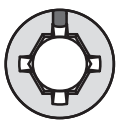
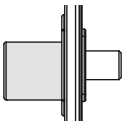
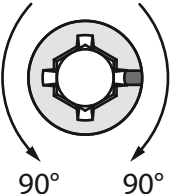
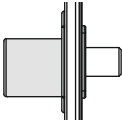


Adjust by turning clockwise with a T25 hexalobular socket screwdriver and the sash will open more easily.

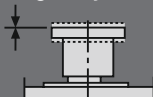
3. Check whether the bogies run smoothly.
If too extreme an adjustment is made, the bogies may drag.

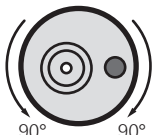
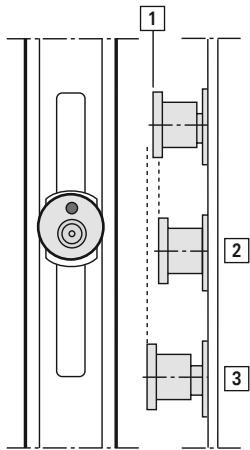
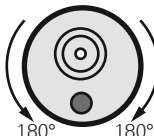
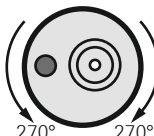
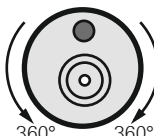
10.4 Adjusting the locking cam

E cam

E cam	Adjustment distance	Gasket-compression adjustment / mm	Height	Profile view
				
		±0.8 mm		

V cam

V cam	Adjustment distance	Gasket-compression adjustment / mm	Height adjustment / mm	Profile view
				
				

V cam	Adjustment distance	Gasket-compression adjustment / mm	Height adjustment / mm	Profile view
		± 0.8 mm	± 0.2 mm	
			± 0.4 mm	
		± 0.8 mm	± 0.6 mm	
			± 0.8 mm	

10.5 Top guide block, fixed



INFO

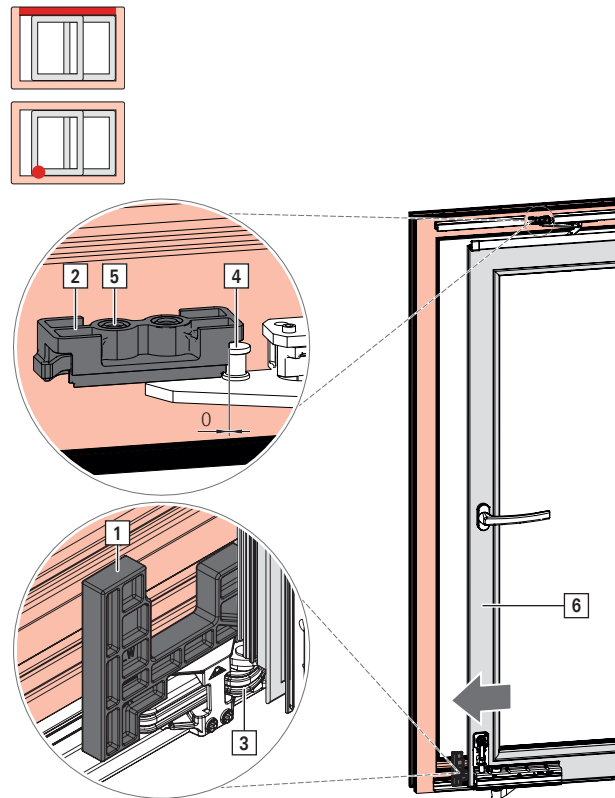
Required when the bottom and top guide blocks do not trigger the sliding scissor stay and bogie at the same time.

Adjusting the fixed top guide block

1. Undo the screws on the fixed top guide block.



2. Place the jig [1] for the fixed top guide block [2] on the bottom guide block with roller units [3]. Push the guide block until it reaches the sliding scissor stay pilot bolt [4].



3. Gently tighten the screws [5] on the fixed top guide block using a T25 hexalobular socket screwdriver (torque: max. 1 Nm).
4. Remove the jig.
5. Move the sash [6] into the closed position.
6. Check for 12 mm rebate clearance on both sides.
If necessary, reposition the fixed top guide block.
7. Tighten both screws on the fixed top guide block using a T25 hexalobular socket screwdriver (torque: max. 3 - 4 Nm).

10.6 Top guide block, tiltable



INFO

Required when the bottom and top guide blocks do not trigger the sliding scissor stay and bogie at the same time.

Adjusting the tiltable top guide block

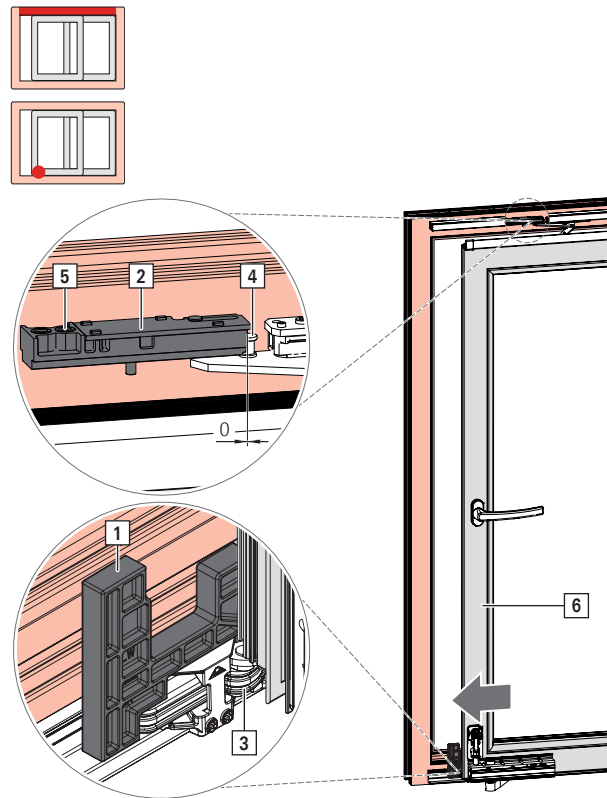
1. Undo the screws on the tiltable top guide block.

Adjustment

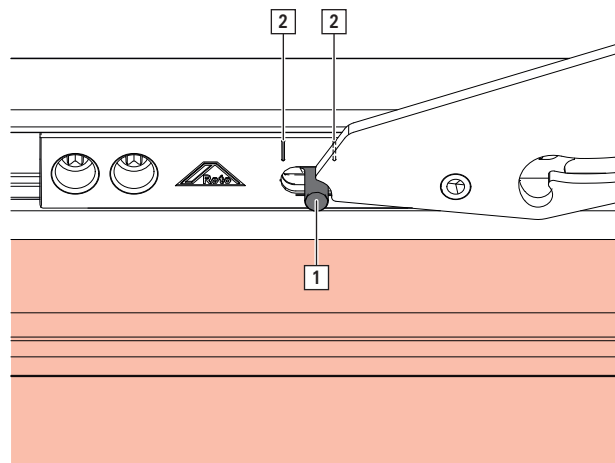
Top guide block, tiltable

2. Place the jig [1] for the tiltable top guide block [2] on the bottom guide block with roller units [3].

Push the guide block until it reaches the sliding scissor stay pilot bolt [4].



3. Gently tighten the screws [5] on the tiltable top guide block using a T25 hexalobular socket screwdriver (torque: max. 1 Nm).
4. Remove the jig.
5. Move the sash [6] into the closed position.
6. Check for 12 mm rebate clearance on both sides.
If necessary, reposition the tiltable top guide block.
7. Check the sash tilt function.
Ensure that the control bolt [1] on the tiltable top guide block is between the two markings [2] when the sash is tilted.
If necessary, reposition the tiltable top guide block.





8. Tighten both screws on the tiltable top guide block using a T25 hexalobular socket screwdriver (torque: max. 3 - 4 Nm).

11 Operation

11.1 Operating information

The windows and balcony doors are operated using a handle.

The following symbols illustrate the different handle positions and the resultant sash positions of the windows and balcony doors.

11.1.1 Roto Patio Alversa | KS



ATTENTION

Risk of being accidentally locked out.

If the sash is in the sliding position and closes, the sash can engage and then be impossible to reopen from the outside.

- ▶ Secure the sash against accidentally engaging when in the sliding position.
- ▶ Ensure that access is possible if necessary.

Handle position	Sash position	Meaning
		Sash in closed position.
		Sash in tilted position.
		Sash opened.
		Sash in sliding position.
		Sash engaged.
		Sash in closed position.



11.1.2 Roto Patio Alversa | PS without night ventilation

Handle position	Sash position	Meaning
		Sash in closed position.
		Sash in sliding position.

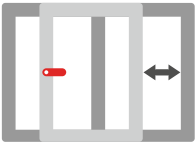
11.1.3 Roto Patio Alversa | PS with night ventilation

Handle position	Sash position	Meaning
		Sash in closed position.
		Sash in sliding position.
		Sash in sliding position.
		Sash in night ventilation position.

11.1.4 Roto Patio Alversa | PS Air

Handle position	Sash position	Meaning
		Sash in closed position.
		Sash in sliding position.
		Sash in sliding position.
		Sash in tilted position.

11.1.5 Roto Patio Alversa | PS Air Com

Handle position	Sash position	Meaning
		Sash in closed position.
 		Sash in sliding position.
		Sash in comfortable tilted position.

11.2 Fault assistance

Fault	Cause	Corrective action	Specialist company	End user
Handle is difficult to turn.	Frame components have not been greased	Grease the frame components	☐	☐
	Handle is faulty	Replace the handle	☒	
	Handle screwed into place too tightly	Undo the screw fixing slightly	☒	
	Sash components with slanting screws	Screw the sash components in straight	☒	
	Sash components are faulty	Replace the sash components	☒	
	Incorrect striker positions	Adapt the striker positions	☒	
Handle cannot be turned 180°.	Sash components hinged or installed incorrectly	Check the setting in the turn position (potentially rehang – start from the T&T espagnolette).	☒	
Locking cams brush against the striker.	Sash components hinged or installed incorrectly	Check the setting in the turn position (potentially rehang – start from the T&T espagnolette).	☒	
	Incorrect striker positions	Adapt the striker positions	☒	

☐ = May be carried out by a specialist company or the end user

☒ = **Must** be carried out by a specialist company



12 Maintenance



CAUTION

Improperly performed maintenance work may result in injuries.

Improper maintenance can lead to serious injuries or property damage.

- ▶ Ensure that there is sufficient space for installation before starting work.
- ▶ Ensure that the installation site is clean and tidy.
- ▶ Always have hardware adjustment and replacement work performed by a specialist company.
- ▶ Secure windows or balcony doors against unintentionally opening or closing.
- ▶ Do not unhinge windows or balcony doors for maintenance purposes.



ATTENTION

Incomplete or incorrect checks may result in property damage.

Adjusting the hardware incorrectly or improperly may cause the window or balcony door to malfunction.

- ▶ Check the hardware when installed.
- ▶ If defects need to be remedied, have the window or balcony door unhinged and remounted by a specialist company.



INFO

The manufacturer must draw the attention of builders and end-users to these maintenance instructions. Roto Frank AG recommends the manufacturer conclude a maintenance agreement with their end-users.

No legal claims can be derived from the following recommendations; their application is to be based on the specific individual case.

12.1 Maintenance intervals



ATTENTION

Inadequate maintenance may cause property damage.

The maintenance intervals must be adapted to the respective ambient conditions. The maintenance intervals correspond to the current directives and represent a maximum time frame.

- ▶ Determine the appropriate maintenance interval in accordance with the ambient conditions.

The maintenance interval for all tasks relating to the hardware components is **annually** at the least. In hospitals, schools and hotels, the maintenance interval is **six-monthly**.

Regular maintenance is necessary in order to maintain the proper and smooth-running operation of the hardware and to prevent premature wear or even defects.

Responsibility		
Cleaning		→ from page 170
Clean hardware	☐	
Care		→ from page 170
Lubricate movable parts	☐	
Lubricate locking points	☐	
Performance test		→ from page 174
Check that hardware components are fitted securely	☐	
Inspect hardware components for wear	☐	
Check that movable parts work properly	☐	
Check that locking points work properly	☐	
Check ease of movement	☒	
Repair		→ from page 174
Retighten fixing screws	☒	
Replace damaged components	☒	

□ = May be carried out by a specialist company or the end user

■ = **Must** be carried out by a specialist company

12.2 Cleaning



ATTENTION

Incompatible cleaning agents may cause property damage.

Incompatible cleaning agents may damage surfaces and destroy gaskets.

- ▶ Never use aggressive or flammable liquids, acidic cleaners or abrasive cleaners.
- ▶ Only use cleaning and care agents that do not adversely affect the corrosion protection of the hardware components and gaskets.
- ▶ Only use mild, pH-neutral cleaning agents that have been diluted.

Cleaning the hardware

- ▶ Clean deposits and contaminants off the hardware using a soft cloth.
- ▶ Lubricate movable parts and locking points after cleaning. → 12.3 "Care" from page 170
- ▶ Apply a thin protective film to the hardware, for example using a cloth soaked in oil.

12.3 Care



ATTENTION

Using incorrect lubricants may cause property damage.

Substandard lubricants can prevent the hardware from working properly.

- ▶ Use high-quality lubricants.
- ▶ Only use resin-free and acid-free lubricants.



ATTENTION

Cleaning agents and lubricants may pollute the environment.

Leaking or excess cleaning agents and lubricants may pollute the environment.

- ▶ Remove any leaking or excess cleaning agents and lubricants.
- ▶ Dispose of cleaning agents and lubricants separately and properly.
- ▶ Observe the applicable directives and national laws.

Ease of movement can be improved by lubricating or adjusting the hardware. All functional hardware components must be lubricated on a regular basis.

Recommended lubricants

- Roto NX / NT grease

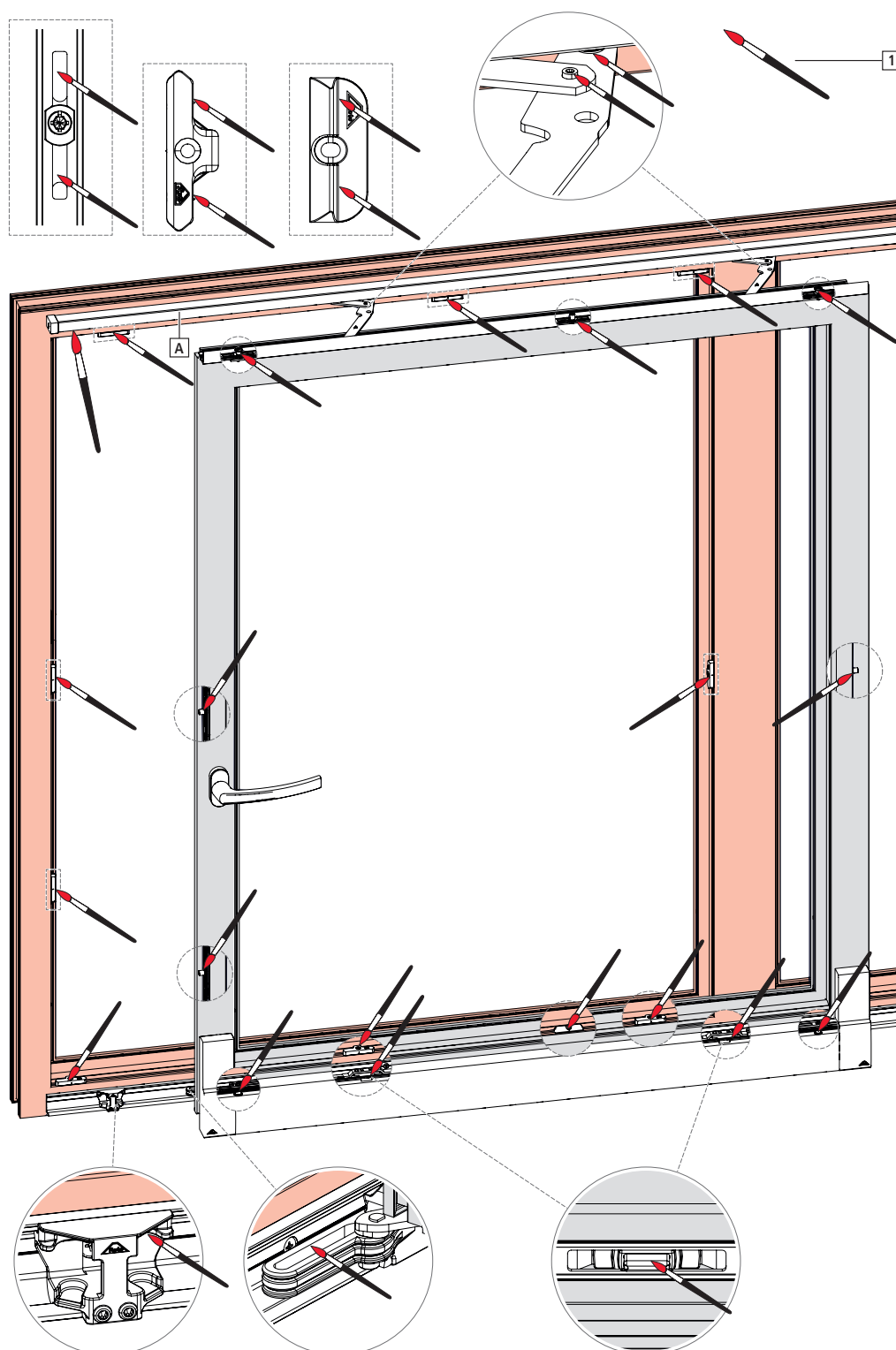


INFO

The figure displays the positioning of potential lubrication points. The figure does not necessarily match the installed hardware. The quantity of lubrication points varies depending on the size and design of the element.



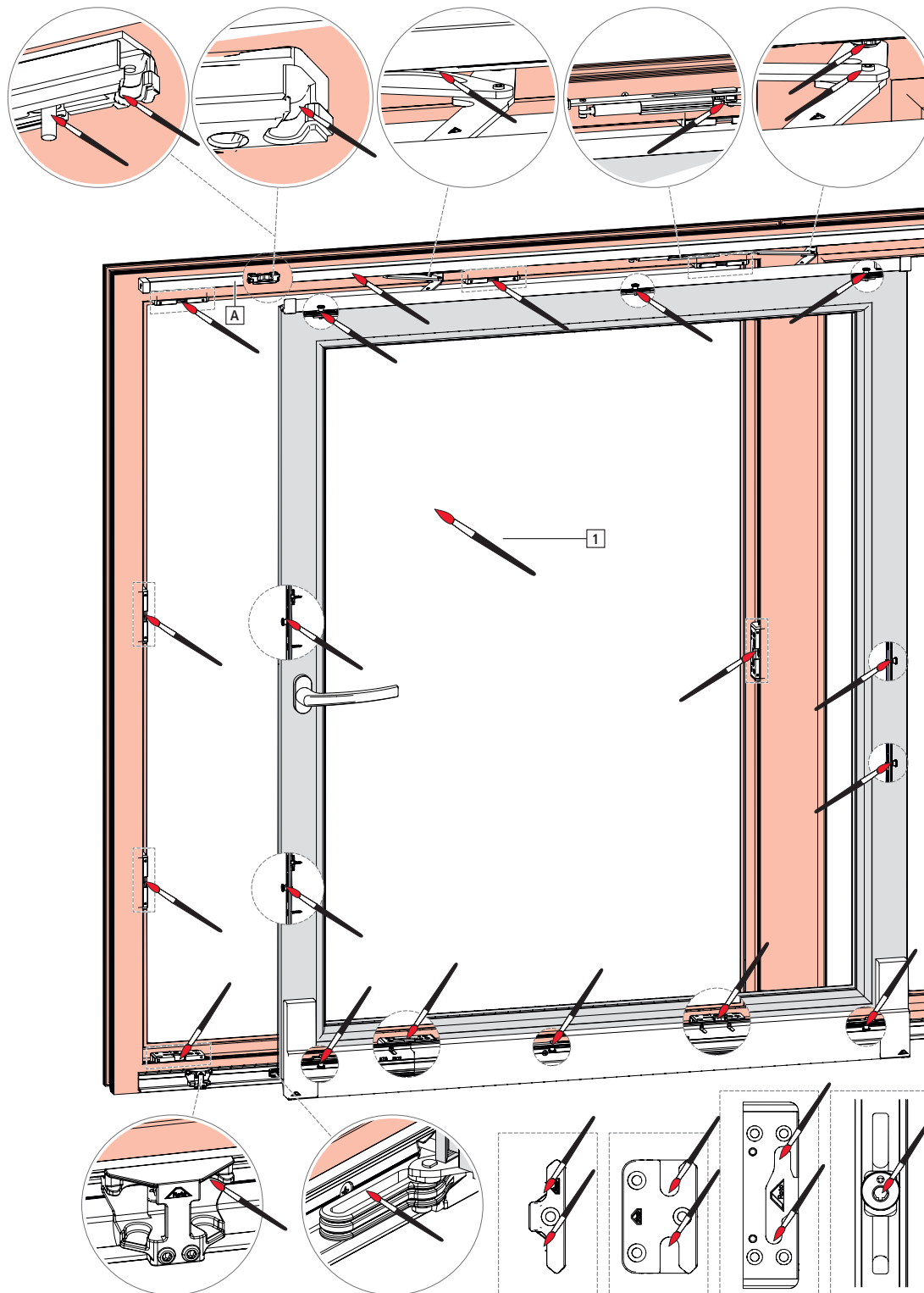
12.3.1 Roto Patio Alversa | KS



[1] Grease

[A] Grease the guide track along its entire length.

12.3.2 Roto Patio Alversa | PS (except for PS Air Com)

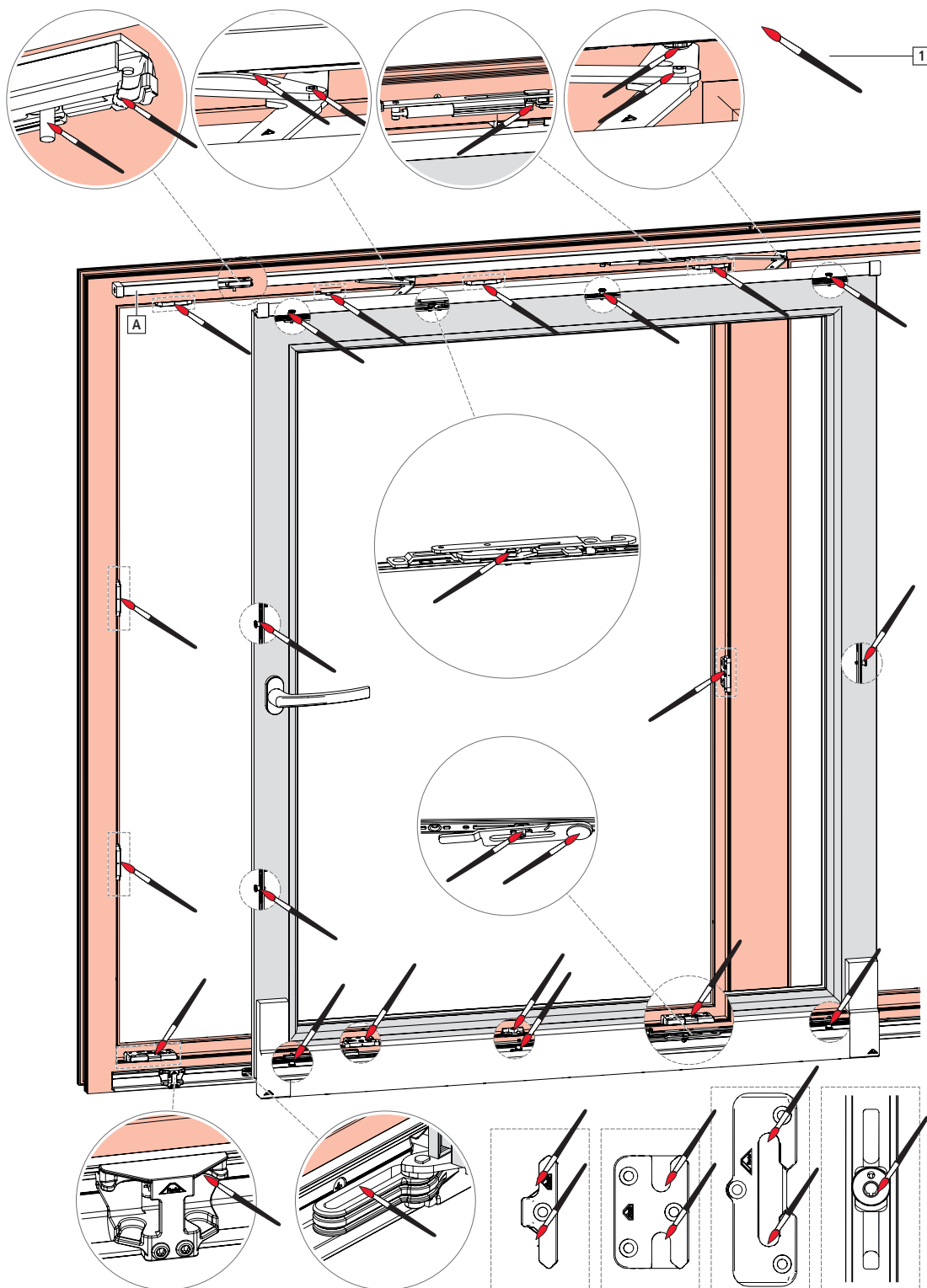


[1] Grease

[A] Grease the guide track along its entire length.



12.3.3 Roto Patio Alversa | PS Air Com



[1] Grease

[A] Grease the guide track along its entire length.

12.4 Performance test



WARNING

Potential danger to life, risk of injury and property damage.

Improperly performed repairs impair the safety of the windows and balcony doors.

- ▶ Always have repair work performed by a specialist company.

Check for proper operation:

- ▶ Inspect hardware components for damage, deformation and a firm fit.
- ▶ Check that windows or balcony doors run smoothly by opening and closing them.
- ▶ Check the window or balcony door gaskets for elasticity and fit.
- ▶ Check closed windows or balcony doors to ensure that they are leakproof.
- ▶ Locking and unlocking torque max. 10 Nm. The test can be performed using a torque wrench.

Have malfunctions remedied by a specialist company.

12.5 Repair



ATTENTION

Securing components incorrectly may lead to property damage.

Loose or faulty screws can prevent the hardware from working properly.

- ▶ Check that the individual screws are secure and seated correctly.
- ▶ Tighten or replace loose or faulty screws immediately.
- ▶ Only use the screws suggested for repairs.

Repair work includes replacing and repairing components and is only necessary if components have become damaged after wear or as a result of external circumstances. The hardware must be secured reliably in order to ensure that the element works properly and is safe to use.

The following tasks must only be performed by a specialist company:

- All adjustment work on the hardware
- Replacing hardware or hardware components
- Installing and removing windows, doors or balcony doors

The specialist company must observe the following:

- The necessary repair work must be performed properly, according to generally recognised engineering practice and in accordance with the applicable regulations.
- Makeshift repairs must not be performed on worn or damaged components.
- Only original or approved spare parts may be used in the course of repairs.

12.6 Preventative measures

These measures are intended to preserve the surface finish and durability. They aim to prevent premature wear or contamination and thereby simplify maintenance.

Corrosion protection

Cleaning agents can corrode the surface of the hardware.

Protect the hardware:

1. Do not use aggressive or flammable liquids, acidic cleaners or abrasive cleaners.



2. Only use mild, pH-neutral cleaning agents that have been diluted.
3. Apply a thin protective film to the hardware, for example using a cloth soaked in oil.
4. Only use high-quality components for repairs, such as stainless steel screws.

Protection from contaminants

Contaminants impair the proper operation of the hardware.

Protect the hardware:

1. Remove deposits and contaminants caused by construction materials before they bond with water, e.g. builder's dust, plaster, stucco, mortar and cement.
2. Always clean using a soft cloth.

Protection against (permanently) damp room air

Damp room air can lead to mould growth and corrosion caused by condensation.

Protect the hardware:

1. Provide adequate ventilation for hardware, particularly during the construction phase.
2. Intensively air out the room several times per day by opening all windows or balcony doors for approximately 15 minutes.
If intensive airing is not an option, place the windows or balcony doors in tilt mode and provide airtight masking inside the room, e.g. if there is fresh screed that cannot be walked on or must not be exposed to drafts. Discharge outside any humidity present in the room air using dehumidifiers.
3. Establish a ventilation plan for more complex construction projects if necessary.
4. Provide adequate ventilation during holiday periods as well.

13 Dismantling



ATTENTION

Incorrect dismantling poses the potential risk of injury and property damage.

- ▶ Always have dismantling carried out by an authorised specialist company.

13.1 Sash



WARNING

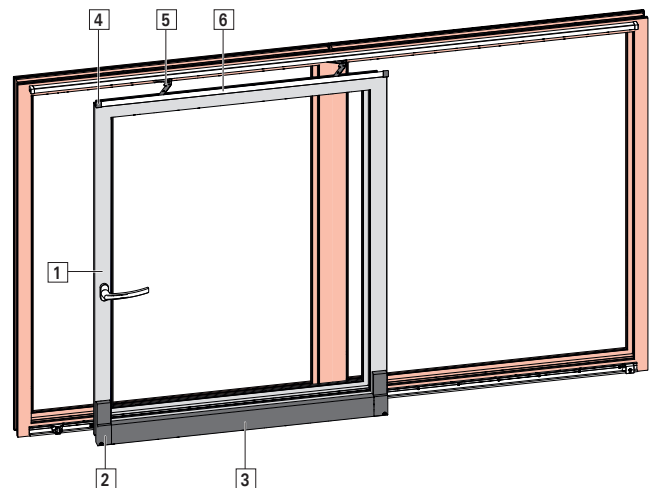
Heavy loads pose the risk of injury and property damage.

Lifting and carrying heavy loads in an uncontrolled manner may lead to physical injury and property damage.

- ▶ Transport and removal must be carried out by at least two people.
- ▶ Do not rest sashes on the bogies.
- ▶ Use transportation means. → 14 "Transport" from page 178

Unhinging the sash

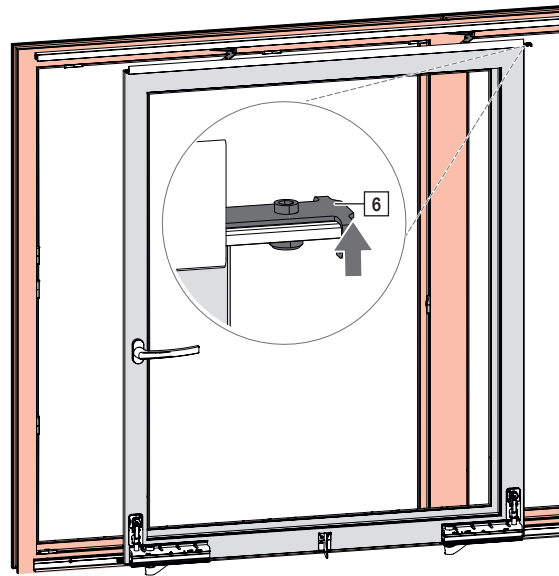
1. Move the sash [1] into the sliding position.



2. Remove the covers.
 - Cover caps for the bogie [2] on the left and right
 - Bogie cover [3]
 - Cover caps for the retaining track [4] on the left and right
- a. Remove the bogie cover caps by pulling them forwards.
- b. Grasp the back of the bogie cover from below and pull it diagonally upwards.
Pull forcefully, using both hands.
- c. Remove the cover caps for the retaining track on the side.
3. Secure the sash to prevent it falling out before pushing the sliding scissor stay [5] out.



4. Push the sliding scissor stay spring [6] upwards and undo the form-fitting connection between the sliding scissor stay and retaining track.



5. Push the sliding scissor stay out of the retaining track.
6. Lift the sash at a slight incline.
7. Place the sash in front of the frame.
 - a. Use a clean packer.
 - b. Only use a support in the centre of the sash so that the bogies can hang free.

13.2 Hardware components

Removing hardware components

1. Undo all screw connections.
2. Remove the hardware components.
3. Dispose of the hardware components properly.

14 Transport

14.1 Transporting the hardware



WARNING

Trapped limbs may result in injuries.

The transported goods can skid or fall during transportation tasks. This can result in limbs being trapped and seriously injured.

- ▶ Wear safety gloves and protective footwear.



WARNING

Heavy loads pose a risk of injury.

Lifting and carrying heavy loads may lead to injuries in the event of a fall or physical overexertion.

- ▶ Note the applicable accident prevention regulations.
- ▶ Transport heavy loads with two people and use suitable transportation means (such as an industrial truck).



WARNING

Physical strain may cause damage to health.

Moving heavy loads for extended periods leads to physical injury in the long term.

- ▶ When carrying and lifting by hand, comply with a maximum weight of 25 kg for men and 10 kg for women.
- ▶ Carry and lift even small loads with an ergonomically correct posture.

Hardware is supplied to the specialist company as complete sets. The components are packaged accordingly for each shipment. The instructions for safely transporting the hardware are described below.

Observe the following basic instructions when transporting hardware:

- ▶ Transport larger shipments using appropriate transportation means, such as industrial trucks.
- ▶ Note the transport weight in order to select appropriate transportation means.
- ▶ Immediately check the delivery for completeness and transport damage on receipt.



INFO

Submit a complaint about any defects as soon as they are identified. Claims for damages may only be made within the reclamation period.

Use the following transportation means for support when transporting, loading and unloading larger shipments:

- Industrial trucks (e.g. forklifts, telescopic handlers, pallet trucks)
- Lifting equipment (e.g. transport nets, carry straps, round slings)
- Protective devices (e.g. edge protection, spacer blocks)



INFO

Industrial trucks and lifting devices may only be operated by qualified persons.



INFO

Lifting equipment and protective devices may only be used if they are in full working order.



14.2 Storing the hardware

Store all hardware components as follows until they are installed:

- Dry and protected
- On a level surface
- Protected against sunlight

15 Disposal



ATTENTION

Incorrect disposal can harm the environment.

Pieces of hardware are raw materials.

- ▶ Dispose of hardware for environmentally friendly material reutilisation as mixed scrap.

15.1 Disposing of packaging

The hardware is supplied as complete sets together with the packaging. Once unpacked, the installation company or builder is responsible for disposing of the packaging properly. The packaging materials are produced in accordance with current environmental protection standards. The materials can be recycled separately.

Follow the basic instructions below for the proper disposal of packaging:

- ▶ Do not dispose of packaging in household waste.
- ▶ Hand over packaging at local waste collection points or recycling centres.
- ▶ Observe the national regulations on the disposal of recyclable materials.
- ▶ Contact the local authorities if necessary.

15.2 Disposing of hardware

Once the hardware is finished with, the end user or builder is responsible for properly disposing of the windows, doors or balcony doors and the hardware, including any accessories. Hardware is produced in accordance with current environmental protection standards. The materials can be recycled separately.

Follow the basic instructions below for the proper disposal of hardware:

- ▶ Observe the information and specifications for disposal contained in the other applicable documents.
- ▶ Separate hardware components from windows, doors or balcony doors.
- ▶ Do not dispose of hardware in household waste.
- ▶ Hand over hardware at local waste collection points or recycling centres.
- ▶ Observe the national regulations on the disposal of recyclable materials.
- ▶ Contact the local authorities if necessary.



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