

**Roto Patio Lift**  
Hardware for versatile use  
in Lift&Slide systems

Installation, maintenance and operation instructions  
for PVC profiles



## Contact

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#### **ATTENTION**

##### **Using incorrect cleaning agents and sealing compounds may cause property damage.**

Cleaning agents and sealing compounds may damage the surfaces of components and gaskets.

- ▶ 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, carboric 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**

##### **Contamination may cause property damage.**

Contamination prevents components working properly.

- ▶ Remove deposits and contamination caused by construction materials (e.g. plaster, gypsum).
- ▶ Keep components free of deposits and contaminants.



#### **ATTENTION**

##### **(Permanently) damp room air may cause property damage.**

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 the tilt position 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 draughts. 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.



## 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 only 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**

##### **Misuse may pose a risk of death!**

Misuse and incorrect installation of hardware can lead to serious injuries.

- ▶ 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.
- ▶ Note the product-related documentation → *from page 7*.

### 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 sealing
- 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 in an uncontrolled manner may pose a risk of death!**

Opening and closing the sash in an uncontrolled manner may lead to serious injuries.

- ▶ 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.



#### ATTENTION

##### **Opening and closing sashes in an uncontrolled manner may result in property damage.**

Opening and closing the sash in an uncontrolled manner may cause the element to malfunction.

- ▶ 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

##### **Misuse may pose a risk of death!**

Misuse and incorrect installation of hardware can lead to serious injuries.

- ▶ 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.
- ▶ Note the product-related documentation → *from page 7*.

## 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 and 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.
- ▶ Only use hardware components with the required materials and track shapes.
- ▶ Always have installation performed by a specialist company.

- ▶ Through sufficient sash coverage, the window manufacturer must ensure that the sash cannot fall out, even if the window or hardware components is / are operated incorrectly.

**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 and 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 place additional loads on 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 as specified in 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 as specified in 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 build-up 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.

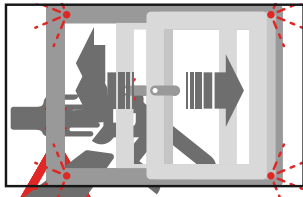
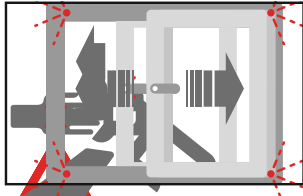
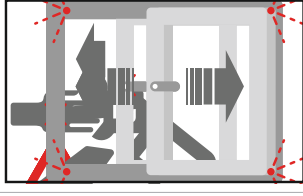
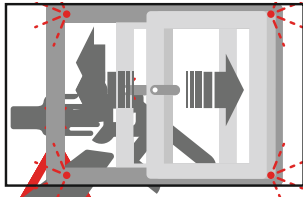
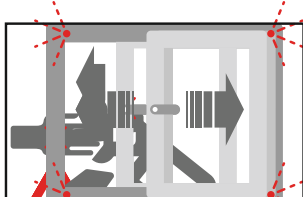
- ▶ Avoid preventing the circulation of air (e.g. due to deep reveals, curtains and unfavourable positioning of heaters or the like).
- ▶ Intensively air out the room several times per day.  
Open all windows and balcony doors for approximately 15 minutes so that the air in the room can be completely 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><b>Falls from open windows and balcony doors present an immediate risk of death and pose the risk of serious injuries.</b></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><b>Trapping body parts in the opening between sash and frame may lead to serious injuries.</b></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>
	<p><b>Placing additional loads on the sash may lead to minor injuries and property damage.</b></p> <p>Do not place additional loads on windows and balcony door sashes.</p>
	<p><b>Introducing obstacles into the opening between sash and frame may result in minor injuries and property damage.</b></p> <p>Do not introduce any obstacles in the opening area between the frame and window or balcony door sashes.</p>
	<p><b>Opening and closing the sash in an uncontrolled manner may result in minor injuries and property damage.</b></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>



## 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 Lift

Handle position	Sash position	Meaning
		Sash in closed position.
		Sash in sliding position.
		Sash in fixed sliding position.
	  Standard: night ventilation position with sash opened by 11 mm and handle in closed position [A] Closed position [B] Night ventilation position [C] Sliding position	

### 11.2 Fault assistance

Fault	Cause	Corrective action	To be carried out by
Handle is difficult to turn.	Frame components have not been greased.	Grease the frame components.	<input type="checkbox"/>
	Handle is damaged.	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 damaged.	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

#### Performing maintenance work incorrectly can lead to injuries.

Performing maintenance incorrectly can lead to injuries.

- ▶ 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 the sash against unintentionally opening or closing.
- ▶ Do not unhinge the sash for maintenance.



### ATTENTION

#### Incorrect or improper testing may cause property damage.

Incorrect or improper testing of the hardware may cause the element to malfunction.

- ▶ Have the hardware checked by a specialist company when installed.
- ▶ If defects need to be remedied, have the element unhinged and remounted by a specialist company.



### INFO

The manufacturer must draw the attention of builders and end consumers to these maintenance instructions.

Roto Frank Fenster- und Türtechnologie GmbH 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.

	Responsibility	
<b>Maintenance interval</b>	<input type="checkbox"/>	→ from page 122
<b>Cleaning</b>		→ from page 123
Clean hardware	<input type="checkbox"/>	
<b>Care</b>		→ from page 123
Lubricate movable parts	<input type="checkbox"/>	
Lubricate locking points	<input type="checkbox"/>	
<b>Performance test</b>		→ from page 125
Check that hardware components are fitted securely	<input type="checkbox"/>	
Inspect hardware components for wear	<input type="checkbox"/>	
Check that movable parts work properly	<input type="checkbox"/>	
Check that locking points work properly	<input type="checkbox"/>	
Check ease of movement	■	
<b>Repair</b>		→ from page 125
Retighten screws	■	
Replace damaged components	■	

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

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

### 12.1 Maintenance intervals



### ATTENTION

#### Failure to adhere to maintenance intervals may cause property damage.

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.

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



## 12.2 Cleaning



### ATTENTION

#### Using incorrect cleaning agents and sealing compounds may cause property damage.

Cleaning agents and sealing compounds may damage the surfaces of components and gaskets.

- ▶ 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.

### 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 123
- ▶ 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.
- ▶ Use appropriate lubricant in more challenging climatic conditions. Note the manufacturer specifications.



### 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 Lubrication points

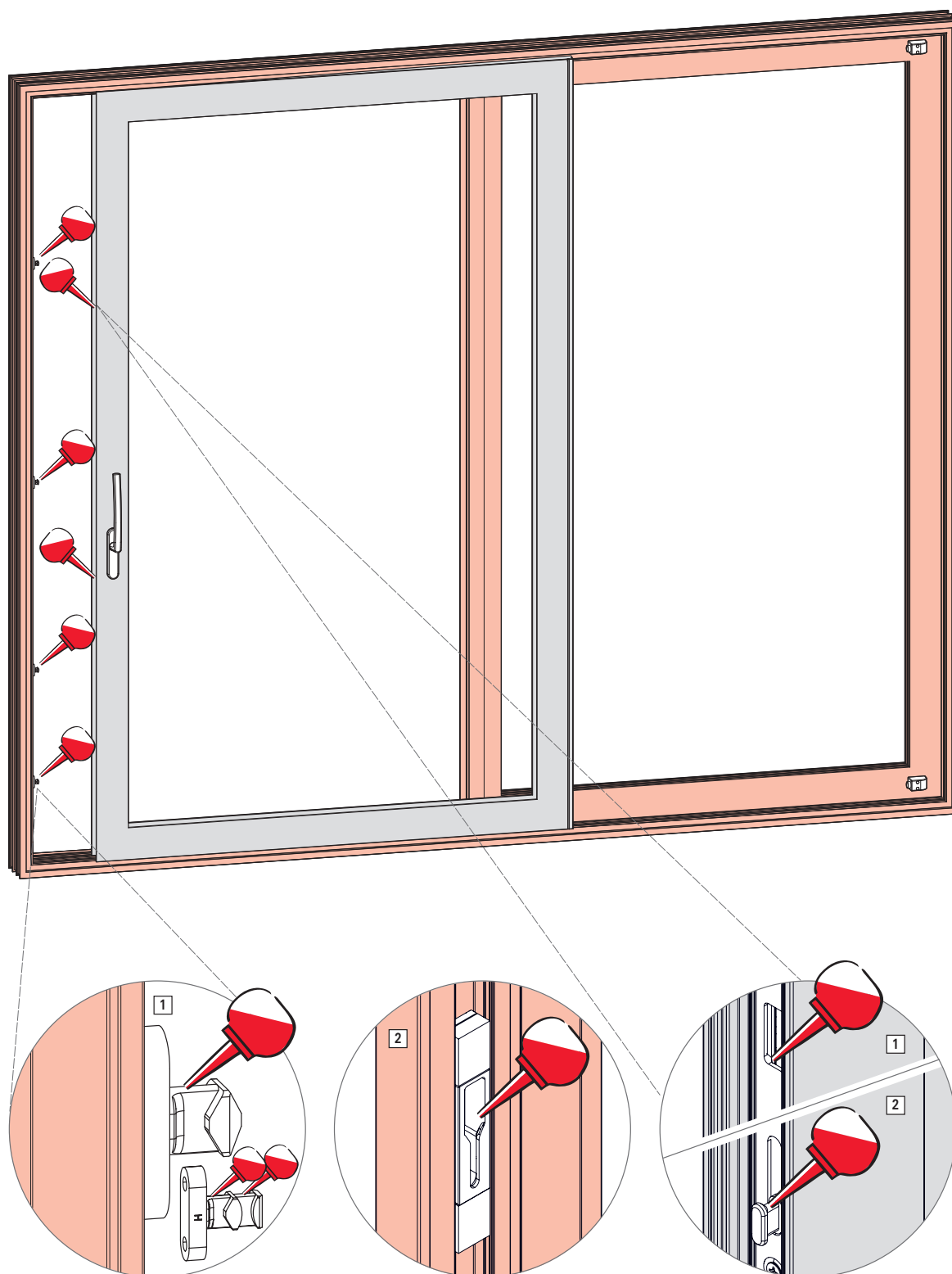


Fig. 12.1: [1] Standard; [2] DesignLocking



## 12.4 Performance test



### WARNING

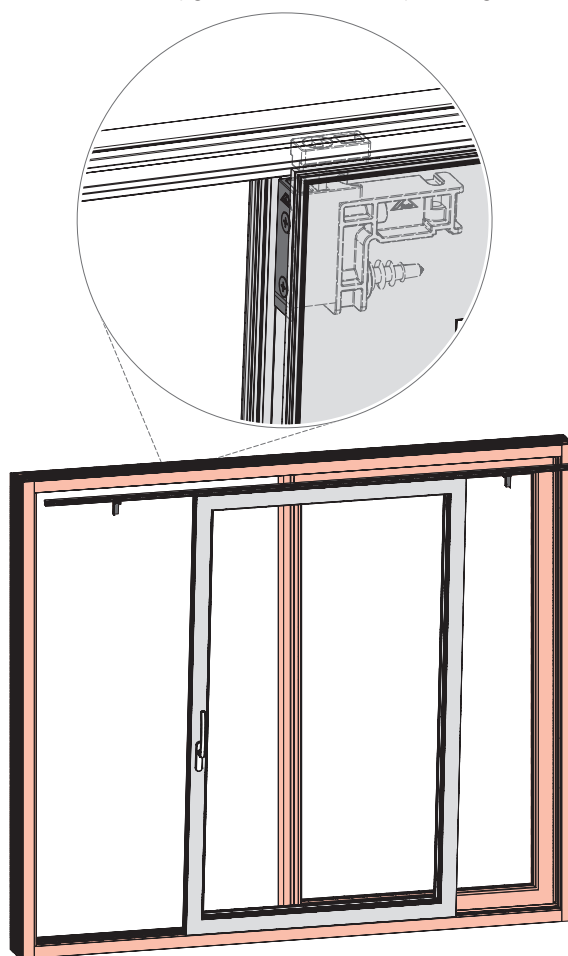
#### Improper repair work may pose a risk of death!

Improper maintenance may prevent the element from working properly and make it less safe to use.

- ▶ Always have repairs performed by a specialist company.

Check for proper operation:

- ▶ Inspect hardware components for damage, deformation and a secure fit.
- ▶ Check that the element runs smoothly by opening and closing it.
- ▶ Check the element gaskets for elasticity and fit.
- ▶ Check the closed element to ensure that it is leakproof.
- ▶ Check that the topglider is fitted securely in the guide track and on the sash.



Have malfunctions remedied by a specialist company.

## 12.5 Repair



### WARNING

#### Improper repair work may pose a risk of death!

Improper maintenance may prevent the element from working properly and make it less safe to use.

- ▶ Always have repairs performed by a specialist company.



### **ATTENTION**

#### **Improper screw fixings may cause 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.
- ▶ Use only the suggested screws.

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:

- Perform the necessary repair work properly, according to generally recognised engineering practice and in accordance with the applicable regulations.
- Do not perform makeshift repairs on worn or damaged components.
- Only use original or approved spare parts for repairs.



## 13 Dismantling



### WARNING

#### Improper dismantling may pose a risk of death!

The sash may fall during dismantling.

- ▶ Secure the sash to prevent it from falling, e.g. by using two people.
- ▶ Always have dismantling work performed by a specialist company.



### CAUTION

#### Physical strain may cause injury and damage to health.

Carrying and lifting heavy loads for extended periods leads to physical injury in the long term.

- ▶ When carrying or lifting loads, maintain an ergonomically correct posture. The maximum permissible load is 25 kg for men and 10 kg for women.



### INFO

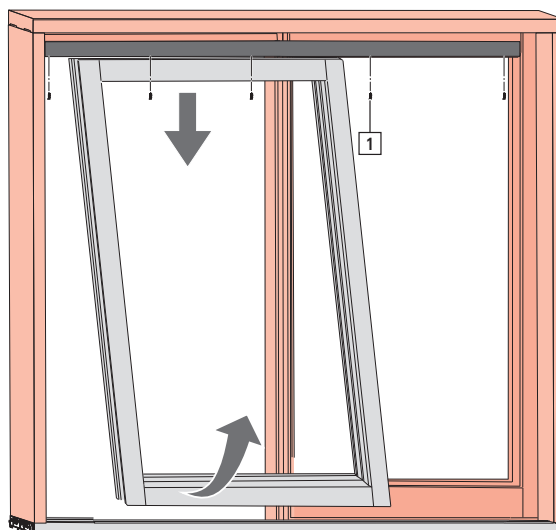
Unless otherwise stated, dismantling is performed in reverse order to installation.

### 13.1 Unhinging the sash

⇒ Specifications of the profile manufacturer complied with.

1.

Move the handle to the sliding position  
Lift the sash and tilt it outwards at the bottom.  
Lower the sash in a controlled manner until the frame no longer overlaps the sash.



2. Remove the sash parallel to the frame.

### 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 elements and hardware



#### **DANGER**

##### **Improper transport poses a risk of death!**

Improper procedures for transporting, loading or unloading elements may cause serious injuries and glass breakage as a result of the elements swinging open, falling or becoming overloaded.

- ▶ Note the applicable accident prevention regulations.
- ▶ Note force application points and reaction forces.
- ▶ Prevent the sash from opening uncontrollably.
- ▶ Avoid jerky movements.
- ▶ Use suitable transportation means and protective devices.
- ▶ Watch out for protruding components.
- ▶ Transport heavy loads with two people and use suitable transportation means (such as an industrial truck).



#### **CAUTION**

##### **Trapped limbs may result in injuries.**

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

- ▶ Never reach near the scissor stays.
- ▶ Close the sash after installation and secure it in place for transport.
- ▶ Wear safety gloves and protective footwear.



#### **CAUTION**

##### **Physical strain may cause injury and damage to health.**

Carrying and lifting heavy loads for extended periods leads to physical injury in the long term.

- ▶ When carrying or lifting loads, maintain an ergonomically correct posture. The maximum permissible load is 25 kg for men and 10 kg for women.

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

Observe the following basic instructions when transporting hardware:

- ▶ Transport larger scopes of delivery using appropriate transportation means (such as industrial trucks).
- ▶ Note the transport weight in order to select appropriate transportation means.
- ▶ Ensure that the transport process is careful and appropriate for the material and that components are protected against dirt during transport.
- ▶ 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 scopes of delivery:

- 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 may pollute 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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**From a single source: Optimum hardware systems to meet all challenges**

<b>Roto Window</b>	Hardware systems for windows and balcony doors
<b>Roto Sliding</b>	Hardware systems for large sliding windows and doors
<b>Roto Door</b>	Matching hardware technology everything about doors
<b>Roto Equipment</b>	Additional technology for windows and doors