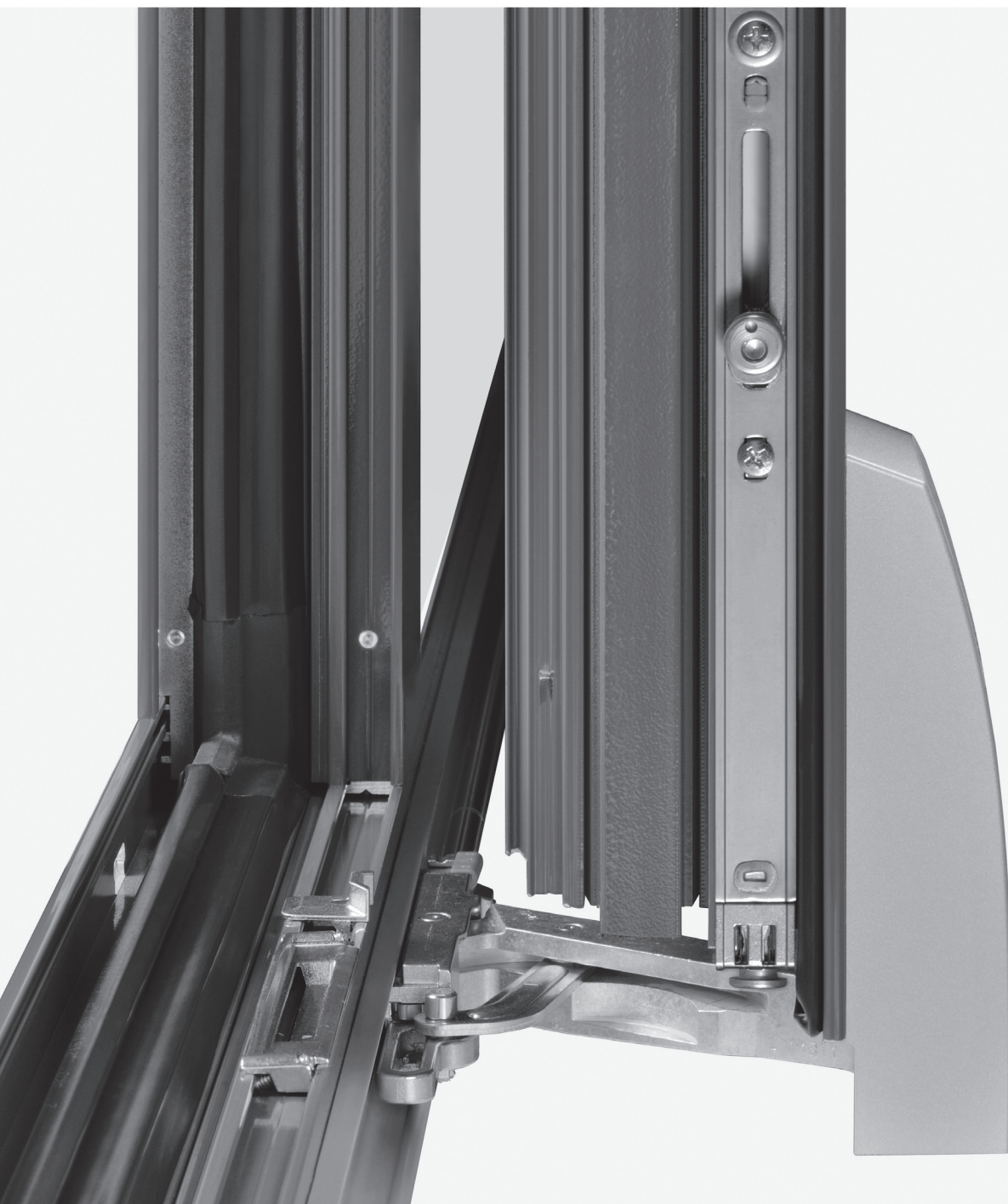


Roto Patio S

The standard hardware for Tilt&Slide windows and doors up to 160 kg

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



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

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

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

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

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

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

Additional markings

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

Marking	Explanation
	Sash
	Frame
	Drilling-holes
	Hardware components
	Action steps
	First level of the hierarchy in a list
	Unordered list (second level of the hierarchy)
	(Cross) reference in tables
	(Cross) reference in the text

Abbreviation	Explanation
SRW	Sash rebate width
SRH	Sash rebate height
S.kg	Sash weight
RC1	Resistance Class 1
RC2	Resistance Class 2

All dimensions stated in mm.

Protection of copyright

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

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

Hardware dealers

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

Manufacturers of windows and balcony doors

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

Building element dealers/Installation company

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

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

Builder

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

End-users

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

**NOTE!**

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

Responsibility of the hardware dealer

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

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

Responsibility of the manufacturer of windows and balcony doors

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

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

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

Responsibility of the building element dealer/installation company

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

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

Responsibility of the builder

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

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

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

**DANGER!**

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

**WARNING!**

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

**CAUTION!**

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

**NOTE!**

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

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

The hardware manufacturer accepts no liability for damages resulting from:

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

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

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

The warranty covers only original Roto components.

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

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

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

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

In addition, scissor stay-arms for tilting and mechanisms to lift and/or parallel-retract the sashes can be specified. By means of the hardware, the sashes are locked, brought into the ventilation position and pushed to the side.

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

**NOTE!**

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

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

- These installation, maintenance and operation instructions
- Product catalogues
- Information and specifications of the profile manufacturer (e.g. PVC or light metal profiles etc.)
- The relevant directives VHBH and VHBE of the Quality Assurance Association: Locks and Hardware (Gütegemeinschaft Schlösser und Beschläge e. V.)
- The valid national laws and directives

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

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

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

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



On windows or balcony doors with sliding hardware the sashes can be moved horizontally or vertically by operating a 'hand-lever' (handle). On special constructions the sashes additionally can be folded by sliding (like an accordion – Fold&Slide windows). On special constructions some of the sashes additionally can be brought into a turning position and/or into a limited tilting position in the case of the scissors (sash-stay) version. When a sash is closed and the hardware is locked, the resistance of a gasket usually needs to be overcome.

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

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

Therefore:

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

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

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

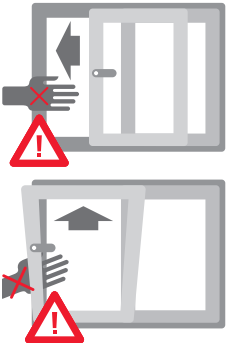
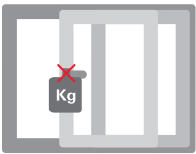
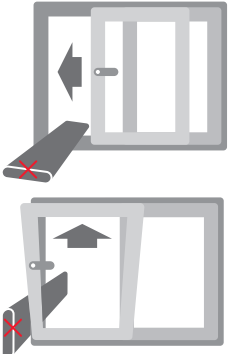
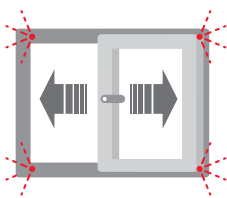
Misuse of windows and balcony doors can result in dangerous circumstances.

In particular, avoid the following applications:

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

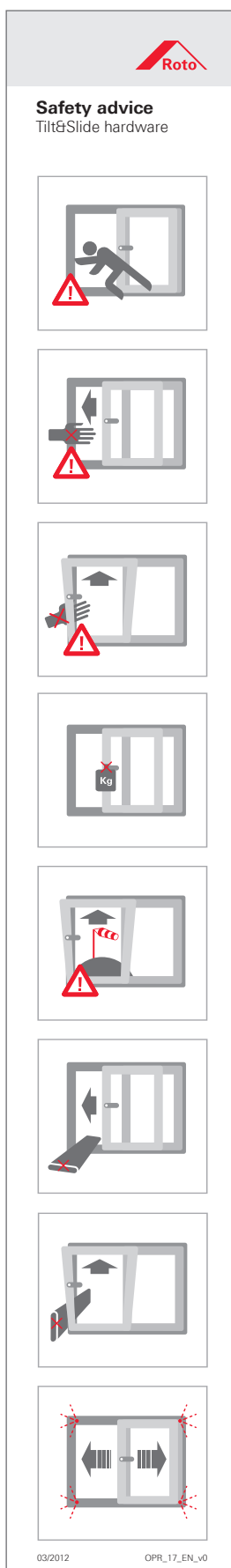
Claims for damages of any type whatsoever resulting of operation other than that stipulated are excluded.

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

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



The following symbols can be used on windows and balcony doors to protect the end-user. Always keep these symbols in a clearly legible state. Please order stickers separately (OPR_17_EN_v0).



Maximum sash sizes and weights

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

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

Guidelines from the profile manufacturer

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



NOTE!

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

Composition of hardware

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

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

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

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



NOTE!

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



- The hardware components described in these installation, maintenance and operation instructions are made of steel, colourless passivated and sealed according to DIN EN 12329.
- The hardware components may only be used with aluminium profiles.
- The hardware components may not be used in environments with salty, aggressive or corrosion-promoting air.
- The guide track and the roller track must not be painted.
- Surface-treating of Tilt&Slide elements may only be carried out before installation. A subsequent surface treatment may restrict the functioning of the hardware components.
- If in some cases it is expected (due to operation in hotels, schools, kindergartens etc.) that the element will be excessively used, this must be prevented by adequate measures. Also in movable objects like trains or ships there may occur disorders caused by the object movement.



DANGER!

Danger to life from incorrectly installed and threaded hardware components!

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

Therefore:

- For installation and especially for threaded components, observe the product-specific documentation and the information of the hardware manufacturer.

- For Roto Patio S for aluminium hardware the application ranges on page 17–18 apply.
- Information with respect to screwing speed and torque are binding. (Do not overtighten the screws!)
- Fasten the hardware components with the included screws.
- Install all hardware components properly in accordance with these instructions.
- For the glazing packers the Technical Guidelines of the Glazing Trade, no. 3 “Packing of Glazing Units” must be observed.

Fixing screws for hardware components (included in delivery scope)

For components	Quantity	Size	Diameter to be drilled	Drive unit
Bogies, cover support brackets	12	4.8 x 50	4.2	Torx 15
Roller track, guide track	40	3.9 x 45	3.2	Torx 15
Stay-connecting profile	10	3.9 x 9.5	3.2	Torx 15
Reinforcement brackets	4	M5x25	7.1 (for riveting nut)	Torx 25
RotoLine window handle	2	M5x...	3.9/10.1/12	Phillips screw

General hardware characteristics

- Spring catch in tilted position, anti-slam scissors-slider
- Concealed central locking system
- Sash arrangement according to diagram A, B, D, G, K
- Internal and external aesthetics like Tilt&Turn windows:
narrow profiles, no offset glazing in the facade, handle position when the door is closed “downwards”
- Retracting distance: max. 117 mm
- Sash rebate width: max. 1650 mm
- Sash rebate height: max. 2350 mm
- Sash weight: max. 160 kg
- Clearance 12 mm
- Minimum overlap height 15 mm
- Overlap width 18–22 mm
- Hardware axis 913 mm



Application diagram

Roto Patio 100S

Limitation of sash formats depending on the glass thickness

Application range

Sash rebate width **SRW** 600–1250 mm

Sash rebate height **SRH** 600–2350 mm

Sash weight **S.kg** max. 100 kg

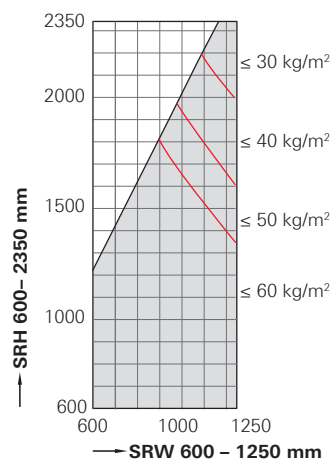
Glass weight max. 60 kg / m²

Sash rebate height **SRH** : Sash rebate width **SRW** = max. 2 : 1

The information in the application diagram refers to the glass weight in kg / m².

1 mm / m² glass thickness = 2.5 kg

 = Impermissible application range



Application diagram

Roto Patio 160S

Limitation of sash formats depending on the glass thickness

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 / m²

Sash rebate height **SRH** : Sash rebate width **SRW** = max. 2 : 1

The information in the application diagram refers to the glass weight in kg / m².

1 mm/m² glass thickness = 2.5 kg

 = Impermissible application range

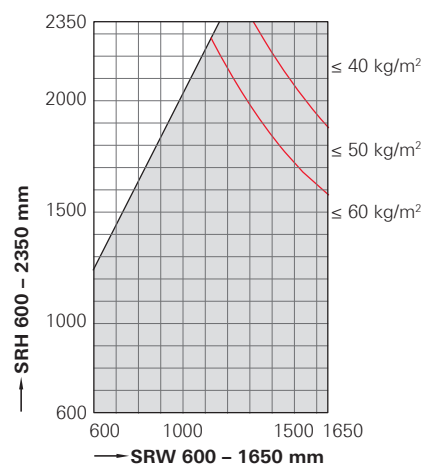




Diagram A

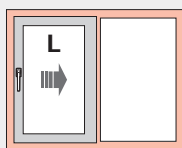


Diagram A

1 sliding sash (L or R)
1 fixed glazings

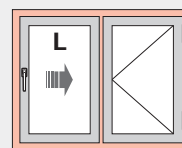


Diagram A

1 sliding sash (L or R)
1 Turn-Only sash

Diagram B



Diagram B

1 sliding sash (L or R)
Inside frame flush with the wall

Diagram D

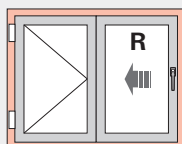


Diagram D

1 sliding sash (L or R) with/without centre post profile, slidable guide block required
(Installation situation of guide block see page 61).
1 Turn-Only sash

Diagram G

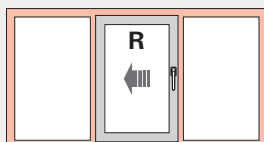


Diagram G

1 sliding sash (L or R)
2 fixed glazings

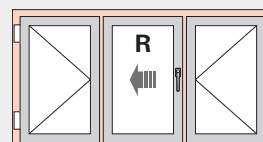


Diagram G

1 sliding sash (L or R)
2 Turn-Only sash

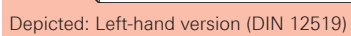
Diagram K



Diagram K

2 sliding sashes (L and R)
1 fixed glazing







Application range

Sash width **SRW** 600–1250 mmSash height **SRH** 600–2350 mmSash weight **S.kg** max. 100 kg

Basic carton Patio 100S/160S Aluminium				
Patio S Aluminium Basic carton				L 625395
Content:				
1a	1 leading bogie			
1b	1 trailing bogie			
20	2 cover support brackets			
	12 supporting-pin countersunk tapping-screws 4.8 x 50 T25 (not dep.)			
Patio S Aluminium Basic carton				R 625384
Content:				
2a	1 leading bogie (not dep.)			
2b	1 trailing bogie (not dep.)			
20	2 cover support brackets			
	12 supporting-pin countersunk tapping-screws 4.8 x 50 T25 (not dep.)			
Centre lock component				
3 Centre lock component, vertical				
SRH / mm	Length / mm	Handle height / mm	Cam	Material no.
600 – 800	690	–	1E	604190
801 – 1000	890	–	1E 1V	281244
1001 – 1200	1090	–	1E 1V	281245
1201 – 1400	1290	–	1E 1V	281246
1401 – 1600	1490	–	2E 1V	281247
1601 – 1800	1690	–	2E 1V	281248
1801 – 2000	1890	–	2E 1V	281249
2001 – 2200	2090	–	3E 1V	281250
2201 – 2400	2290	–	3E 1V	281251
4 Centre lock component, bottom horizontal				
SRW / mm	Length / mm	Handle height / mm	Cam	Material no.
600 – 800	590	–	–	614445
801 – 1000	790	–	1 E	614446
1001 – 1200	990	–	1 E	614447
1201 – 1400	1190	–	1 E	614448
5 Centre lock component, top horizontal				
SRW / mm	Length / mm	Handle height / mm	Cam	Material no.
600 – 800	590	–	–	603442
801 – 1000	790	–	1 E	603444
1001 – 1200	990	–	1 E	603447
1201 – 1400	1190	–	1 E	603462

Track set		
Track set for sash and frame incl. misc. small components pack		
Non-treated		
SRW/mm	Frame external width (FEW) / mm	Material no.
600 – 900	1930	625445
901 – 1050	2230	625450
1051 – 1250	2630	625455
R01.5 Silver		
SRW/mm	Frame external width (FEW) / mm	Material no.
600 – 900	1930	625442
901 – 1050	2230	625447
1051 – 1250	2630	625452
R05.4 Dark bronze		
SRW/mm	Frame external width (FEW) / mm	Material no.
600 – 900	1930	625446
901 – 1050	2230	625451
1051 – 1250	2630	625456
R06.2 Jet-black		
SRW/mm	Frame external width (FEW) / mm	Material no.
600 – 900	1930	625444
901 – 1050	2230	625449
1051 – 1250	2630	625454
R07.2 Traffic-white		
SRW/mm	Frame external width (FEW) / mm	Material no.
600 – 900	1930	625443
901 – 1050	2230	625448
1051 – 1250	2630	625453
Content:		
Track set:		
⑥	1 roller track *)	
⑦	1 guide track *)	
⑧	1 cover profile	
⑨	1 PVC cover profile	
⑩	1 connecting rod	
⑪	1 stay-connecting profile	
Misc. small components pack:		
⑱	1 cover cap for stay-connecting profile, left	
⑱	1 cover cap for stay-connecting profile, right	
⑰	1 buffer stop, top	
⑭	2 cover caps guide track	
⑮	1 guide block	
⑯	1 buffer stop, bottom	
⑲	1 rubber buffer stop, bottom	
	10 pan-head tapping screws 3.9 x 9.5 T15 (not dep.)	
	40 countersunk tapping-screws 3.9 x 45 T15 (not dep.)	

*) The guide track and the roller track must not be painted.

12 Scissors-slider	
SRW / mm	Material no.
600 – 900	603930
901 – 1200	603931
1201 – 1250	603932

13 Cover caps small (pair) 100S up to 100 kg	
Description	Material no.
Non-treated	625398
R01.5 Silver	625399
R05.4 Dark bronze	625402
R06.2 Jet-black	625400
R07.2 Traffic-white	625401

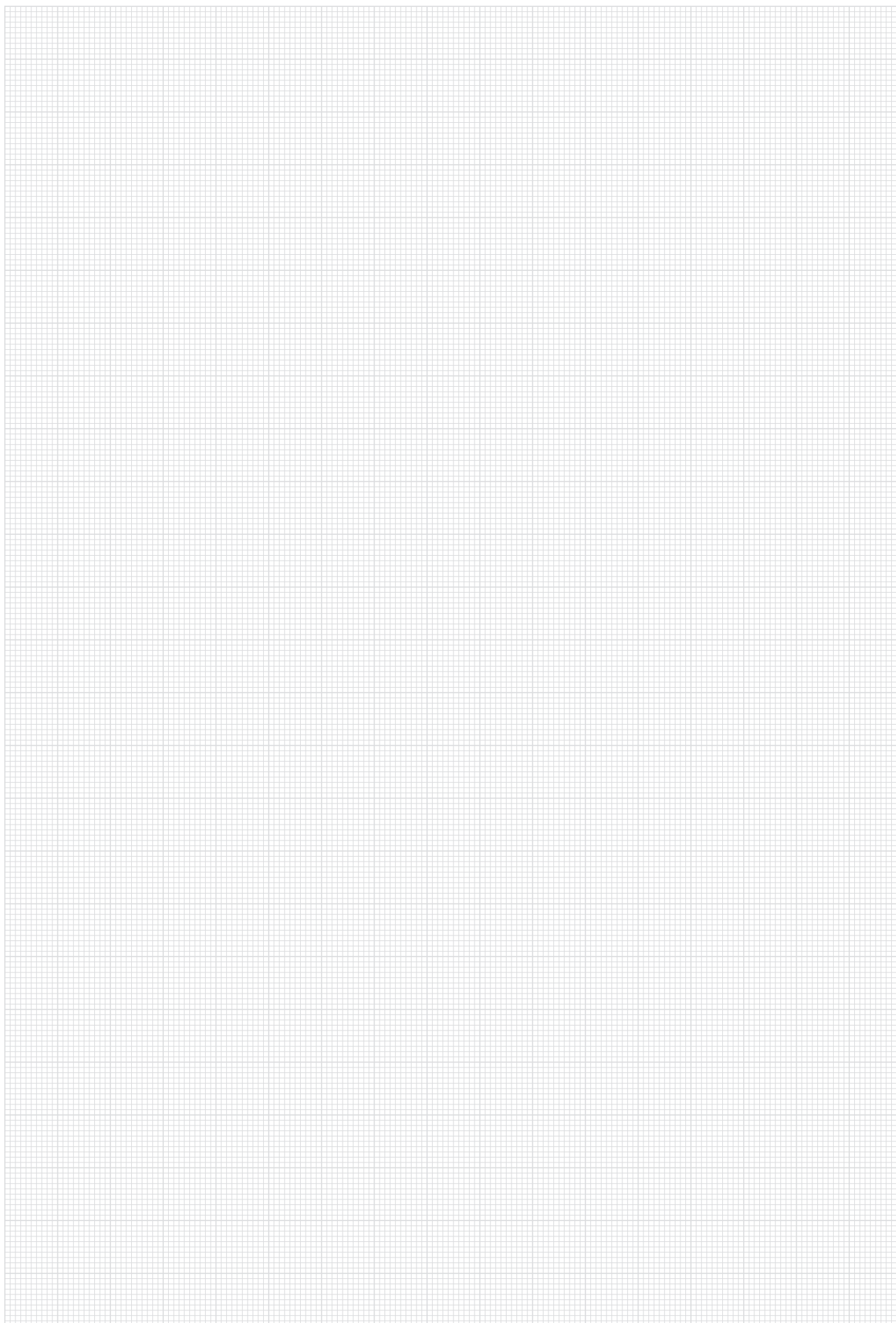
Espagnolette

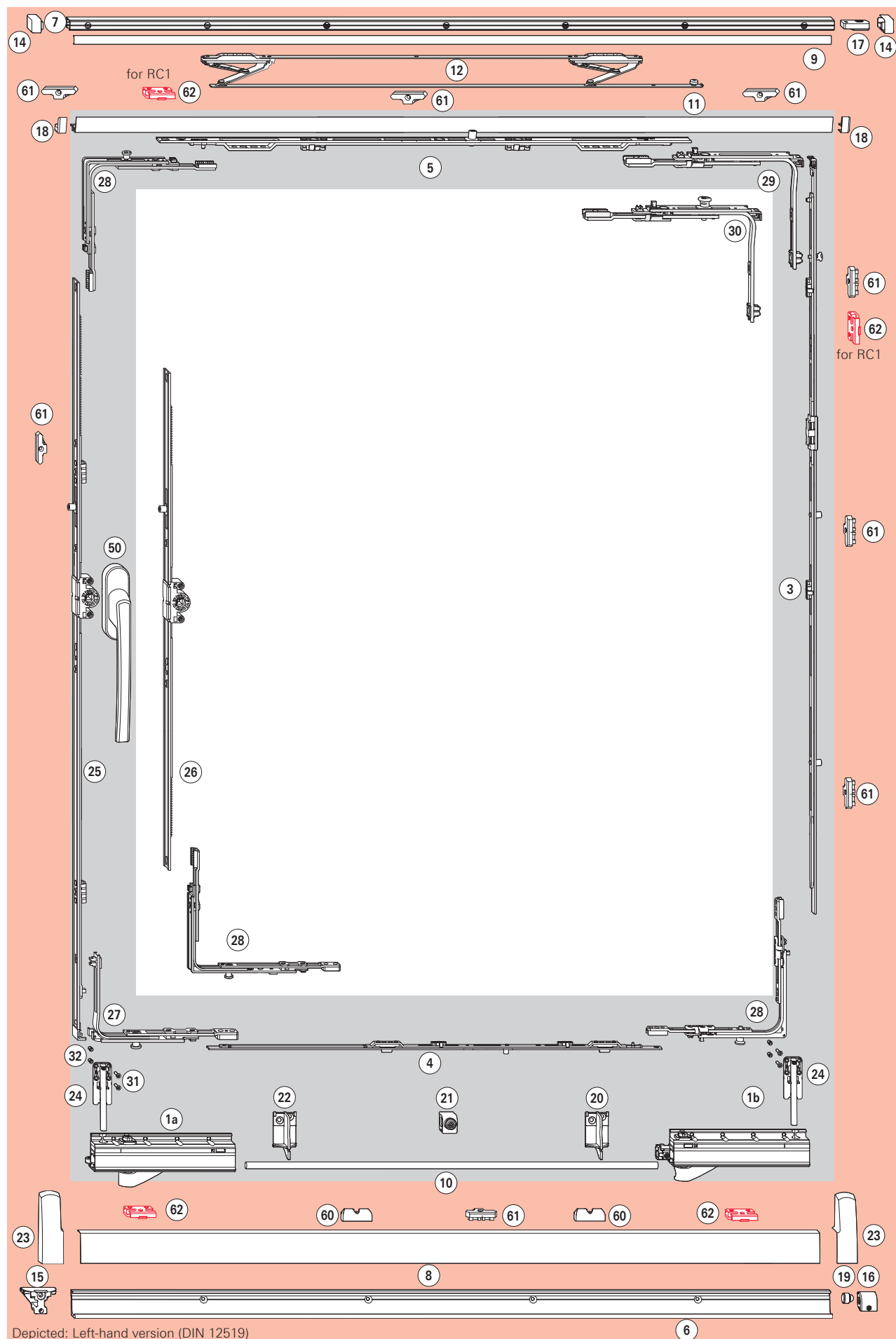
25 T&T espagnolette, fixed handle height, 15 mm backset				
SRH / mm	Length / mm	Handle height / mm	Cam	Material no.
601 – 800	690	263	1 E	259833
801 – 1000	890	413	1 E	259836
1001 – 1200	1090	513	1 E	259838
1201 – 1400	1290	563	1 E	259840
1401 – 1600	1490	563	2 E	259843
1601 – 1800	1690	563	2 E	259846
1601 – 1800	1690	1000	2 E	259847
1801 – 2000	1890	1000	2 E	259849
2001 – 2200	2090	1000	3 E	259852
2201 – 2400	2290	1000	3 E	259855

26 T&T espagnolette, centred/variable handle height 15 mm backset				
SRH / mm	Length / mm	Handle height / mm	Cam	Material no.
621 – 800	580	311 – 400	1 E	259719
801 – 1200	980	401 – 600	1 E	259720
1201 – 1600	1380	601 – 800	2 E	259721
1601 – 2000	1780	801 – 1000	2 E	259762
2001 – 2400	2180	1001 – 1200	4 E	259763

Corner drive

27 Corner drive, T&T	1 V	260288
28 Corner drive RC1 and RC2	1 V	260272
29 Corner drive		255273
30 Corner drive as alternative to 29	1 V	260288
50 RotoLine Patio S handle, with Roto logo		→ Page 33
34 RotoSwing Patio S handle, with Roto logo		→ Page 34
60 Guide striker		→ Page 38
61 Striker		→ Page 38
62 Security striker		→ Page 38







Application range

Sash rebate width **SRW** 600 – 1650 mmSash rebate height **SRH** 600 – 2350 mmSash weight **S.kg** max. 160 kg

Basic carton Patio 100S/160S Aluminium

Patio S Aluminium Basic carton **L 625395**

Content:

- (1a) 1 leading bogie
- (1b) 1 trailing bogie
- (20) 2 cover support brackets
- (22) 12 supporting-pin countersunk tapping-screws
4.8 x 50 T25 (not dep.)

Patio S Aluminium Basic carton **R 625384**

Content:

- (2a) 1 leading bogie (not dep.)
- (2b) 1 trailing bogie (not dep.)
- (20) 2 cover support brackets
- (22) 12 supporting-pin countersunk tapping-screws
4.8 x 50 T25 (not dep.)

Centre lock component

③ Centre lock component, vertical

SRH / mm	Length / mm	Handle height / mm	Cam	Material no.
600 – 800	690	–	1E	604190
801 – 1000	890	–	1E 1V	281244
1001 – 1200	1090	–	1E 1V	281245
1201 – 1400	1290	–	1E 1V	281246
1401 – 1600	1490	–	2E 1V	281247
1601 – 1800	1690	–	2E 1V	281248
1801 – 2000	1890	–	2E 1V	281249
2001 – 2200	2090	–	3E 1V	281250
2201 – 2400	2290	–	3E 1V	281251

④ Centre lock component, bottom horizontal

SRW / mm	Length / mm	Handle height / mm	Cam	Material no.
600 – 800	590	–	–	614445
801 – 1000	790	–	1 E	614446
1001 – 1200	990	–	1 E	614447
1201 – 1400	1190	–	1 E	614448
1401 – 1650	1440	–	1 E	614449

⑤ Centre lock component, top horizontal

SRW / mm	Length / mm	Handle height / mm	Cam	Material no.
600 – 800	590	–	–	603442
801 – 1000	790	–	1 E	603444
1001 – 1200	990	–	1 E	603447
1201 – 1400	1190	–	1 E	603462
1401 – 1650	1440	–	1 E	603466

Track set

Track set for sash and frame incl. misc. small components pack

Non-treated

SRW / mm	Frame external width (FEW) / mm	Material no.
600 – 900	1930	625445
901 – 1050	2230	625450
1051 – 1250	2630	625455
1251 – 1450	3030	625460
1451 – 1650	3430	625465

R01.5 Silver

SW / mm	Frame external width (FEW) / mm	Material no.
600 – 900	1930	625442
901 – 1050	2230	625447
1051 – 1250	2630	625452
1251 – 1450	3030	625457
1451 – 1650	3430	625462

R05.4 Dark bronze

SW / mm	Frame external width (FEW) / mm	Material no.
600 – 900	1930	625446
901 – 1050	2230	625451
1051 – 1250	2630	625456
1251 – 1450	3030	625461
1451 – 1650	3430	625466

R06.2 Jet-black

SW / mm	Frame external width (FEW) / mm	Material no.
600 – 900	1930	625444
901 – 1050	2230	625449
1051 – 1250	2630	625454
1251 – 1450	3030	625459
1451 – 1650	3430	625464

R07.2 Traffic-white

SW / mm	Frame external width (FEW) / mm	Material no.
600 – 900	1930	625443
901 – 1050	2230	625448
1051 – 1250	2630	625453
1251 – 1450	3030	625458
1451 – 1650	3430	625463

Content:

Track set:

- (6) 1 roller track *)
- (7) 1 guide track *)
- (8) 1 cover profile
- (9) 1 PVC cover profile
- (10) 1 connecting rod
- (11) 1 stay-connecting profile
- (21) 1 connecting-rod support-block
(additionally included from SRW > 1450)

Misc. small components pack:

- (18) 1 cover cap for stay-connecting profile, left
- (18) 1 cover cap for stay-connecting profile, right
- (17) 1 buffer stop, top
- (14) 2 cover caps guide track
- (15) 1 guide block
- (16) 1 buffer stop, bottom
- (19) 1 rubber buffer stop, bottom
- 10 pan-head tapping screws 3.9x9.5 T15 (not dep.)
- 40 countersunk tapping-screws 3.9 x 45 T15 (not dep.)

*) The guide track and the roller track must not be painted.

12 Scissors-slider	
SRW/mm	Material no.
600 – 900	603930
901 – 1200	603931
1201 – 1650	603932

Cover caps large (pair) 160S up to 160 kg

Description	Material no.
Non-treated	625403
R01.5 Silver	625404
R05.4 Dark bronze	625407
R06.2 Jet-black	625405
R07.2 Traffic-white	625406

Content:

23	1 cover cap, left
23	1 cover cap, right
24	2 reinforcement brackets, adjustable

Misc. small components pack:

31	4 countersunk screws M5 x 25 T25
32	4 blind rivet nuts M5

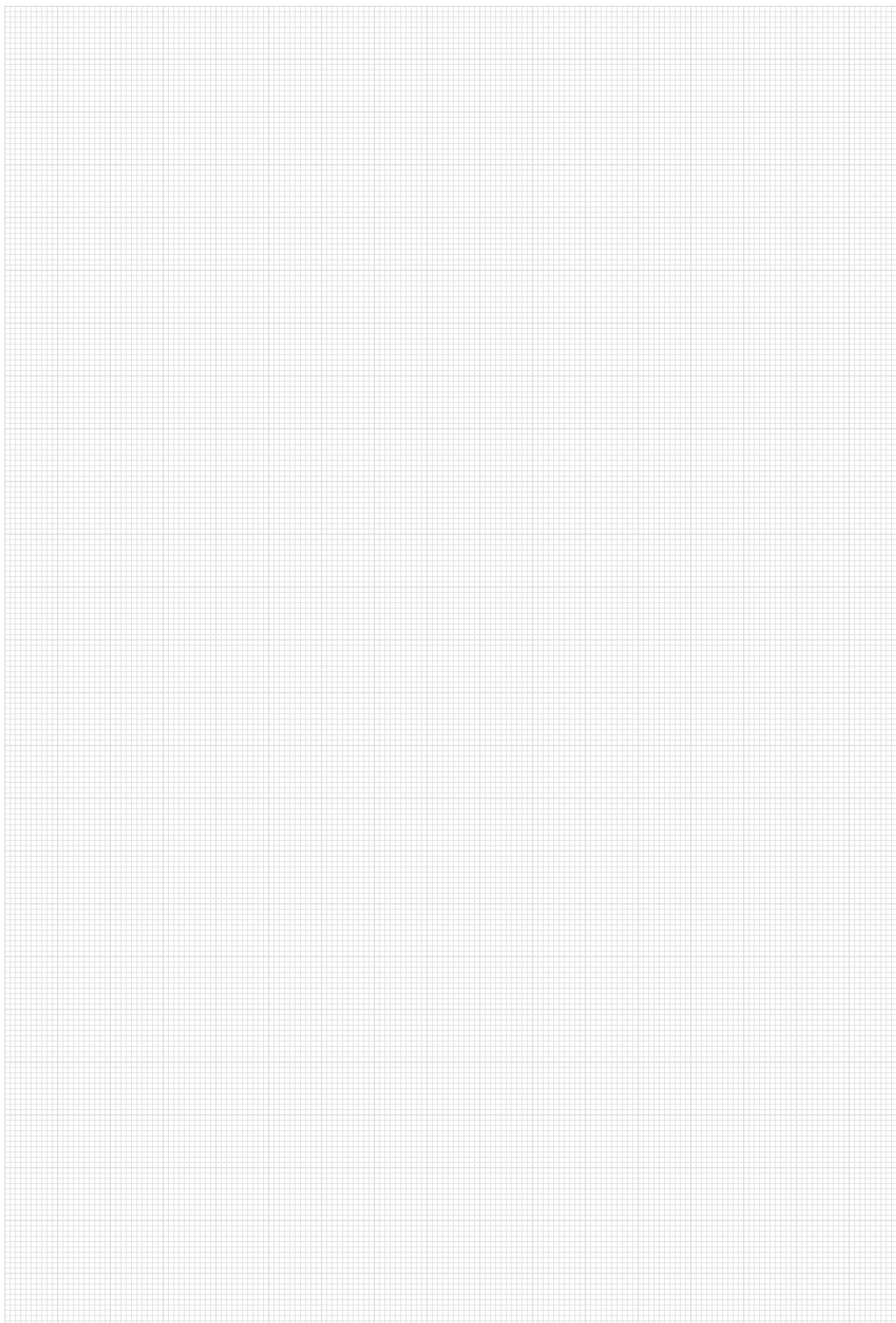
Espagnolette

25 T&T espagnolette, fixed handle height, 15 mm backset				
SRH / mm	Length / mm	Handle height / mm	Cam	Material no.
601 – 800	690	263	1 E	259833
801 – 1000	890	413	1 E	259836
1001 – 1200	1090	513	1 E	259838
1201 – 1400	1290	563	1 E	259840
1401 – 1600	1490	563	2 E	259843
1601 – 1800	1690	563	2 E	259846
1601 – 1800	1690	1000	2 E	259847
1801 – 2000	1890	1000	2 E	259849
2001 – 2200	2090	1000	3 E	259852
2201 – 2400	2290	1000	3 E	259855

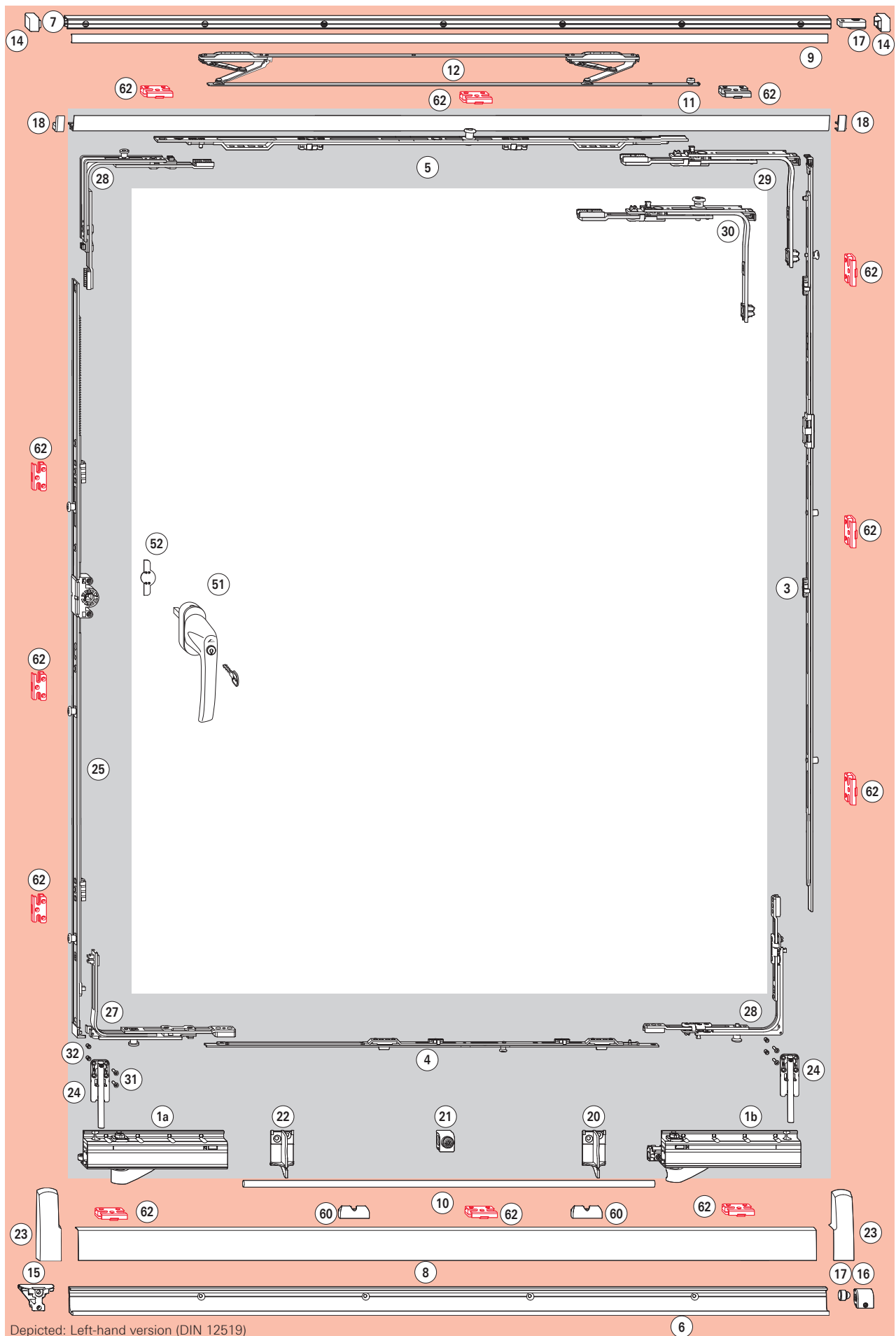
26 T&T espagnolette, centred/variable handle height 15 mm backset				
SRH / mm	Length / mm	Handle height / mm	Cam	Material no.
621 – 800	580	311 – 400	1 E	259719
801 – 1200	980	401 – 600	1 E	259720
1201 – 1600	1380	601 – 800	2 E	259721
1601 – 2000	1780	801 – 1000	2 E	259762
2001 – 2400	2180	1001 – 1200	4 E	259763

Corner drive

27	Corner drive, T&T	1 V	260288
28	Corner drive RC1 and RC2	1 V	260272
29	Corner drive		255273
30	Corner drive as alternative to 29	1 V	260288
50	RotoLine Patio S handle, with Roto logo		→ Page 33
34	RotoSwing Patio S handle, with Roto logo		→ Page 34
60	Guide striker		→ Page 38
61	Striker		→ Page 38
62	Security striker		→ Page 38



Hardware overview
Roto Patio 160S – RC2
 Hardware overview



Depicted: Left-hand version (DIN 12519)



Application range

Sash rebate width **SRW** 600 – 1650 mm
Sash rebate height **SRH** 600 – 2350 mm
Sash weight **S.kg** max. 160 kg

Basic carton Patio 100S/160S Aluminium

Patio S Aluminium Basic carton **L 625395**

Content:

1a	1 leading bogie
1b	1 trailing bogie
20	2 cover support brackets
22	12 supporting-pin countersunk tapping-screws 4.8 x 50 T25 (not dep.)

Patio S Aluminium Basic carton **R 625384**

Content:

2a	1 leading bogie (not dep.)
2b	1 trailing bogie (not dep.)
20	2 cover support brackets
22	12 supporting-pin countersunk tapping-screws 4.8 x 50 T25 (not dep.)

Centre lock component

③ Centre lock component, security vertical

SRH / mm	Length / mm	Handle height / mm	Cam	Material no.
600 – 800	690	–	1V	604191
801 – 1000	890	–	2V	603396
1001 – 1200	1090	–	2V	603397
1201 – 1400	1290	–	2V	603398
1401 – 1600	1490	–	3V	603399
1601 – 1800	1690	–	3V	603400
1801 – 2000	1890	–	3V	603409
2001 – 2200	2090	–	4V	603410
2201 – 2400	2290	–	4V	603411

④ Centre lock component, security, bottom horizontal

SRW / mm	Length / mm	Handle height / mm	Cam	Material no.
600 – 800	590	–	–	614445
801 – 1000	790	–	1 V	614450
1001 – 1200	990	–	1 V	614451
1201 – 1400	1190	–	1 V	614452
1401 – 1650	1440	–	1 V	614453

⑤ Centre lock component, security, top horizontal

SRW / mm	Length / mm	Handle height / mm	Cam	Material no.
600 – 800	590	–	–	603442
801 – 1000	790	–	1 V	603472
1001 – 1200	990	–	1 V	603473
1201 – 1400	1190	–	1 V	603474
1401 – 1650	1440	–	1 V	603475

Track set

Track set for sash and frame incl. misc. small components pack

Non-treated

SRW / mm	Frame external width (FEW) / mm	Material no.
600 – 900	1930	625445
901 – 1050	2230	625450
1051 – 1250	2630	625455
1251 – 1450	3030	625460
1451 – 1650	3430	625465

R01.5 Silver

SW / mm	Frame external width (FEW) / mm	Material no.
600 – 900	1930	625442
901 – 1050	2230	625447
1051 – 1250	2630	625452
1251 – 1450	3030	625457
1451 – 1650	3430	625462

R05.4 Dark bronze

SW / mm	Frame external width (FEW) / mm	Material no.
600 – 900	1930	625446
901 – 1050	2230	625451
1051 – 1250	2630	625456
1251 – 1450	3030	625461
1451 – 1650	3430	625466

R06.2 Jet-black

SW / mm	Frame external width (FEW) / mm	Material no.
600 – 900	1930	625444
901 – 1050	2230	625449
1051 – 1250	2630	625454
1251 – 1450	3030	625459
1451 – 1650	3430	625464

R07.2 Traffic-white

SW / mm	Frame external width (FEW) / mm	Material no.
600 – 900	1930	625443
901 – 1050	2230	625448
1051 – 1250	2630	625453
1251 – 1450	3030	625458
1451 – 1650	3430	625463

Content:

Track set:

⑥	1 roller track *)
⑦	1 guide track *)
⑧	1 cover profile
⑨	1 PVC cover profile
⑩	1 connecting rod
⑪	1 stay-connecting profile
⑫	1 connecting-rod support-block (additionally included from SRW > 1450)

Misc. small components pack:

⑬	1 cover cap for stay-connecting profile, left
⑭	1 cover cap for stay-connecting profile, right
⑮	1 buffer stop, top
⑯	2 cover caps guide track
⑰	1 guide block
⑱	1 buffer stop, bottom
⑲	1 rubber buffer stop, bottom
	10 pan-head tapping screws 3.9 x 9.5 T15 (not dep.)
	40 countersunk tapping-screws 3.9 x 45 T15 (not dep.)

*) The guide track and the roller track must not be painted.

12 Scissors-slider	
SRW/mm	Material no.
600 – 900	603930
901 – 1200	603931
1201 – 1650	603932

Cover caps large (pair) 160S up to 160 kg

Description	Material no.
Non-treated	625403
R01.5 Silver	625404
R05.4 Dark bronze	625407
R06.2 Jet-black	625405
R07.2 Traffic-white	625406

Content:

23	1 cover cap, left
23	1 cover cap, right
24	2 reinforcement brackets, adjustable

Misc. small components pack:

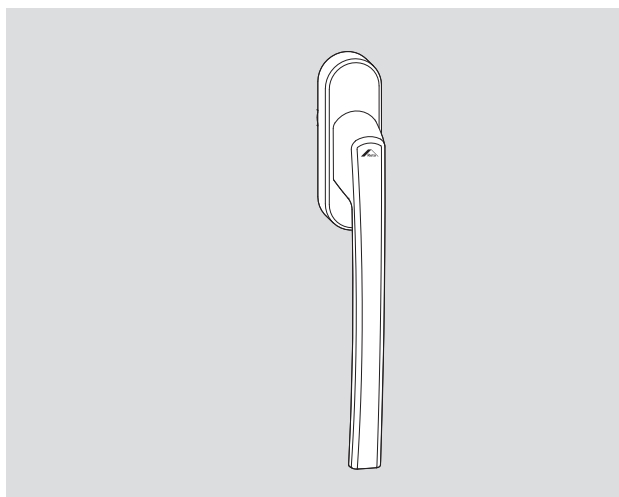
31	4 countersunk screws M5 x 25 T25
32	4 blind rivet nuts M5

Espagnolette

25 T&T espagnolette, fixed handle height, 15 mm backset				
SRH / mm	Length / mm	Handle height / mm	Cam	Material no.
601 – 800	690	263	1 V	259832
801 – 1000	890	413	2 V	259835
1001 – 1200	1090	513	2 V	259837
1201 – 1400	1290	563	2 V	259839
1401 – 1600	1490	563	3 V	259841
1601 – 1800	1690	563	3 V	259844
1601 – 1800	1690	1000	3 V	259845
1801 – 2000	1890	1000	3 V	259848
2001 – 2200	2090	1000	4 V	259850
2201 – 2400	2290	1000	4 V	259853

Corner drive

27	Corner drive, T&T	1 V	260288
28	Corner drive RC1 and RC2	1 V	260272
29	Corner drive		255273
30	Corner drive as alternative to 29	1 V	260288
52	Drilling protection		264601
51	RotoLine Patio S handle, with Roto logo, lockable 100 Nm	→ Page 33	
35	RotoLine Patio S handle, with Roto logo, lockable 100 Nm	→ Page 34	
60	Guide striker	→ Page 38	
62	Security striker	→ Page 38	


50 RotoLine Patio S handle, with Roto logo

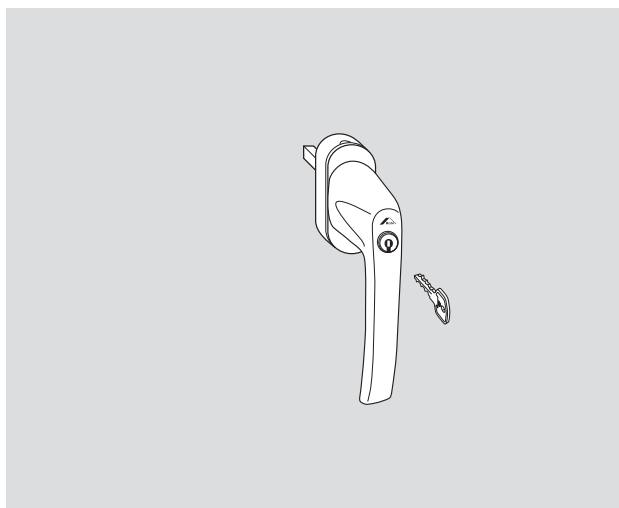
Roto colour number	Colour	Material no.
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35 mm spindle length

R 01.1	Silver	211598
R 01.2	Nickel silver	211599
R 01.3	Titanium matt	288728
R 05.3	Medium bronze	211597
R 05.4	Dark bronze	288727
R 07.2	Traffic white	211596

43 mm spindle length

R 01.1	Silver	601161
R 01.2	Nickel silver	601162
R 01.3	Titanium matt	601163
R 05.3	Medium bronze	601164
R 05.4	Dark bronze	601165
R 07.2	Traffic white	601166


51 RotoLine handle, with Roto logo, lockable 100 Nm

Roto colour number	Colour	Material no.
--------------------	--------	--------------

35 mm spindle length

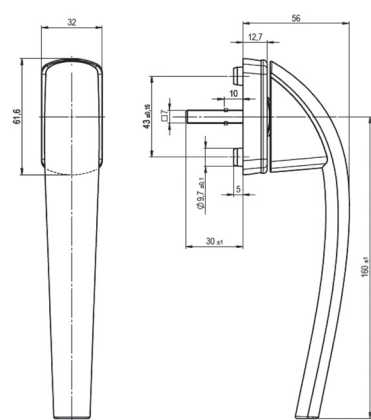
R 01.1	Silver	333973
R 01.2	Nickel silver	333974
R 01.3	Titanium matt	333975
R 05.3	Medium bronze	333978
R 07.2	Traffic white	333981

43 mm spindle length*

R 01.1	Silver	594347
R 01.2	Nickel silver	594348
R 01.3	Titanium matt	594349
R 05.3	Medium bronze	594352
R 07.2	Traffic white	594354

Replacement key 1G1
257830

* without Roto logo, with 2 threaded screws M5x50



34 RotoSwing Patio S handle with Roto logo

Roto colour no. Colour Material no.

35 mm spindle length

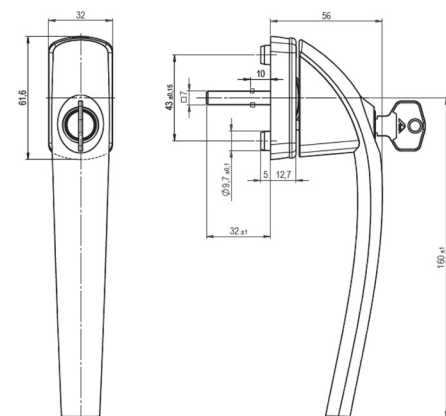
R 01.1	Silver	619714
R 05.3	Medium bronze	619725
R 07.2	Traffic white	619726

40 mm spindle length

R 01.1	Silver	619727
R 05.3	Medium bronze	619728
R 07.2	Traffic white	619729

43 mm spindle length

R 01.1	Silver	619730
R 05.3	Medium bronze	619731
R 07.2	Traffic white	619732



35 RotoSwing Patio S handle, lockable, 100 Nm, with Roto logo

Roto colour no. Colour Material no.

35 mm spindle length

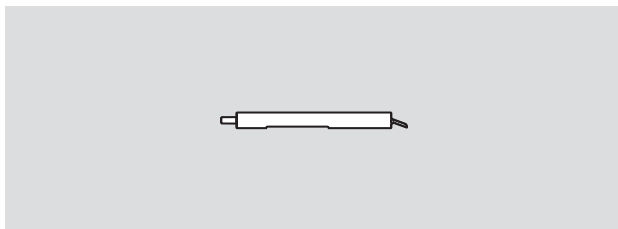
R 01.1	Silver	619733
R 05.3	Medium bronze	619734
R 07.2	Traffic white	619735

40 mm spindle length

R 01.1	Silver	619736
R 05.3	Medium bronze	619737
R 07.2	Traffic white	619738

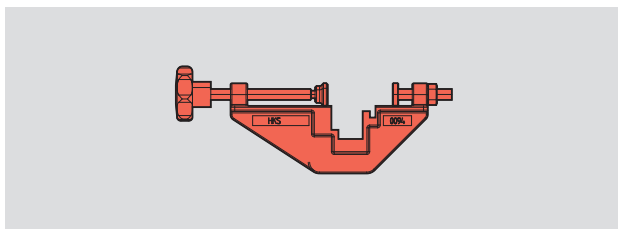
43 mm spindle length

R 01.1	Silver	619739
R 05.3	Medium bronze	619740
R 07.2	Traffic white	619741



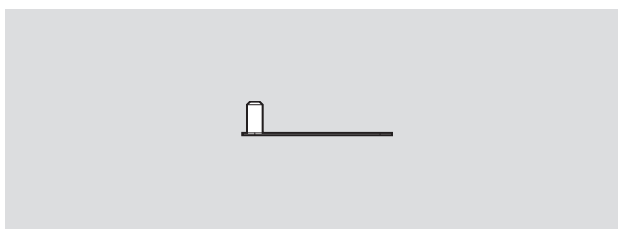
Slider-release device

562759



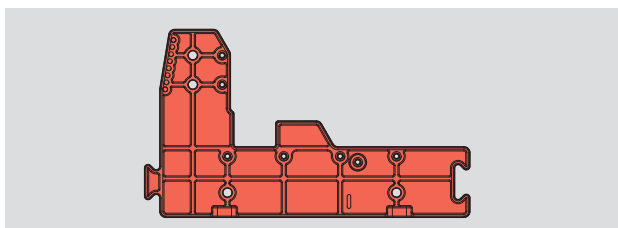
Jig for roller track and guide track

563967



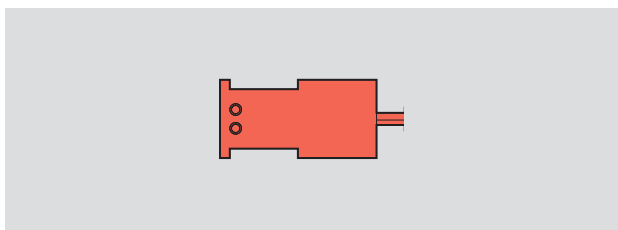
Drilling aid for roller track and guide track

207583



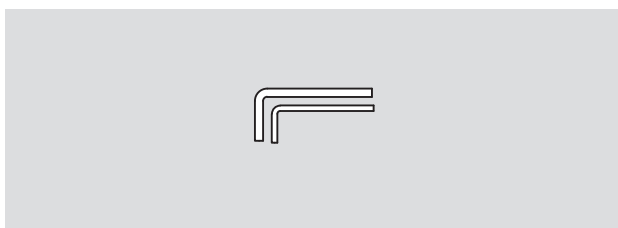
Drilling jig for bogie

563968



Jig for guide block

563969



Torx key; T10 hexalobular socket

625172

Torx key; T15 hexalobular socket

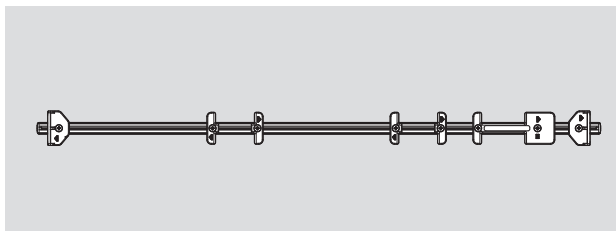
625173

Torx key; T25 hexalobular socket

563971

Torx key; T40 hexalobular socket

563970



Horizontal striker positioning jigs for Patio S

SRW/mm	Material no.	
600 – 800	L	602139
	R	602155
801 – 1000	L	602140
	R	602156
1001 – 1200	L	602141
	R	602157
1201 – 1400	L	602142
	R	602158
1401 – 1650	L	602144
	R	602159

Vertical striker positioning jigs, fixed handle height

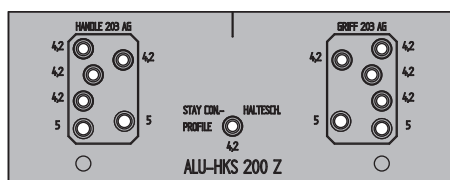
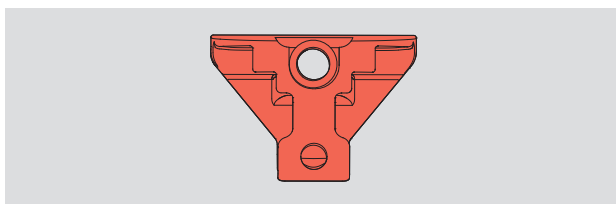
SRH/mm	Material no.
600 – 800	388127
801 – 1400	388126
1401 – 2000	388125
1601 – 2400	388124

Vertical striker positioning jigs, centred/variable handle height

SRH/mm	Material no.
621 – 1200	268943
1201 – 1600	268944
1601 – 2000	268945
2001 – 2400	268946

Drilling jig for guide block, adjustable

566970



Drilling jig for stay-connecting profile

623669



Tracks				
Description	Colour	Comment	Length in mm	Material no.
Roller track	R01.5	Silver	6070	562764
Roller track	R05.4	Dark bronze	6070	562765
Roller track	R06.2	Jet-black	6070	625472
Stay-connecting profile		Non-treated	5220	625473
Stay-connecting profile	R01.5	Silver	5220	625474
Stay-connecting profile	R05.4	Dark bronze	5220	628493
Stay-connecting profile	R06.2	Jet-black	5220	625475
Stay-connecting profile	R07.2	Traffic white	5220	625476
Guide track	R01.5	Silver	6070	217140
Cover profiles				
Aluminium cover profile		Non-treated	5190	625477
Aluminium cover profile	R01.5	Silver	5190	625478
Aluminium cover profile	R05.4	Dark bronze	5190	625481
Aluminium cover profile	R06.2	Jet-black	5190	625479
Aluminium cover profile	R07.2	Traffic white	5190	625480
PVC cover profile	R01.5	Silver	6080	625482
PVC cover profile	R05.4	Dark bronze	6080	217168
PVC cover profile	R06.2	Jet-black	6080	217167
PVC cover profile	R07.2	Traffic white	6080	562780
Connecting rod			3600	217057
Guide block, slidable (jig 566970 required)				
Guide block, slidable	R01.5	Silver		563558
Guide block, slidable	R05.4	Dark bronze		563560
Connecting-rod support-block				625483

Profile system	Guide striker	Striker, standard	Security striker, zinc	Security striker, steel
	60	61	62	62

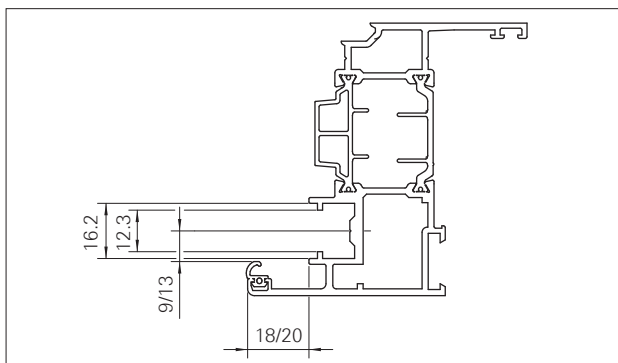
Striker ordering / marking

Order right-handed strikers for left-handed version (in accordance with DIN 12519).

Order left-handed strikers for right-handed version (in accordance with DIN 12519).

Sapa 75 SI	593715	260373
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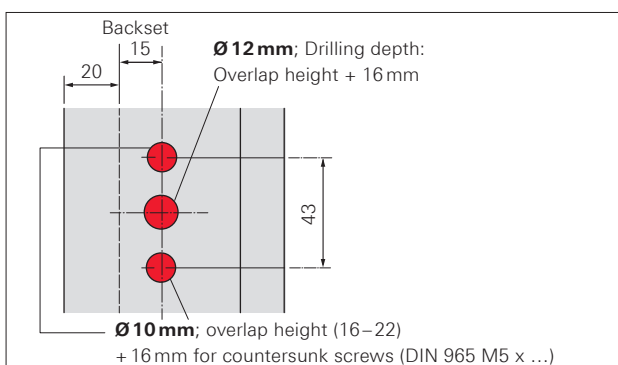
Further profile-related components are available upon request.



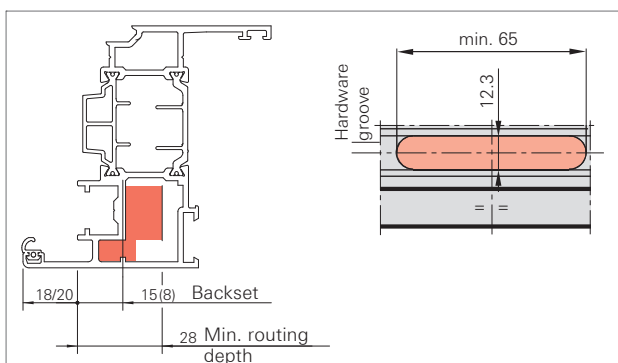
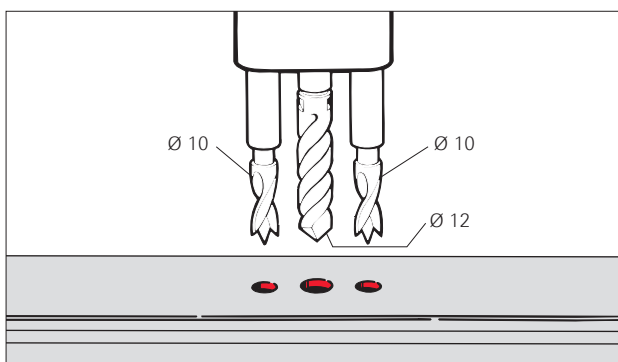
Sash cross section,

Dimensional data for hardware

Euro-rebate system

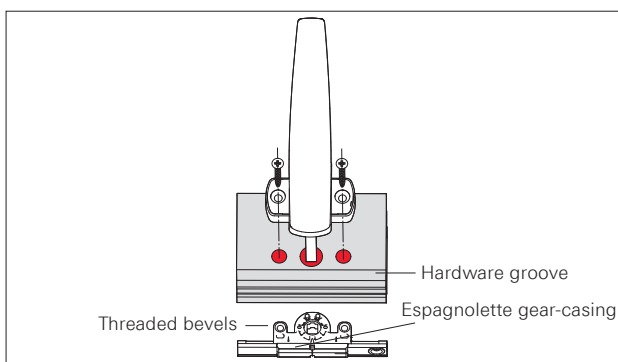


Carry out the drillings for the window handle's sprocket and lugs.



Milling

Espagnolette gear-casing



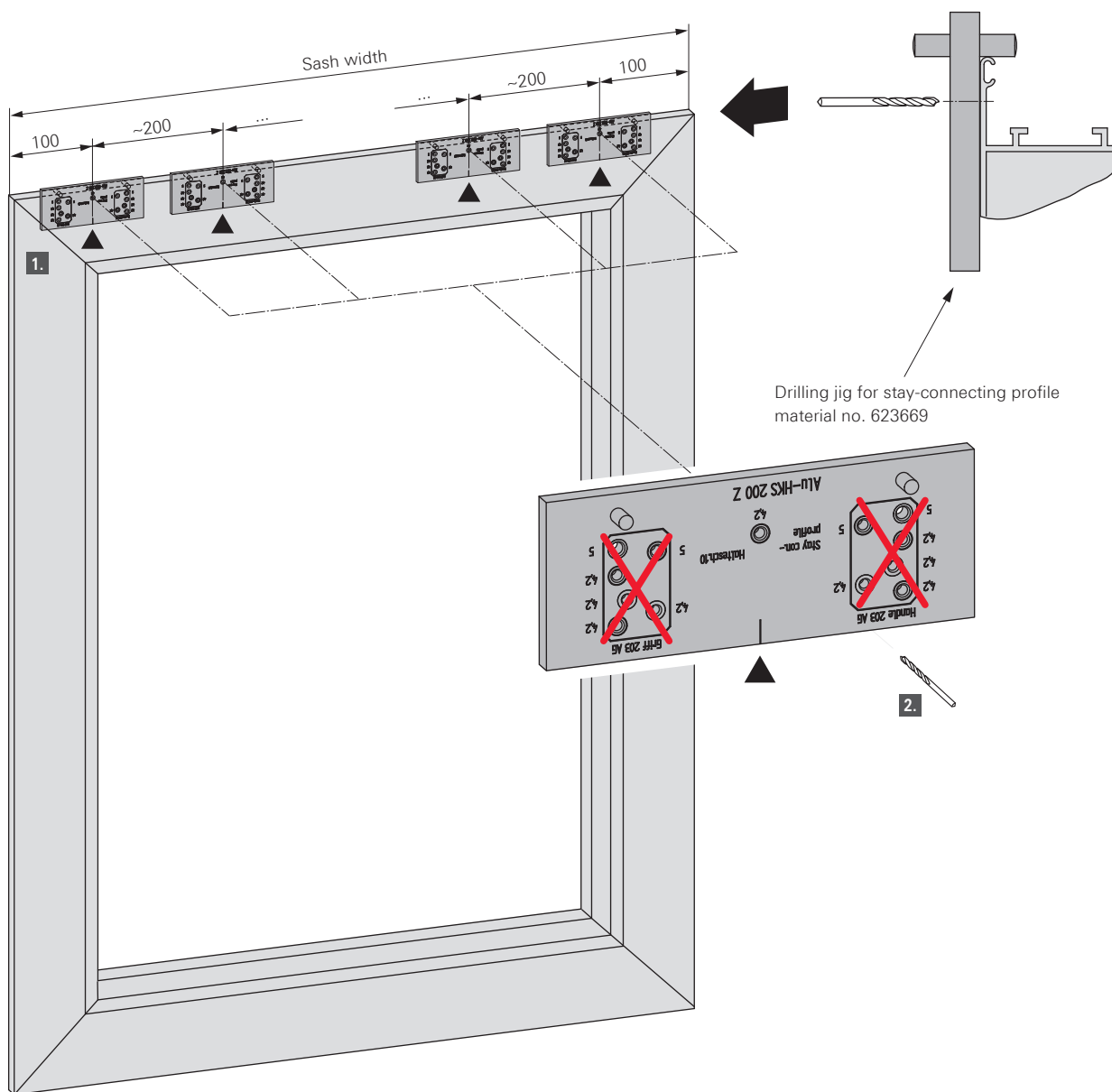
Screw-fix the window handle in the main-lock casing with DIN 965 M5 x ... countersunk screws

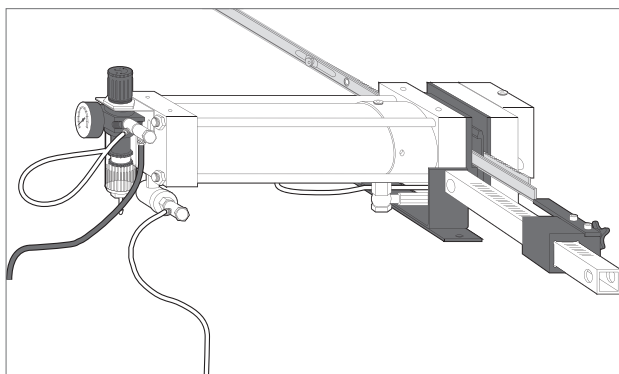
Installation

Drilling the sash drill-holes

Stay-connecting profile

1. Position the jig on the upper edge of the sash profile as shown. If necessary, fix it with a screw clamp.
2. Drill the holes with $\varnothing 4.2$ mm drill according to the illustration below.





Crop with pneumatic cropper (punched hole)

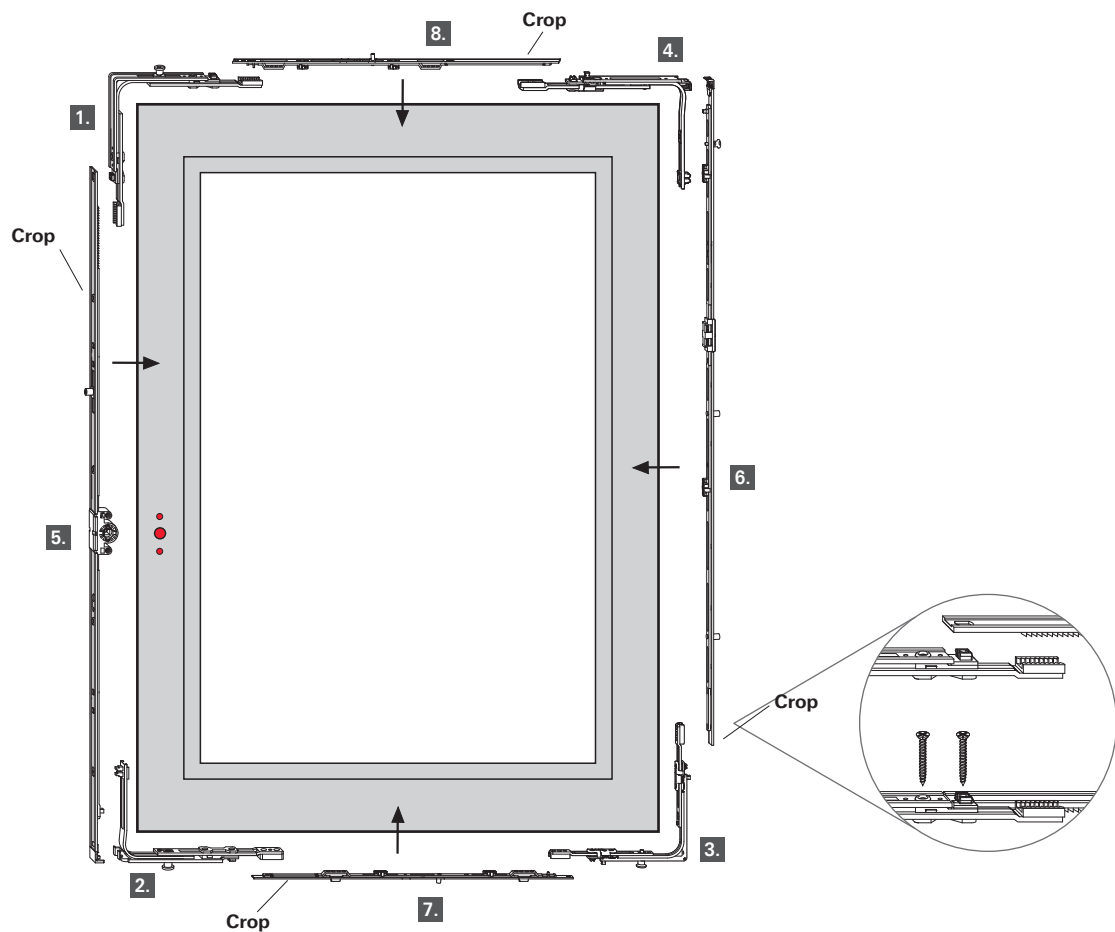
Installation

Installing sash hardware components

Installation procedure for left-hand/right-hand version, fixed handle height

Installation procedure (suggestion)

for left-hand version (acc. to DIN 12519), fixed handle height

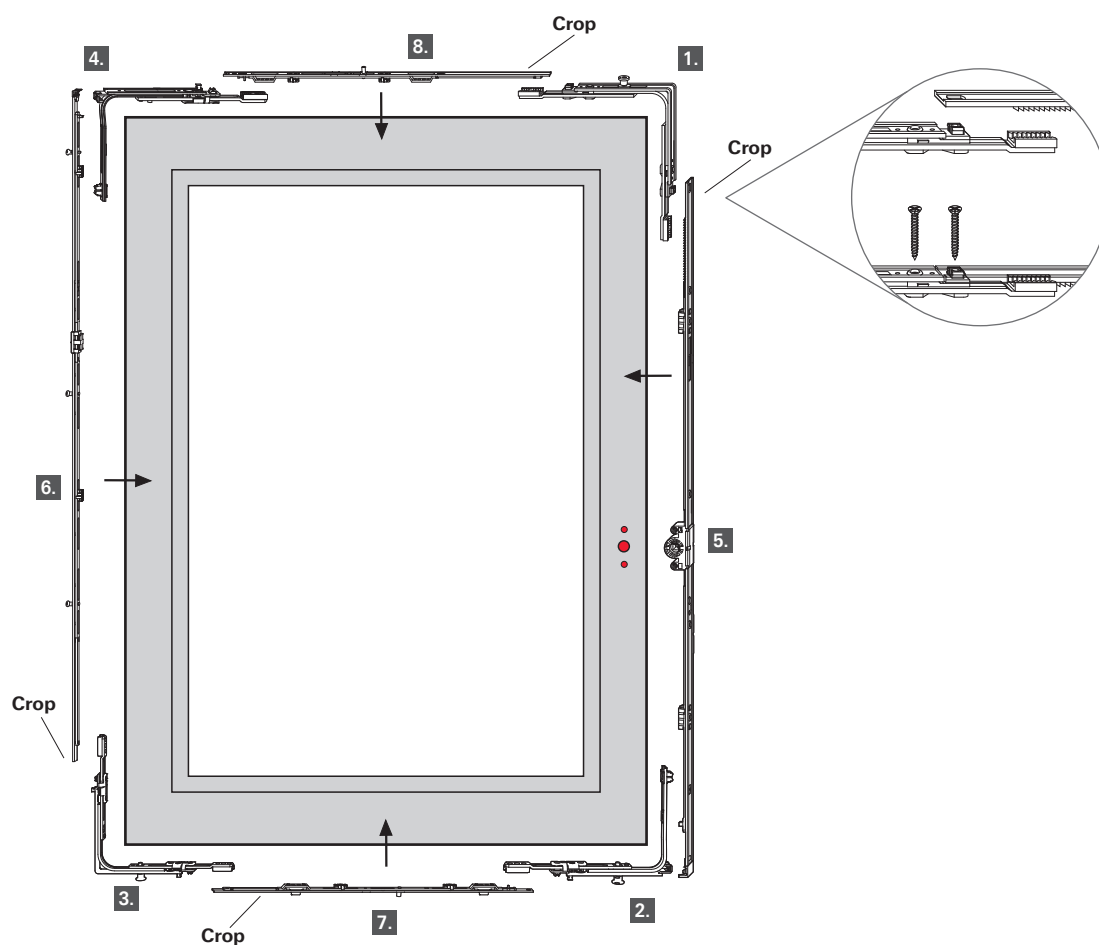


1. Screw-fix the top left-hand corner drive.
2. Screw-fix the bottom left-hand corner drive.
3. Screw-fix the bottom right-hand corner drive.
4. Screw-fix the top right-hand corner drive.
5. Insert the espagnolette, mark above the handle position, crop at the top on one side and screw-fix.
6. Insert the vertical centre lock component, mark below the handle position, crop at the bottom on one side and screw-fix.
7. Insert the bottom horizontal centre lock component, mark on the espagnolette side, crop on one side of the espagnolette side and screw-fix.
8. Insert the top horizontal centre lock component, mark on the centre lock side, crop on one side of the centre lock side and screw-fix.
9. Screw on the handle.
10. Undo the centre-fixing.



Installation procedure (suggestion)

for right-hand version (acc. to DIN 12519), fixed handle height



1. Screw-fix the top right-hand corner drive.
2. Screw-fix the bottom right-hand corner drive.
3. Screw-fix the bottom left-hand corner drive.
4. Screw-fix the top left-hand corner drive.
5. Insert the espagnolette, mark above the handle position, crop at the top and screw-fix.
6. Insert the vertical centre lock component, mark below the handle position, crop at the bottom on one side and screw-fix.
7. Insert the bottom horizontal centre lock component, mark on the centre lock side, crop on one side of the centre lock side and screw-fix.
8. Insert the top horizontal centre lock component, mark on the espagnolette side, crop on one side of the espagnolette side and screw-fix.
9. Screw on the handle.
10. Undo the centre-fixing.

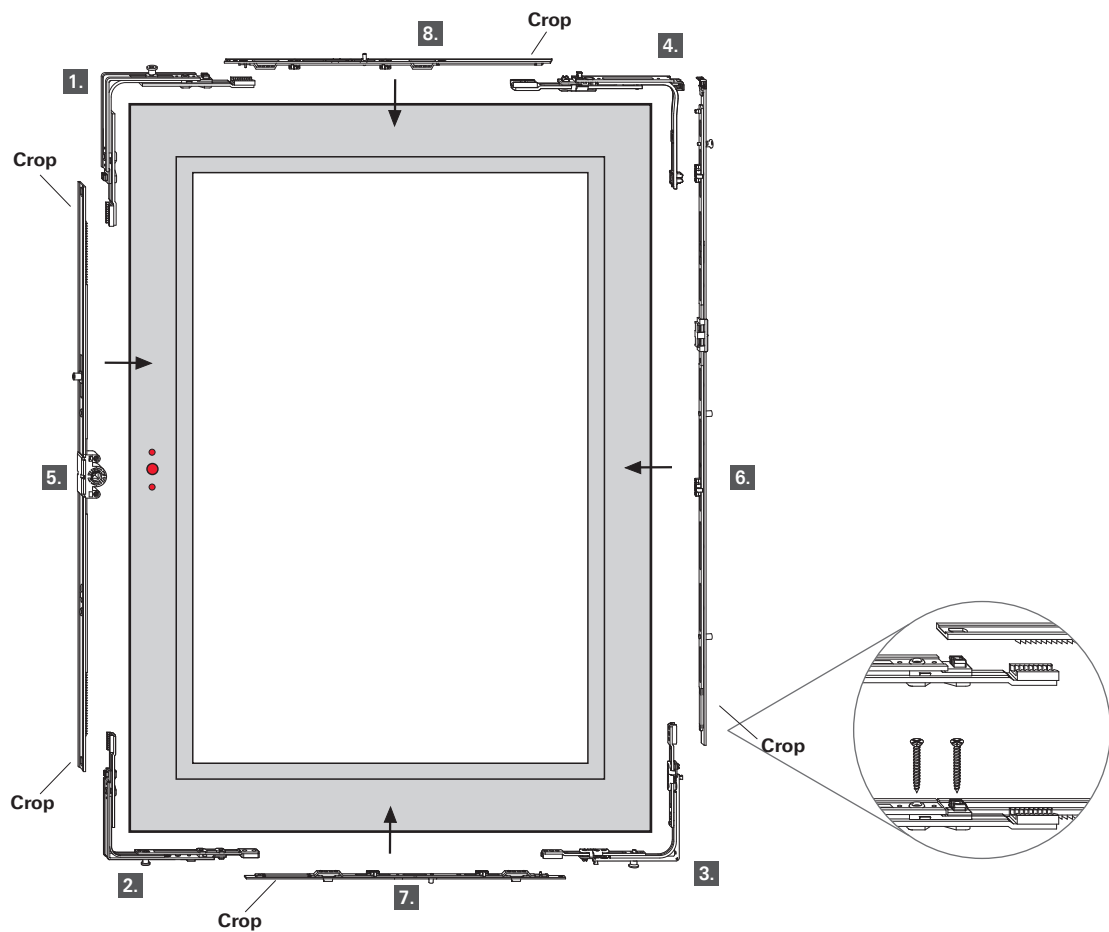
Installation

Installing the hardware components in the sash

Installation procedure for left-hand/right-hand version, centred/variable handle height

Installation procedure (suggestion)

for left-hand/right-hand version (acc. to DIN 12519), (centred/variable handle height)



1. Screw-fix the top left-hand corner drive.
2. Screw-fix the bottom left-hand corner drive.
3. Screw-fix the bottom right-hand corner drive.
4. Screw-fix the top right-hand corner drive.
5. Mark the centre of the handle on the sash, line up the espagnolette at the sash centre, mark at both ends, crop both ends and screw-fix.

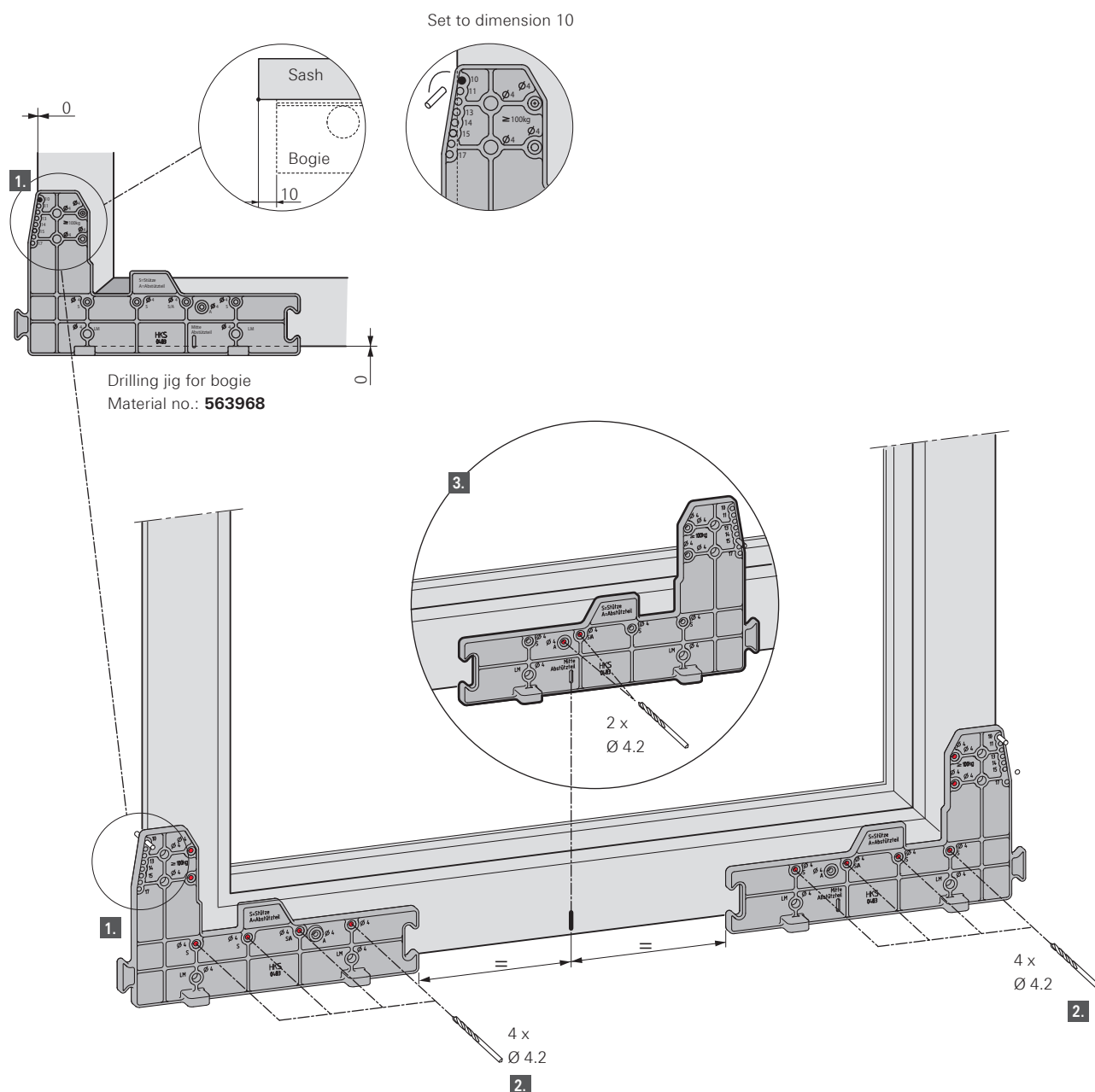
Install additional components similar to installation procedure for *fixed handle height espagnolette*.

Drilling the sash drill-holes

Installing bogies up to 100 kg sash weight



1. Set the bogie drilling jig (material no. 563968) to dimension 10 with the dowel pin.
2. Drill the holes for the bogies.
3. Mark the cover support bracket's position and drill.

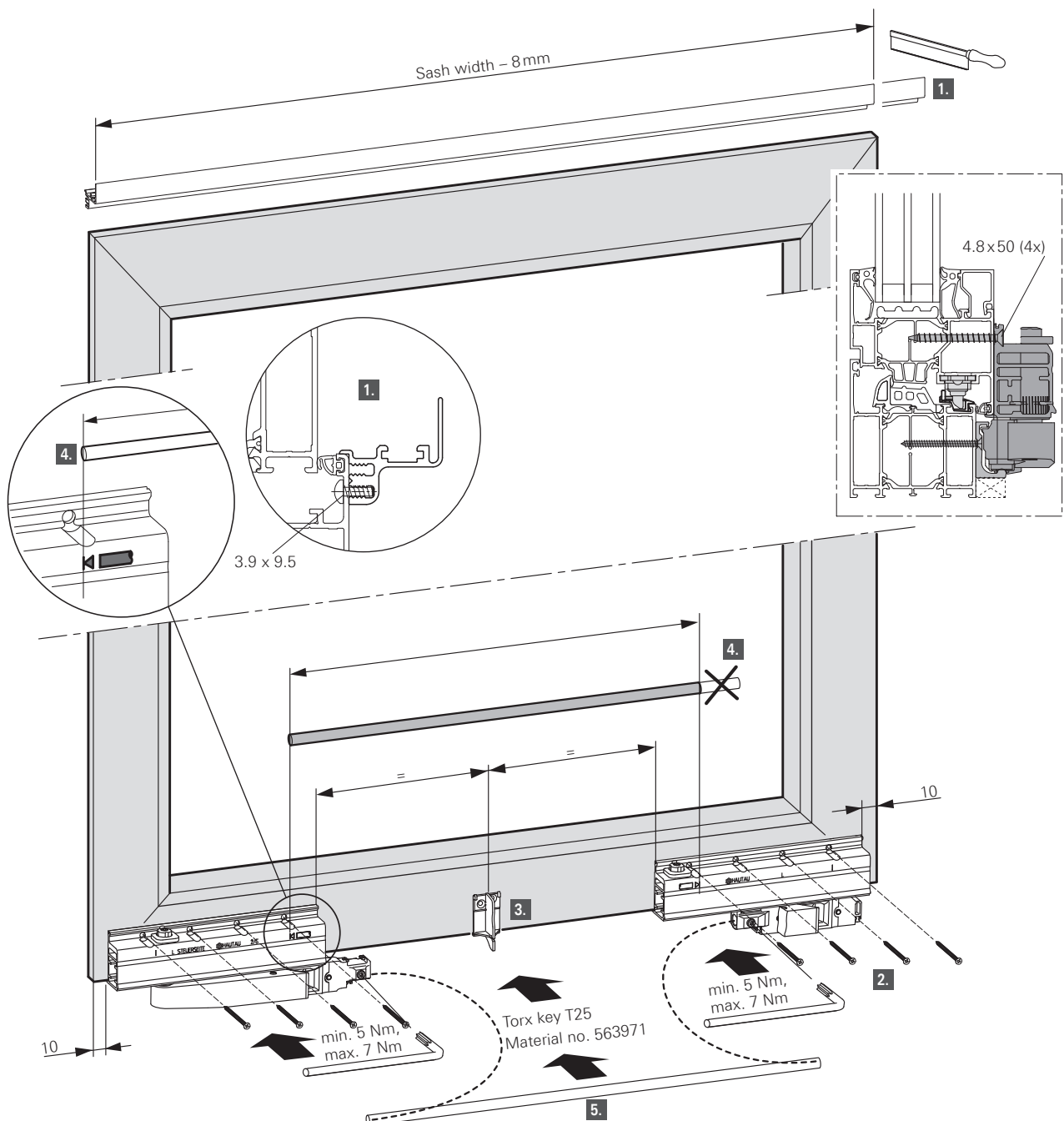


Installation

Installing sash hardware components

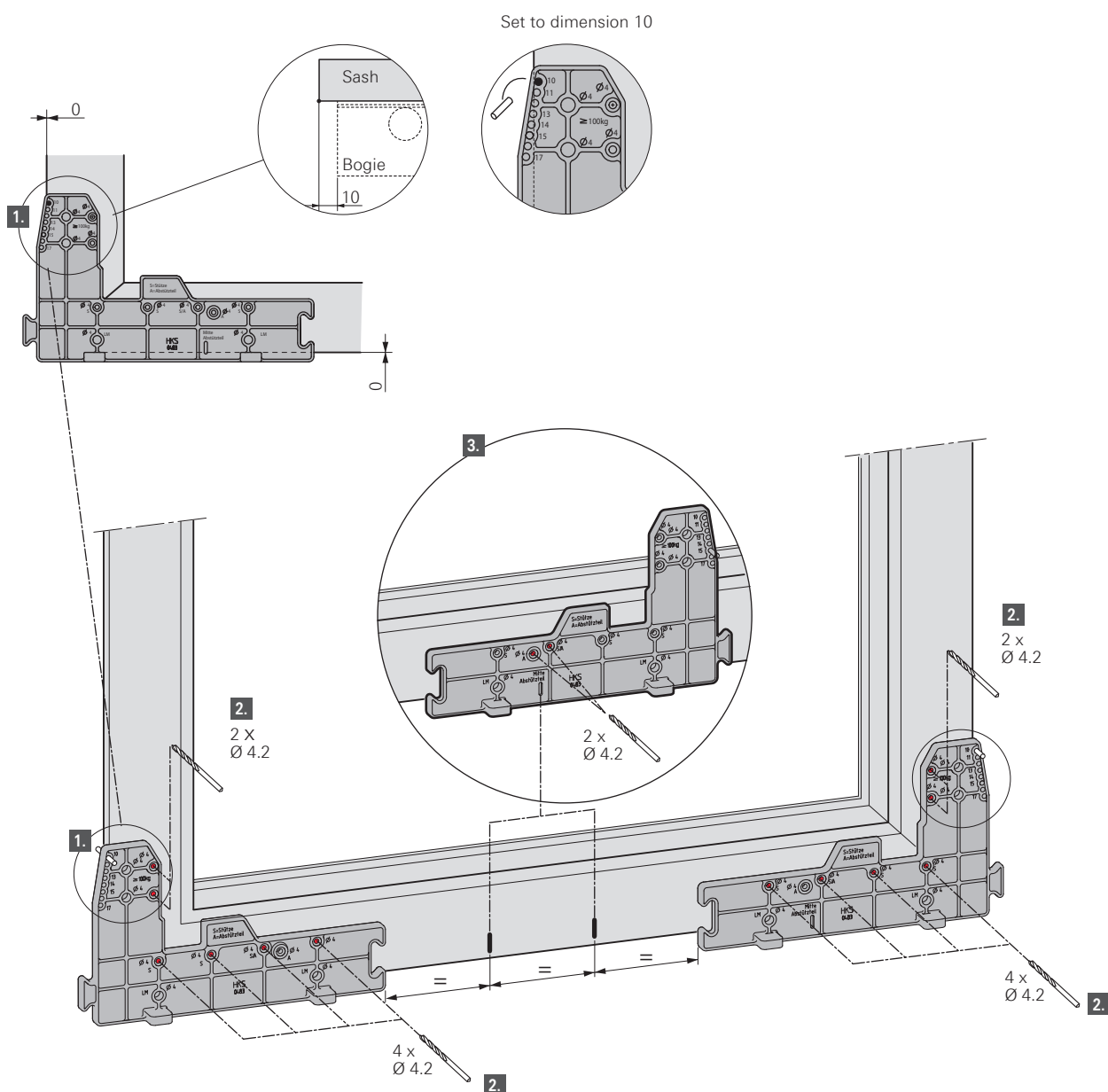
Installing stay-connecting profile and bogies up to 100 kg sash weight

1. Cut stay-connecting profile to length – sash width minus 8 mm – and screw onto sash. 3,9 x 9.5
2. Screw on each bogie with 4 screws 4.8 x 50 at a lateral distance of 10 mm to the sash outer-edges and flush with the bottom edge of the sash profile.
3. Screw-fix the cover support bracket with 2 screws 4.8 x 50.
4. Mark and cut the connecting rod to length in line with the bogie marks.
5. Insert the connecting rod into the bogie couplings; tighten the screw of the bogie on the opposite side of the handle first, then the screw on the handle side (Torx key; T25, min. 5 Nm, max. 7 Nm).





1. Set the bogie drilling jig (material no. 563968) to dimension 10 with the dowel pin.
2. Drill the holes for the bogies and reinforcement brackets. Subsequently redrill the holes for the reinforcement brackets (2 x Ø 4.2) to Ø 7.1 mm.
3. Mark the cover support bracket's position and drill (SRW ≤ 1450 mm 1 cover support bracket, SRW ≥ 1450 mm 2 cover support brackets).

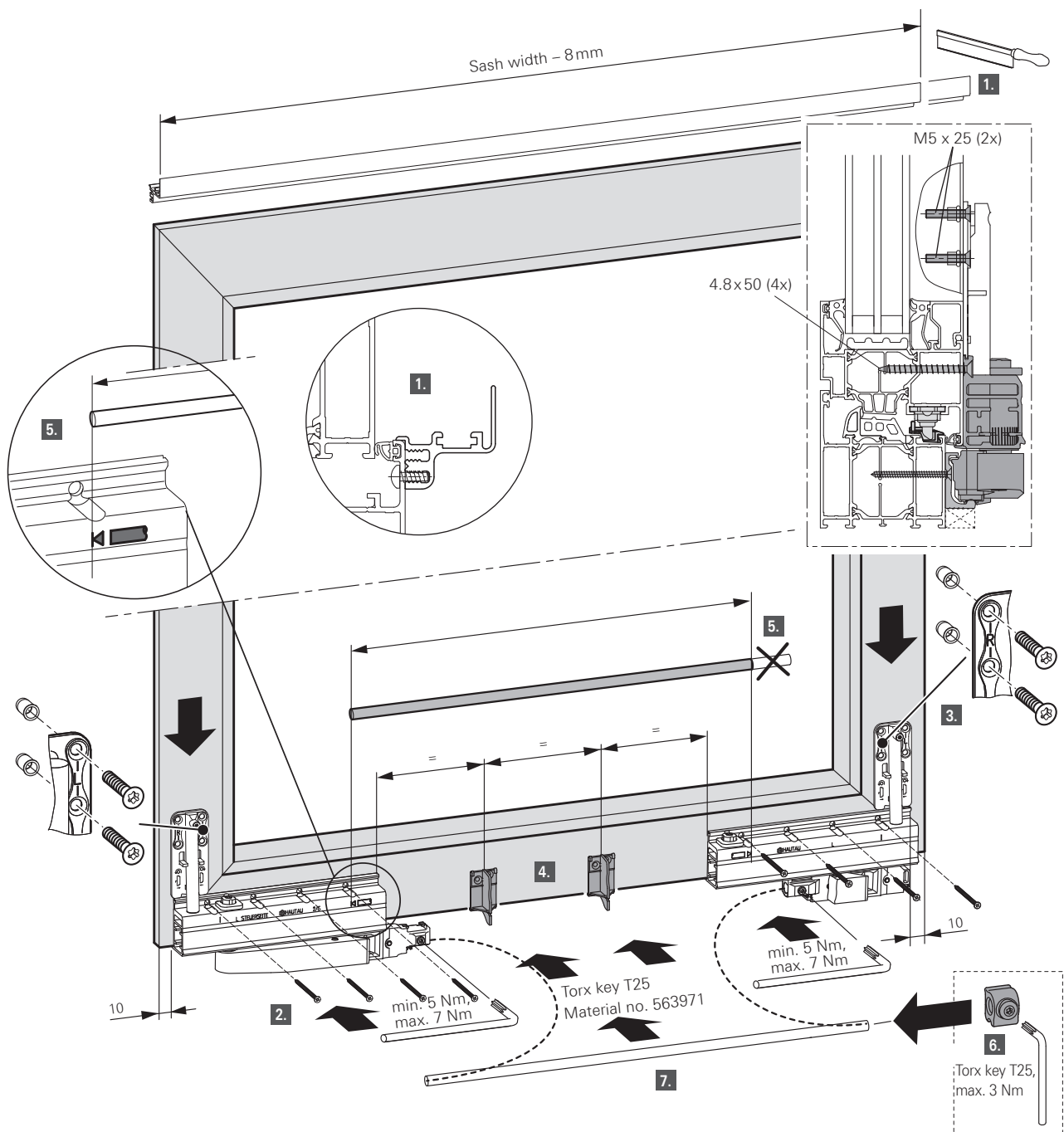


Installation

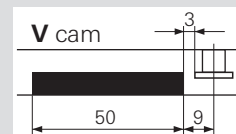
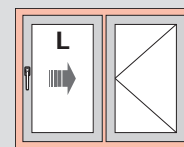
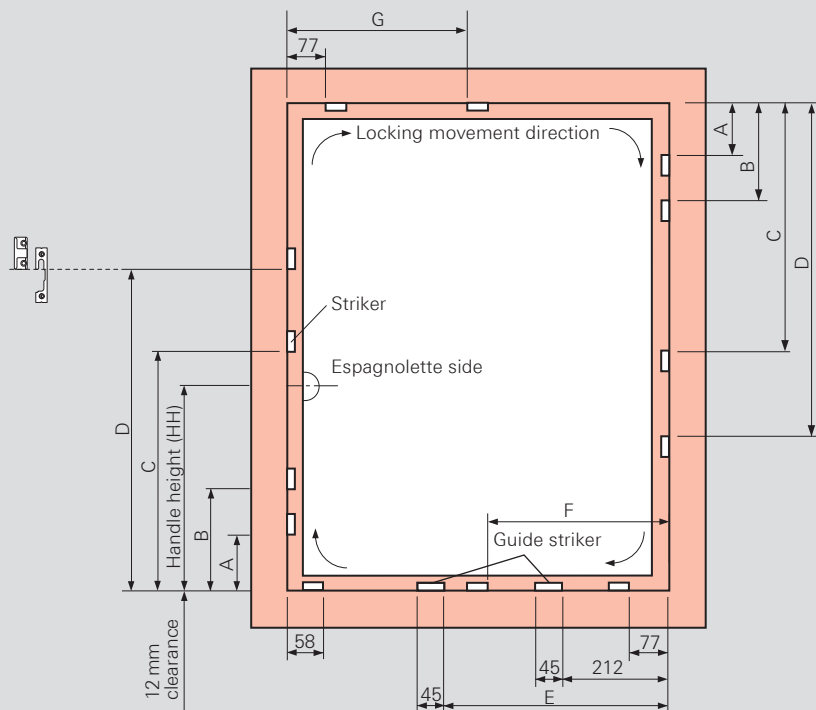
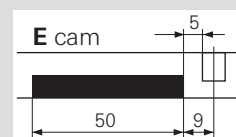
Installing sash hardware components

Installing stay-connecting profile and bogies up to 160 kg sash weight

1. Cut stay-connecting profile to length – sash width minus 8 mm – and screw onto sash.
3.9 x 9.5
2. Screw on each bogie with 4 screws 4.8 x 50 at a lateral distance of 10 mm to the sash outer-edges and flush with the bottom edge of the sash profile.
3. Insert for each reinforcement bracket 2 riveting nuts $\varnothing$ 7 mm from the front into the designated holes of the sash. Screw-fix each of the reinforcement brackets with 2 M5 x 25 screws.
4. Position the cover support bracket(s) evenly between the bogies and screw-fix each with 2 screws 4.8 x 50.
5. Mark and cut the connecting rod to length in line with the bogie marks.
6. From SRW > 1450: slide additional connecting rod support-block to the centre of the connecting rod and fix. (Torx key T25, max. 3 Nm)
7. Insert the connecting rod into the bogie couplings; tighten the screw of the bogie on the opposite side of the handle first, then the screw on the handle side (Torx key; T25, min. 5 Nm, max. 7 Nm).




Striker dimensions (mm)

 Roto Patio 100 S / 160 S fixed handle height
 Basic security, RC1 and RC2

 Cams are centre-fixed
 on delivery

**T&T espagnolette, security, fixed handle height, only RC2,
 15 mm backset, striker positions on espagnolette side**

SRH / mm	HH	A	B	C	D	Jig to be used
600 – 800	263	–	383	–		388127
801 – 1000	413	160	550	–		388126
1001 – 1200	513	160	700	–		388126
1201 – 1400	563	160	700	–		388126
1401 – 1600	563	160	700	1170		388125
1601 – 1800	563	160	700	1370		388125
1601 – 1800	1000	160	700	1370		388125
1801 – 2000	1000	160	700	1370		388125
2001 – 2200	1000	160	700	1370	1770	388124
2201 – 2400	1000	160	700	1370	1770	388124

**T&T espagnolette, fixed handle height, 15 mm backset, basic
 security and RC1, striker positions on espagnolette side**

SRH / mm	HH	A	B	C	D	Jig to be used
600 – 800	263	–	383	–		388127
801 – 1000	413	–	550	–		388126
1001 – 1200	513	–	700	–		388126
1201 – 1400	563	–	700	–		388126
1401 – 1600	563	–	700	1170		388125
1601 – 1800	563	–	700	1370		388125
1601 – 1800	1000	–	700	1370		388125
1801 – 2000	1000	–	700	1370		388125
2001 – 2200	1000	–	700	1370	1770	388124
2201 – 2400	1000	–	700	1370	1770	388124

**Centre lock component, vertical,
 striker positions on hinge side**

SRH / mm	A	B	C	D	Jig to be used
600 – 800	–	383	–		388127
801 – 1000	160	550	–		388126
1001 – 1200	160	700	–		388126
1201 – 1400	160	700	–		388126
1401 – 1600	160	700	1170		388125
1601 – 1800	160	700	1370		388125
1801 – 2000	160	700	1370		388125
2001 – 2200	160	700	1370	1770	388124
2201 – 2400	160	700	1370	1770	388124

**Centre lock component, horizontal, striker positions
 left-hand version, top**

SRW / mm	HH	Jig to be used
600 – 800	–	602139
801 – 1000	468	602140
1001 – 1200	618	602141
1201 – 1400	618	602142
1401 – 1650	868	602144

**Centre lock component, horizontal, striker positions and guide
 striker, left-hand version, bottom**

SRW / mm	E	F	Jig to be used
600 – 800	392	–	602139
801 – 1000	592	400	602140
1001 – 1200	792	550	602141
1201 – 1400	992	550	602142
1401 – 1650	1192	800	602144

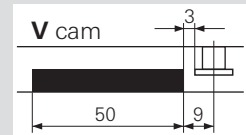
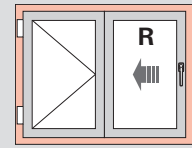
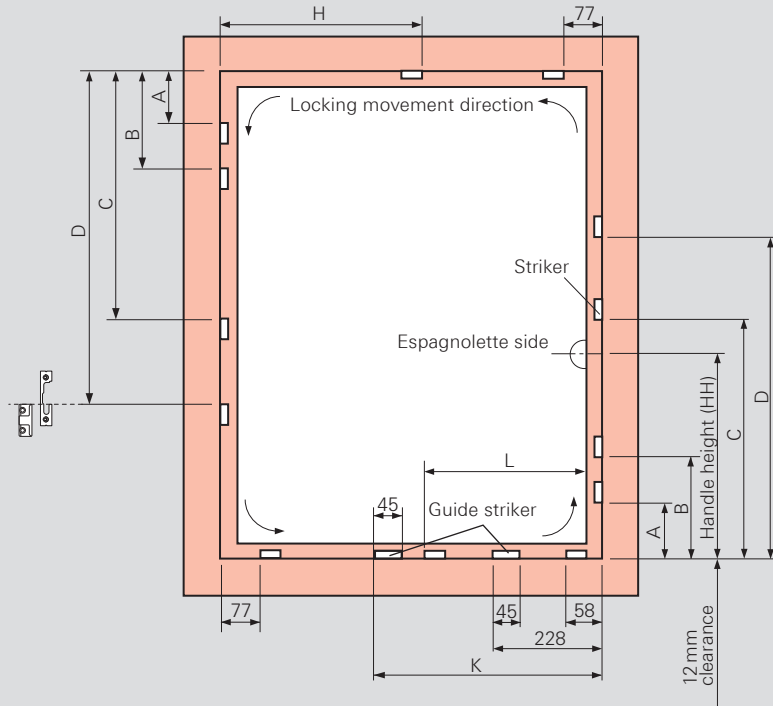
Installation

Striker locations

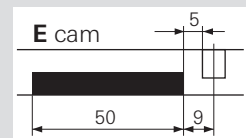
Basic security, RC1 and RC2, DIN right, diagrams A, B, D, G, K

Striker dimensions (mm)

Roto Patio 100 S / 160 S fixed handle height
Basic security, RC1 and RC2



Cams are centre-fixed on delivery



T&T espagnolette, security, fixed handle height, only RC2, 15 mm backset, striker positions on espagnolette side

SRH / mm	HH	A	B	C	D	Jig to be used
600 – 800	263	–	383	–		388127
801 – 1000	413	160	550	–		388126
1001 – 1200	513	160	700	–		388126
1201 – 1400	563	160	700	–		388126
1401 – 1600	563	160	700	1170		388125
1601 – 1800	563	160	700	1370		388125
1601 – 1800	1000	160	700	1370		388125
1801 – 2000	1000	160	700	1370		388125
2001 – 2200	1000	160	700	1370	1770	388124
2201 – 2400	1000	160	700	1370	1770	388124

T&T espagnolette, fixed handle height, 15 mm backset, basic security and RC1, striker positions on espagnolette side

SRH / mm	HH	A	B	C	D	Jig to be used
600 – 800	263	–	383	–		388127
801 – 1000	413	–	550	–		388126
1001 – 1200	513	–	700	–		388126
1201 – 1400	563	–	700	–		388126
1401 – 1600	563	–	700	1170		388125
1601 – 1800	563	–	700	1370		388125
1601 – 1800	1000	–	700	1370		388125
1801 – 2000	1000	–	700	1370		388125
2001 – 2200	1000	–	700	1370	1770	388124
2201 – 2400	1000	–	700	1370	1770	388124

Centre lock component, vertical, striker positions on hinge side

SRH / mm	A	B	C	D	Jig to be used
600 – 800	–	383	–		388127
801 – 1000	160	550	–		388126
1001 – 1200	160	700	–		388126
1201 – 1400	160	700	–		388126
1401 – 1600	160	700	1170		388125
1601 – 1800	160	700	1370		388125
1801 – 2000	160	700	1370		388125
2001 – 2200	160	700	1370	1770	388124
2201 – 2400	160	700	1370	1770	388124

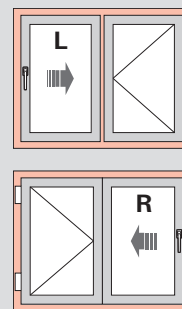
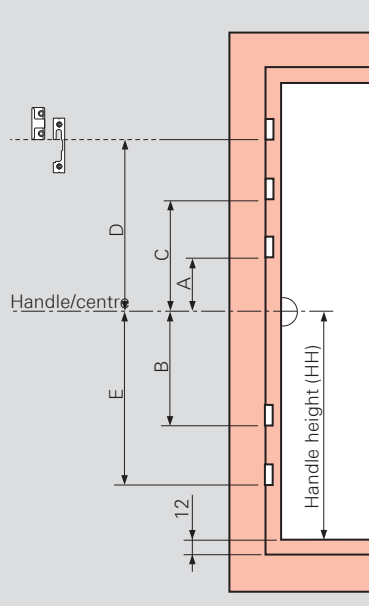
Centre lock component, horizontal, striker positions right-hand version, top

SRW / mm	H	Jig to be used
600 – 800	–	602155
801 – 1000	450	602156
1001 – 1200	600	602157
1201 – 1400	600	602158
1401 – 1650	850	602159

Centre lock component, horizontal, striker positions and guide striker, right-hand version, bottom

SRW / mm	K	L	Jig to be used
600 – 800	408	–	602155
801 – 1000	608	381	602156
1001 – 1200	808	531	602157
1201 – 1400	1008	531	602158
1401 – 1650	1208	781	602159


Striker dimensions (mm)

 Roto Patio 100 S / 160 S centred/variable handle height,
basic security, RC1

Vertical centre lock component, striker positions on hinge side

SRH / mm	A	B	C	D	Jig to be used
600 – 800	–	383	–		388127
801 – 1000	160	550	–		388126
1001 – 1200	160	700	–		388126
1201 – 1400	160	700	–		388126
1401 – 1600	160	700	1170		388125
1601 – 1800	160	700	1370		388125
1801 – 2000	160	700	1370		388125
2001 – 2200	160	700	1370	1770	388124
2201 – 2400	160	700	1370	1770	388124

Centre lock component, horizontal, striker positions left-hand version, top

SRW / mm	HH	Jig to be used
600 – 800	–	602139
801 – 1000	468	602140
1001 – 1200	618	602141
1201 – 1400	618	602142
1401 – 1650	868	602144

Centre lock component, horizontal, striker positions and guide striker, left-hand version, bottom

SRW / mm	E	F	Jig to be used
600 – 800	392	–	602139
801 – 1000	592	400	602140
1001 – 1200	792	550	602141
1201 – 1400	992	550	602142
1401 – 1650	1192	800	602144

Centre lock component, horizontal, striker positions right-hand version, top

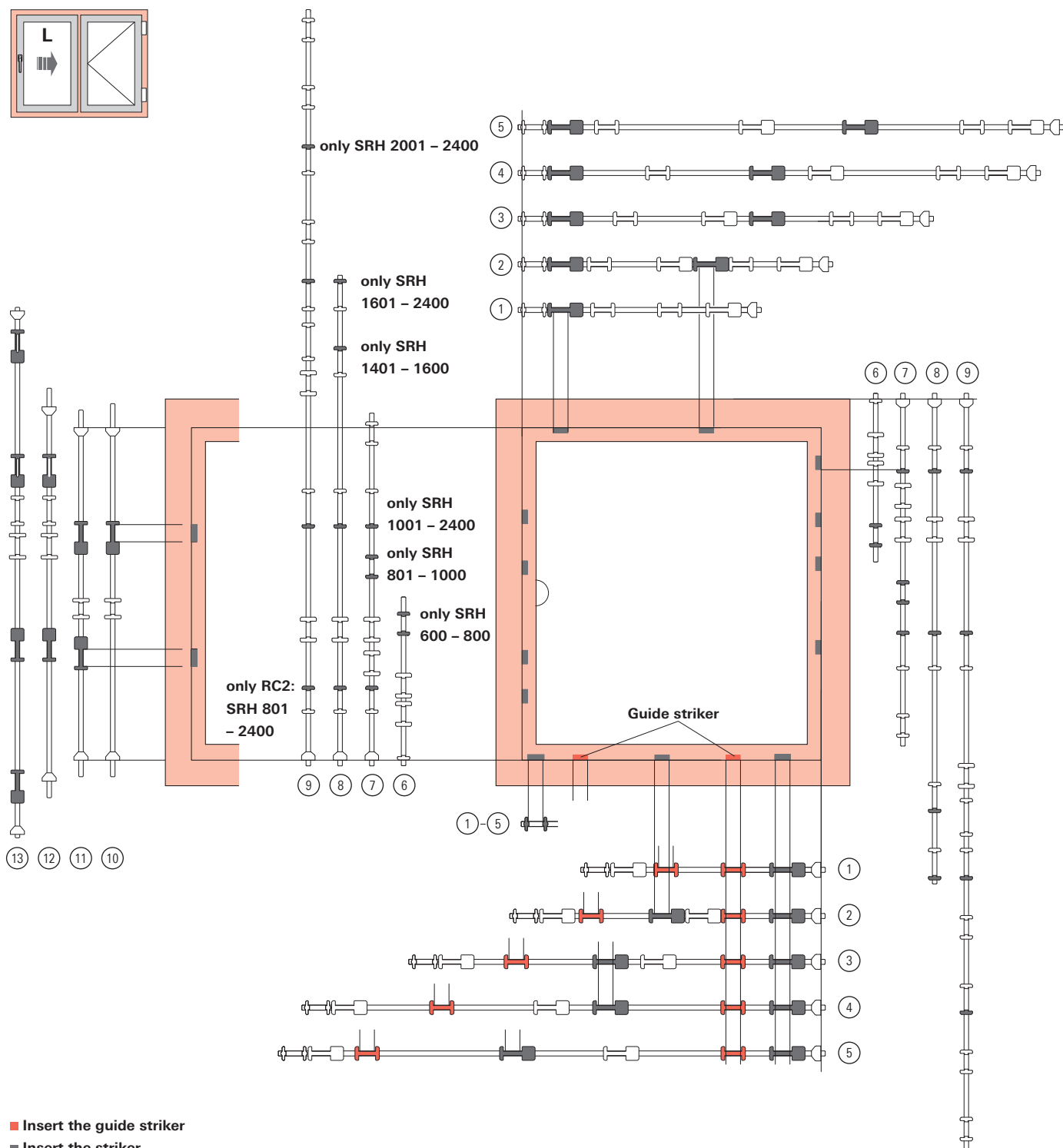
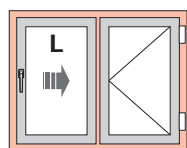
SRW / mm	H	Jig to be used
600 – 800	–	602155
801 – 1000	450	602156
1001 – 1200	600	602157
1201 – 1400	600	602158
1401 – 1650	850	602159

Centre lock component, horizontal, striker positions and guide striker, right-hand version, bottom

SRW / mm	K	L	Jig to be used
600 – 800	408	–	602155
801 – 1000	608	381	602156
1001 – 1200	808	531	602157
1201 – 1400	1008	531	602158
1401 – 1650	1208	781	602159

**T&T espagnolette, centred/variable handle height,
15 mm backset, striker positions on espagnolette side**

SRH / mm	HH	A	B	C	D	E	Jig to be used
621 – 1200	311 – 600	125	–	–	–	–	268943
1201 – 1600	601 – 800	125	340	–	–	–	268944
1601 – 2000	801 – 1000	–	312	358	–	–	268945
2001 – 2400	1001 – 1200	–	312	358	758	740	268946



■ Insert the guide striker

■ Insert the striker

Horizontal jigs

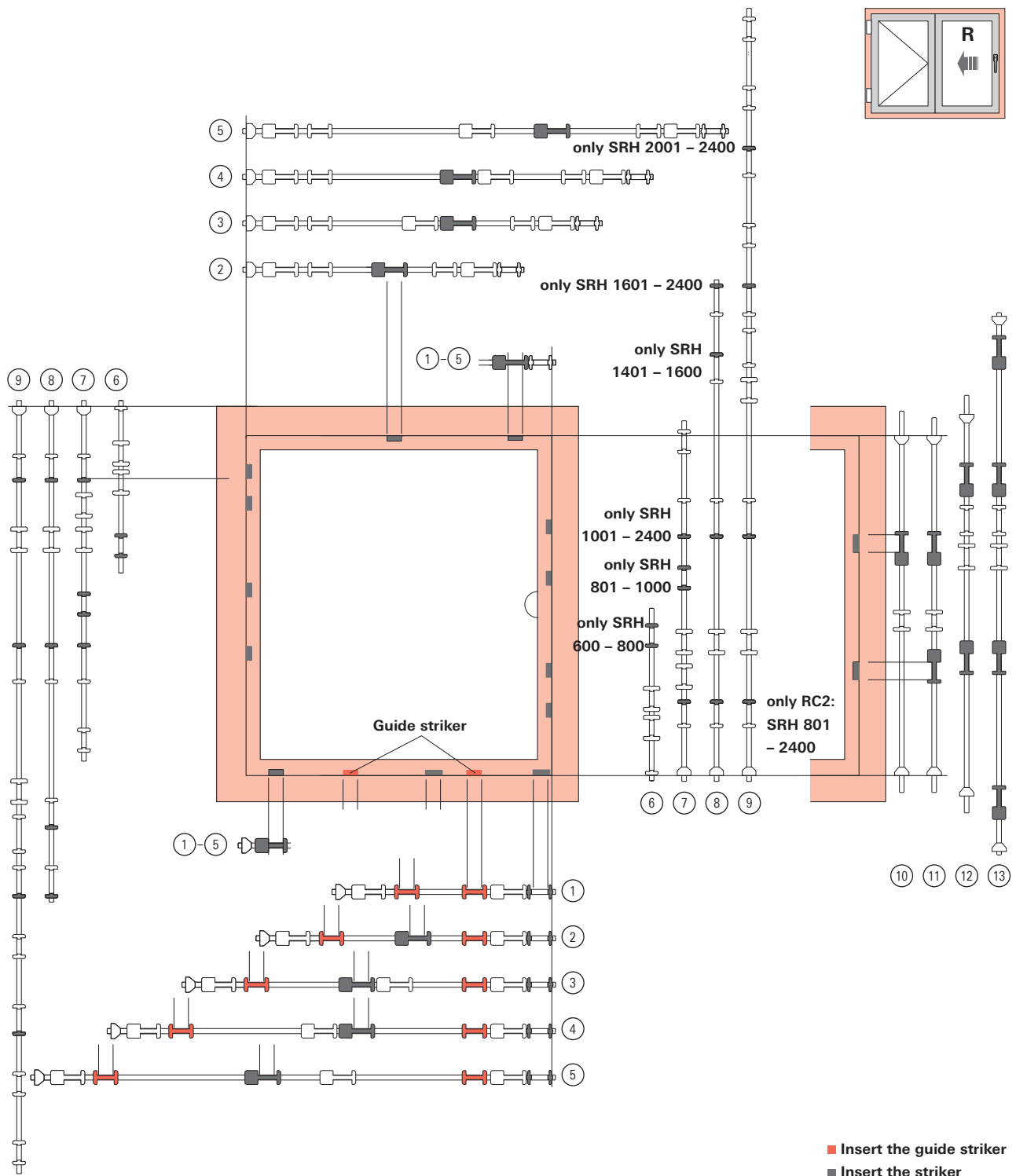
	SRW/mm	Material no.
①	600 – 800	602139
②	801 – 1000	602140
③	1001 – 1200	602141
④	1201 – 1400	602142
⑤	1401 – 1650	602144

Vertical striker positioning jigs, fixed handle height

	SRH/mm	Material no.
⑥	600 – 800	388127
⑦	801 – 1400	388126
⑧	1401 – 2000	388125
⑨	2001 – 2400	388124

Vertical striker positioning jigs, centred/variable handle height

	SRH/mm	Material no.
⑩	621 – 1200	268943
⑪	1201 – 1600	268944
⑫	1601 – 2000	268945
⑬	2001 – 2400	268946



Horizontal jigs

	SRW/mm	Material no.
①	600 – 800	602155
②	801 – 1000	602156
③	1001 – 1200	602157
④	1201 – 1400	602158
⑤	1401 – 1650	602159

Vertical striker positioning jigs, fixed handle height

	SRH/mm	Material no.
⑥	600 – 800	388127
⑦	801 – 1400	388126
⑧	1401 – 2000	388125
⑨	2001 – 2400	388124

Vertical striker positioning jigs, centred/variable handle height

	SRH/mm	Material no.
⑩	621 – 1200	268943
⑪	1201 – 1600	268944
⑫	1601 – 2000	268945
⑬	2001 – 2400	268946

Installation

Installing frame hardware components

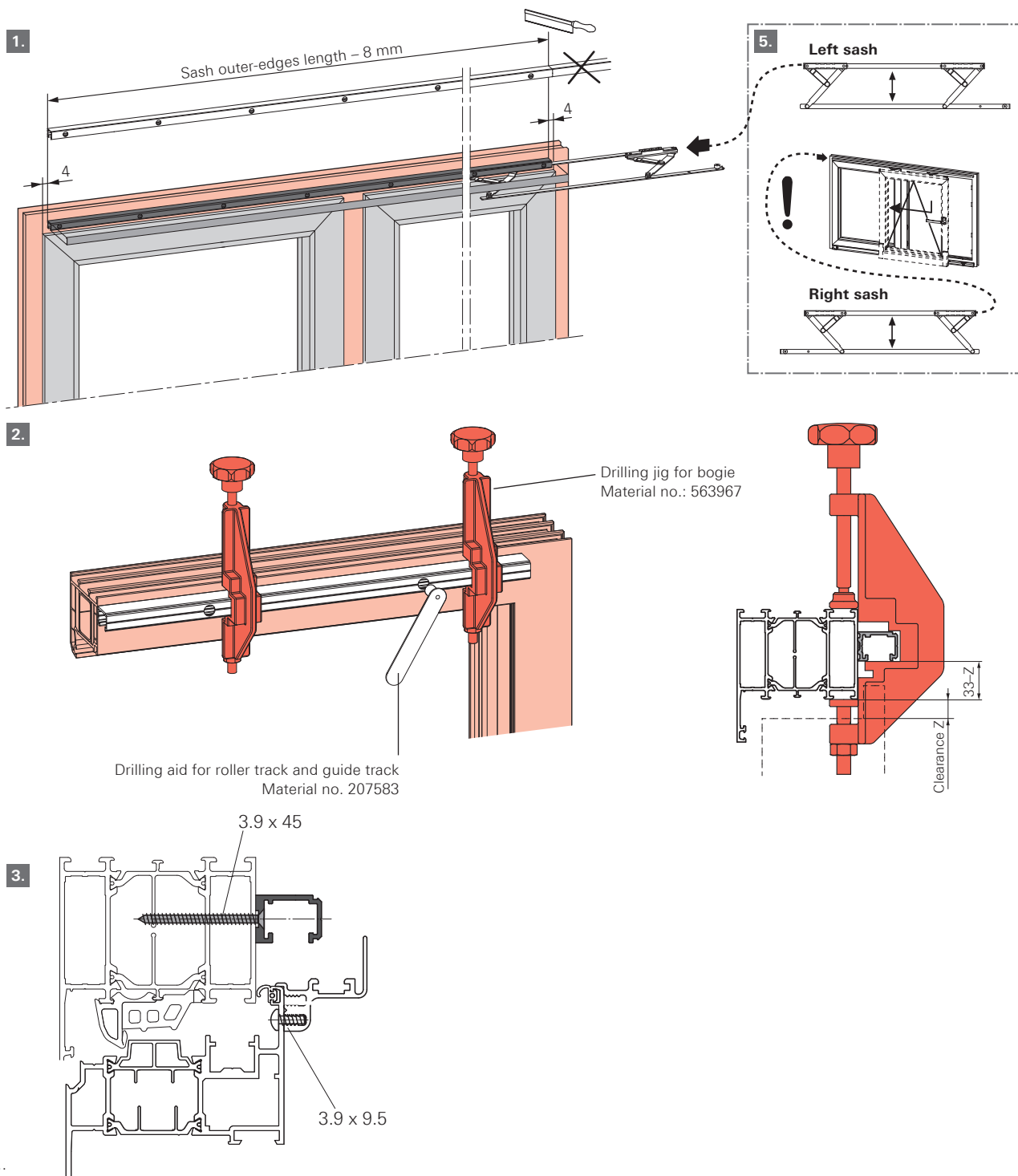
Mounting the guide track

Mounting the guide track on the frame

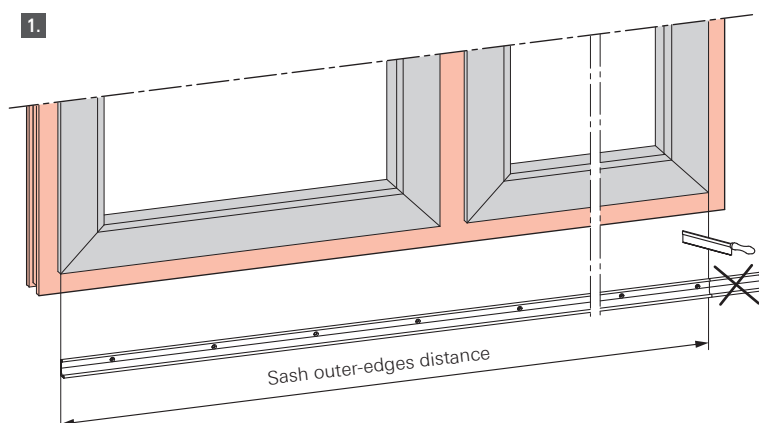
1. Cut the guide track to length: Sash outer-edges length – 8 mm
2. Fix the guide track to the frame using the jig for roller track and guide track (material no. 563967), predrill with drilling aid (bush) and Ø 3.0 mm drill.
3. Screw-fix the guide track to the frame with 3.9 x ... screws. Select the length of the screws, ensuring that they are fastened securely in the steel reinforcement (cf. profile cross section).
4. Cut the PVC cover profile to the length of the guide track and clip on.

Installation of the scissors-slider in the guide track

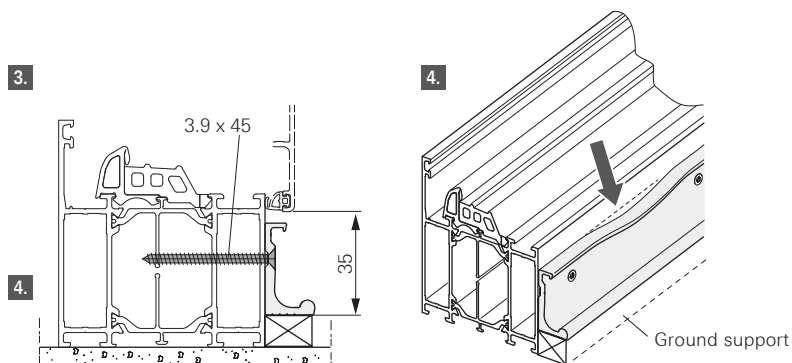
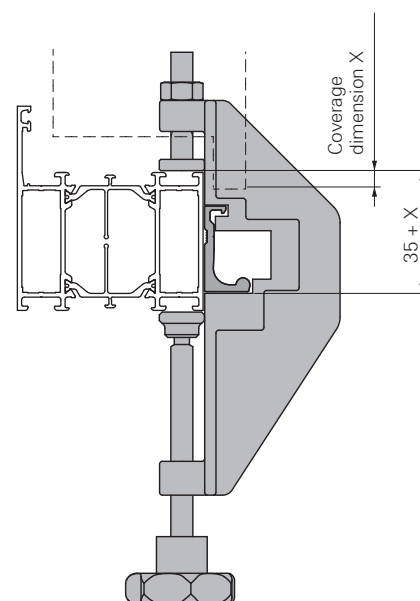
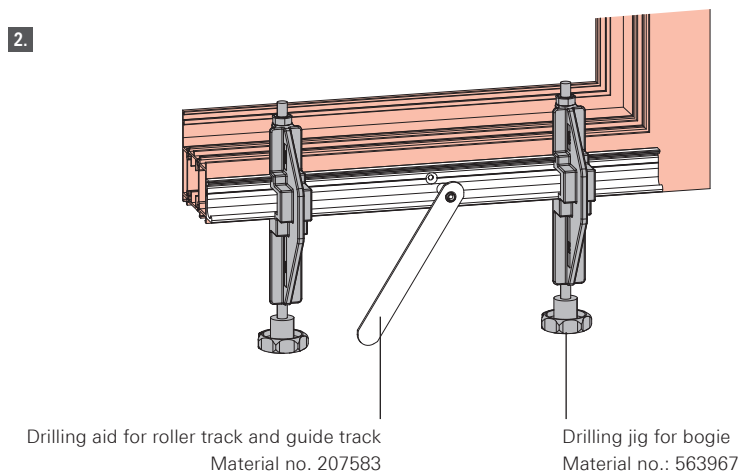
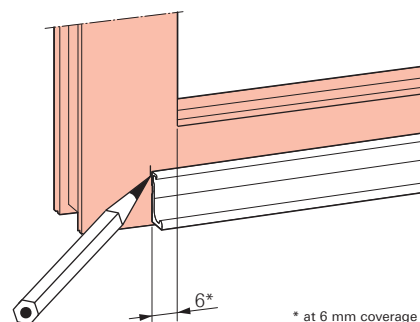
5. Open the scissors-slider and slide it into the guide track as shown. Pay attention to the correct side!



1. Cut the roller track to the length between the sash outer edges.
2. Fix the roller track to the frame using the jig for roller track and guide track (material no. 563967), predrill with drilling aid (bush) and Ø 3.0 mm drill.
3. Screw-fix the roller track (material no. 207583) to the frame with 3.9 x ... screws.
4. Underlay the roller track over the entire length on site in order to distribute the load.



Example:



Set the sash profile on the roller track

1. Move the handle into the horizontal sliding position. Lift the sash at a slight angle and set it down with the bogie rollers on the front edge of the roller track. Check the position of the rollers by pushing the sash and correct if necessary.

Connecting sash frame to guide track

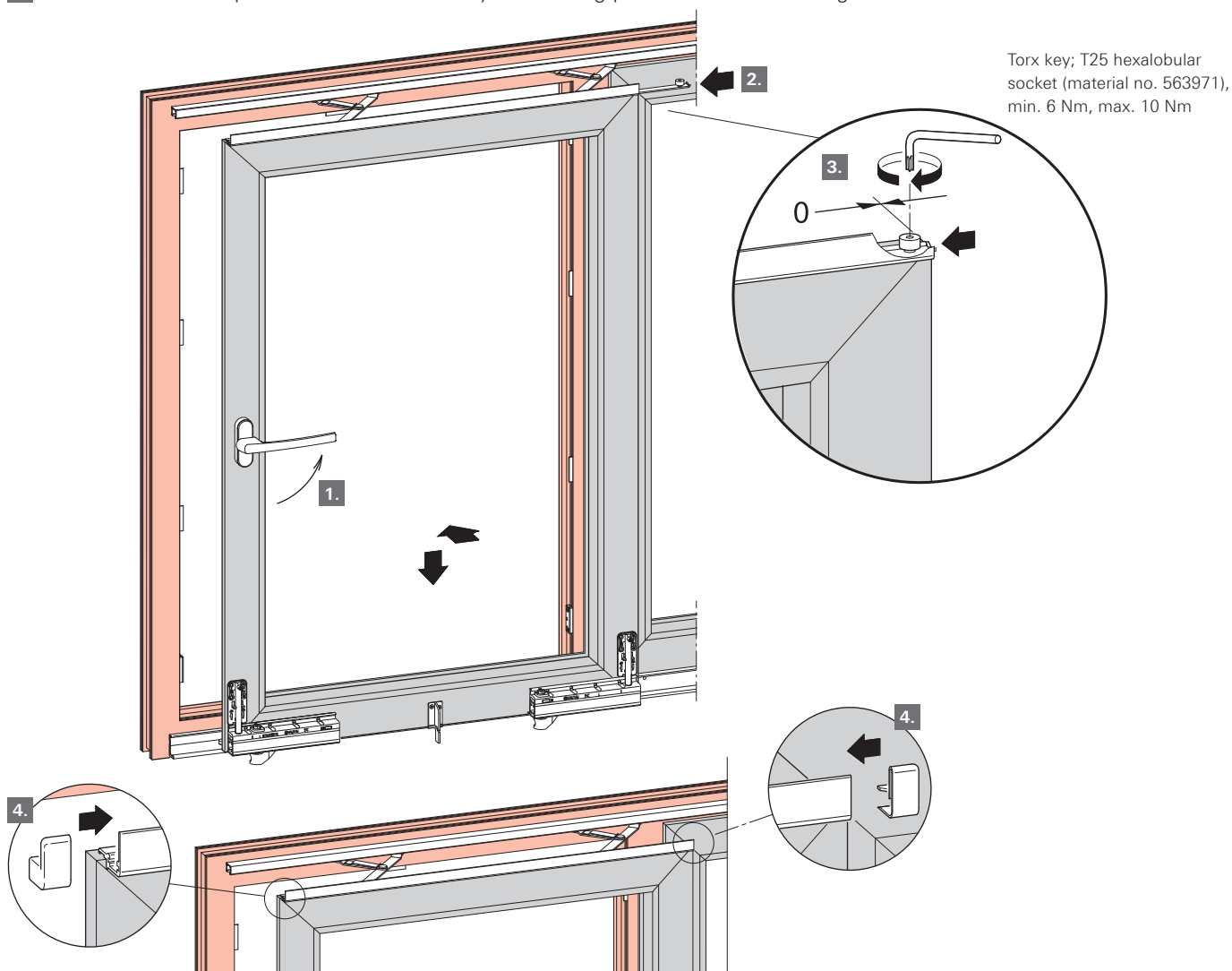
2. Slide the scissors-slider into the stay-connecting profile.
3. Position the scissors-slider flush with the slide bar and tighten the locking screw.
(Torx key; T25 hexalobular socket (material no. 563971), min. 6 Nm, max. 10 Nm)



Warning

If the locking screw is not firmly connected to the stay-connecting profile, the window sash is not sufficiently secured. This can lead to grievous bodily harm.

4. Mount the cover caps on the ends of the stay-connecting profile at the left and right.



Aligning the sash horizontally

- 1 adjustment screw per bogie.



If the adjustment screws are unscrewed more than 11 mm, the bogies will be destroyed.

- The anti-twist devices shall be aligned parallel to the outer edge of the bogies.



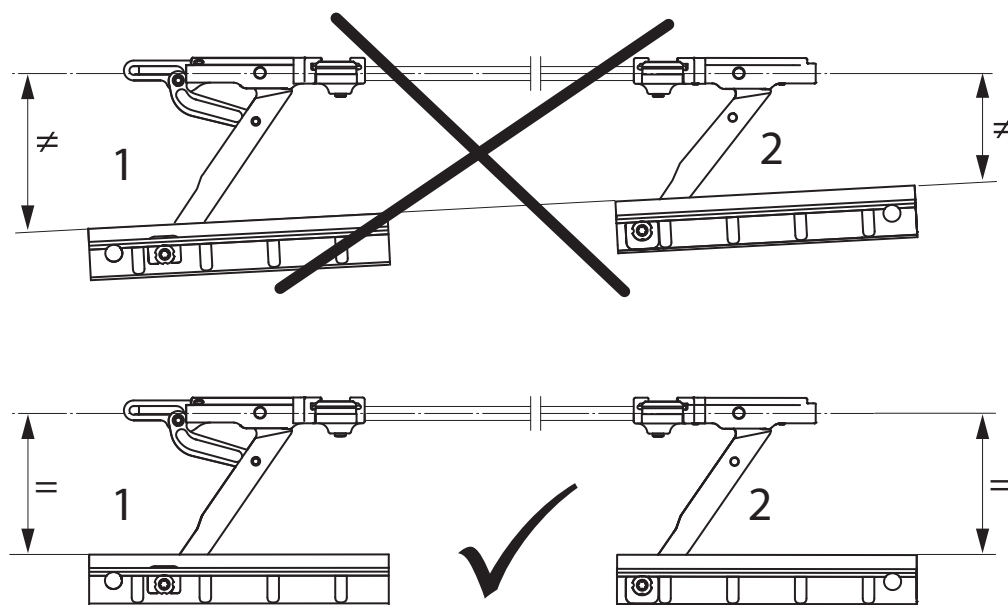
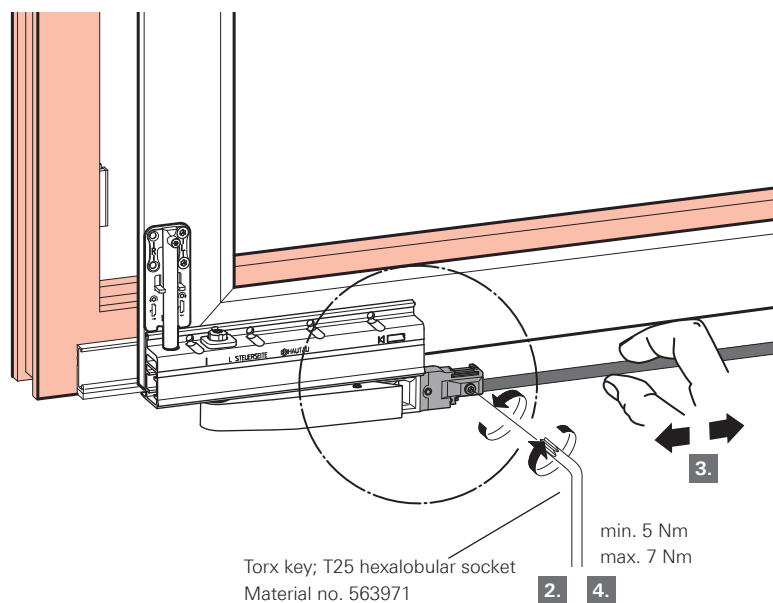
Connecting sash and frame

Aligning the bogies parallel

Aligning the bogies parallel

in order to warrant the sash entering the frame smoothly.

1. Move the sash into the tilted position (not depicted).
2. Loosen the connecting rod on the handle-sided bogie with a T25 hexalobular socket Torx key (material no. 563971).
3. Align the hinge-sided bogie parallel by sliding the connecting rod to the left or right.
4. Tighten up the connecting rod on the handle-sided bogie with a T25 hexalobular socket Torx key max. 7 Nm).





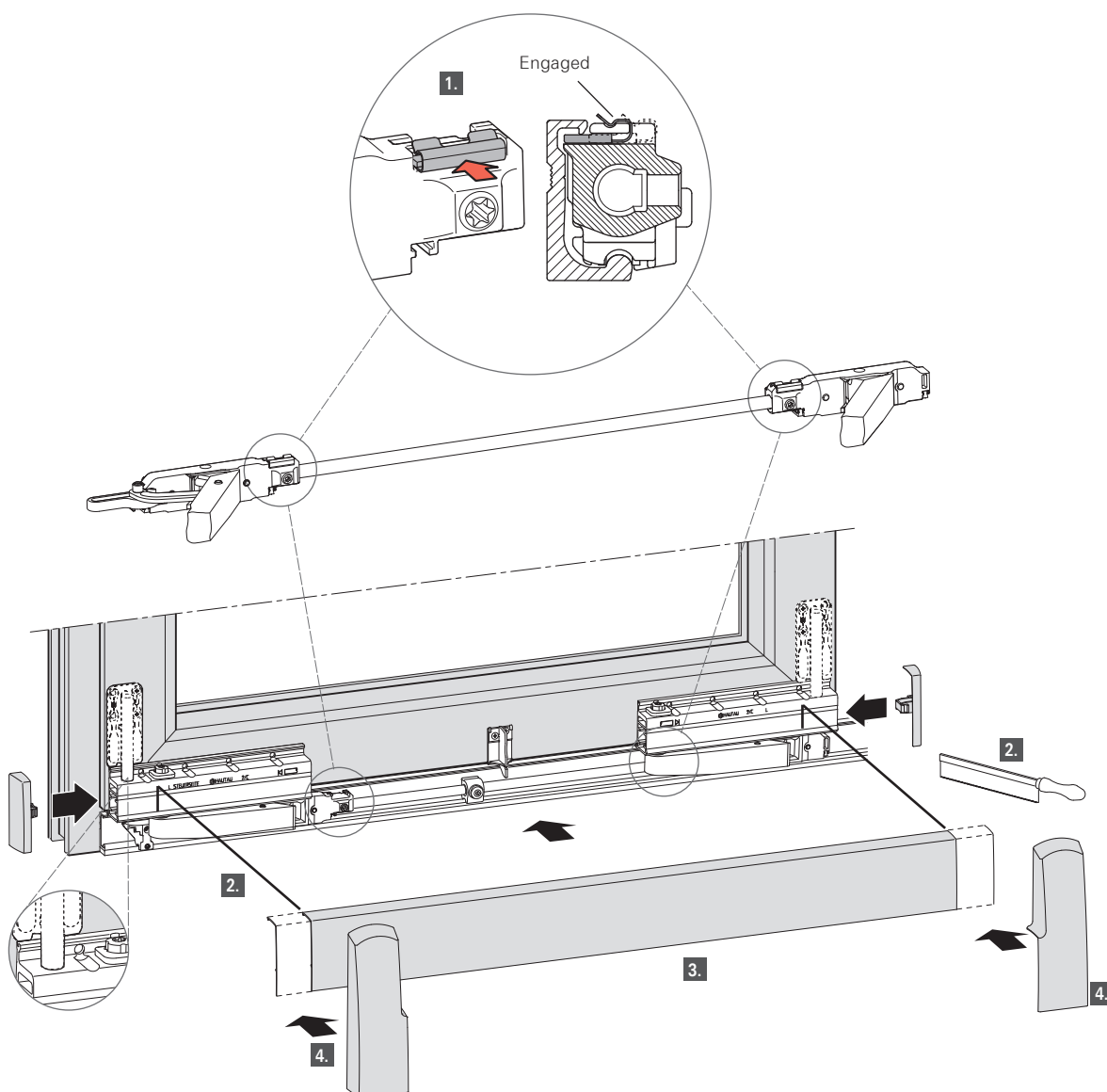
1. Slide back the bogie safety mechanism on both bogies, until they engage in the depicted position.



WARNING!

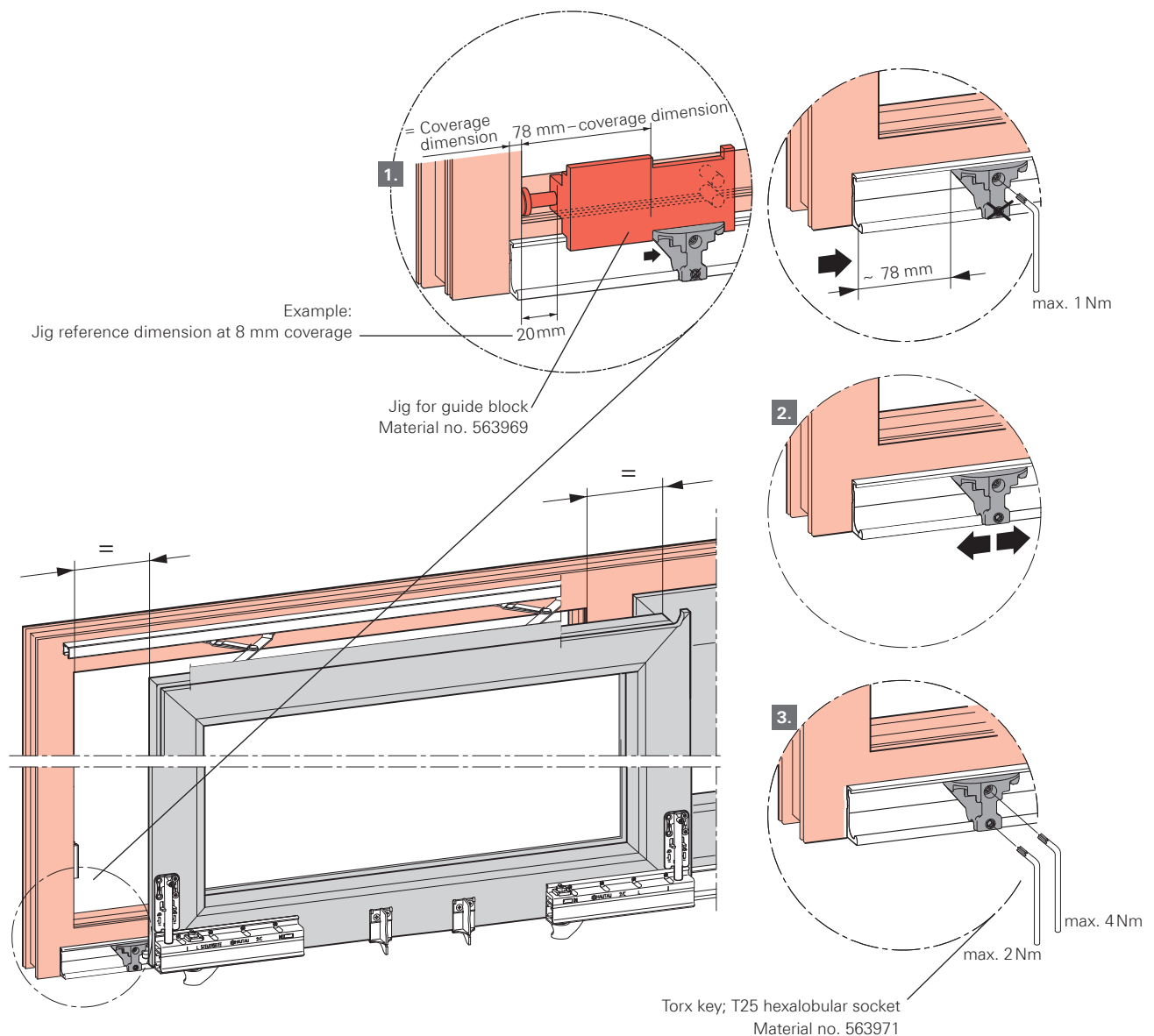
If the bogie safety mechanism is not correctly engaged (or not at all) in the depicted position, the sash is not sufficiently safeguarded. This can lead to grievous bodily harm.

2. Cut the cover profile:
Roto Patio 100 S: in line with the outer bogie edges
Roto Patio 160 S: in line with the marks on the bogies
3. Align the cover profile along the bogie edges (Roto Patio 100 S) or the bogie marks (Roto Patio 160 S) and clip on the bogie profiles and the cover support bracket(s).
4. Roto Patio 100 S: Mount the bottom-left and bottom-right cover cap on the side over the cover profile and clip into the bogie. Roto Patio 160 S: Clip on the bottom-left and bottom-right cover cap to the reinforcement brackets.



Mounting the guide block

1. Position the guide block jig (material no. 563969) as depicted in the drawing, alternatively position the guide block on the handle side approx. 78 mm from the roller track's outer edge. Lightly tighten the top screw with a T25 hexalobular socket Torx key (material no. 563971) (max. 1 Nm).
2. Bring the sash into the tilted position and check the clearance on both sides (12 mm). Reposition the guide block if need be.
3. Firmly tighten both screws on the guide block with a T25 hexalobular socket Torx key (max. 4 Nm).





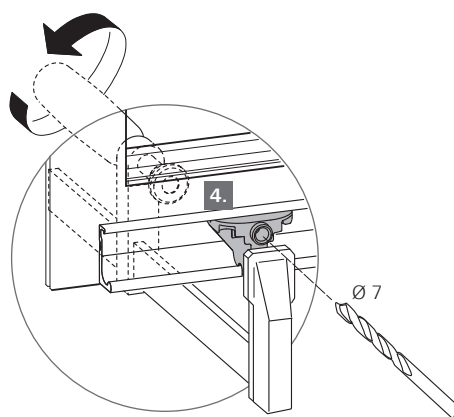
The Turn-Only sash of diagram D can be opened for cleaning and maintenance purposes.



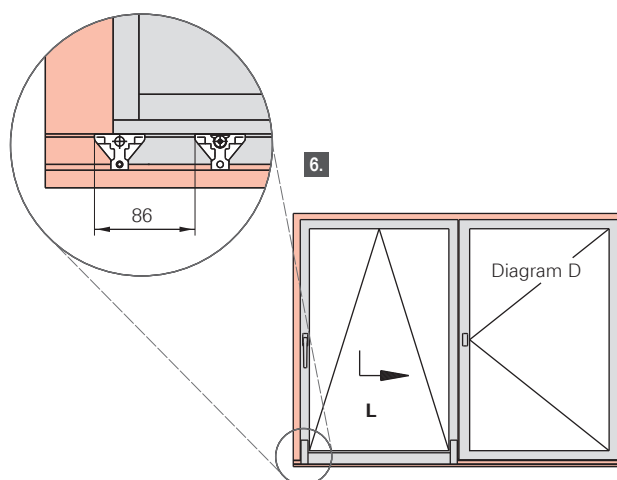
NOTE!

For diagram D keep the handle-sided roller track as long as possible.

1. Installing the guide block,
→ Page 60. (dimension ~78 mm)
Lightly tighten the top screw (Torx key T25, max. 1 Nm)
2. Bring the sash into the tilted position and check the clearance on both sides. Reposition the guide block if need be.
3. Mark the position of the guide block, then remove the guide block.
4. Align the drilling jig for the guide block along the marking, then fix it with a screw clamp. Using a drill centring device, drill Ø 7 mm completely through the roller track. Remove the drilling jig for guide block.



5. Slide the slidable guide block on the roller track, click into place at the drilling.
6. Use the drilling jig for the guide block to drill the retracting security hole with 86 mm offset. (cf. 4.)



Opening of the Turn-Only sash of diagram D for cleaning and maintenance purposes:

1. Open the sliding sash.
2. Pull out the lock of the slidable guide block.
3. Slide the guide block and let the lock click into place at the retracting security hole.
4. Slowly slide the sliding sash in locking direction, until the bogie meets the guide block.
5. Open the Turn-Only sash.

Connecting sash and frame

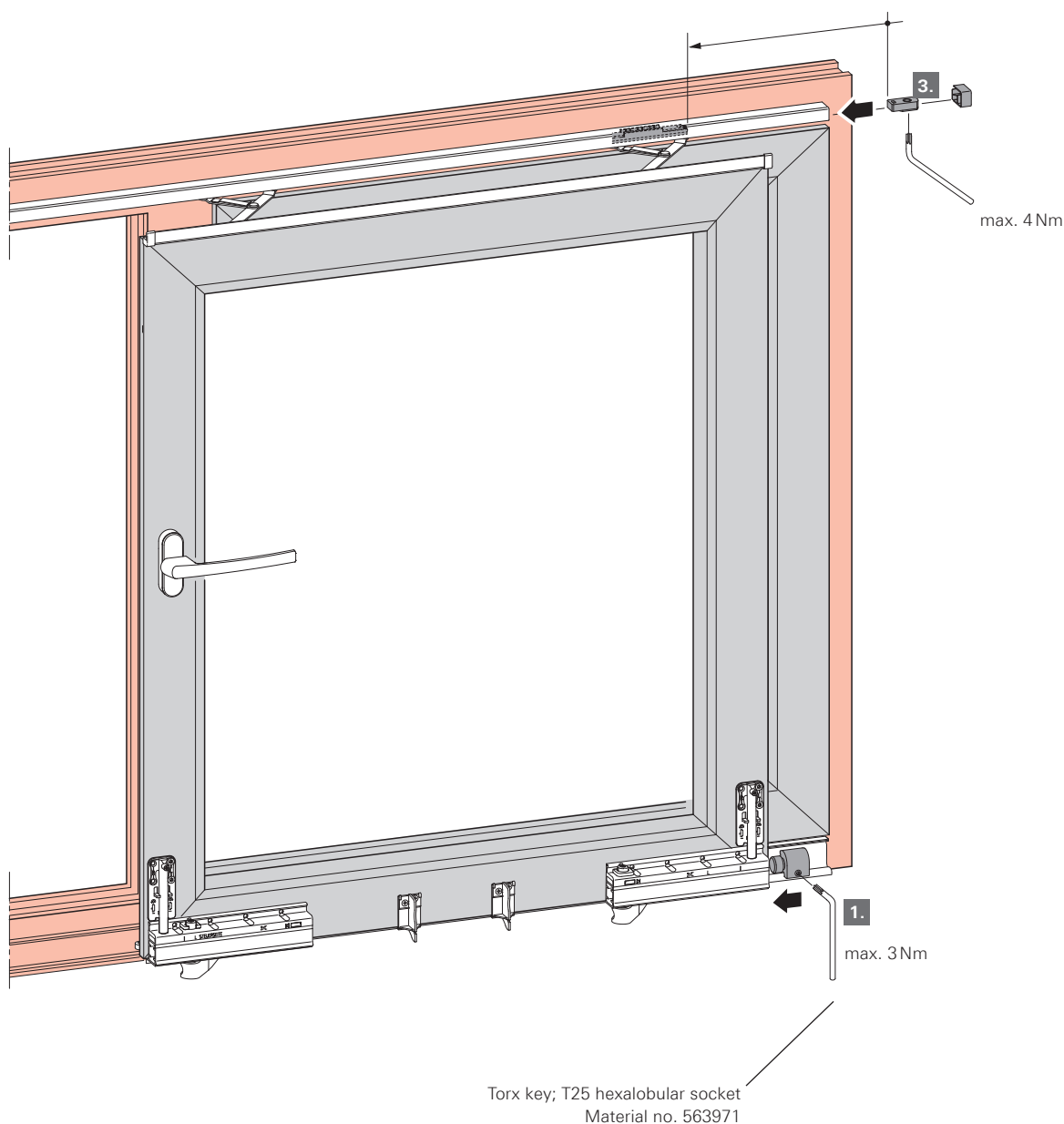
Installing the rubber buffer stop

Mounting the buffer-stop

1. Screw on the bottom buffer-stop to the roller track in the desired position.
Torx key; T25 hexalobular socket (material no. 563971), max. 3 Nm
2. Slide the sash as far as the buffer-stop (not depicted).
3. Slide in the top buffer-stop into the guide track and screw-fix
Torx key; T25 hexalobular socket, max. 4 Nm
4. Mount the guide track's end cap (not depicted).

Important advice:

In order to avoid damaging the hardware components, the sash must run up against the top and bottom buffer-stop simultaneously.





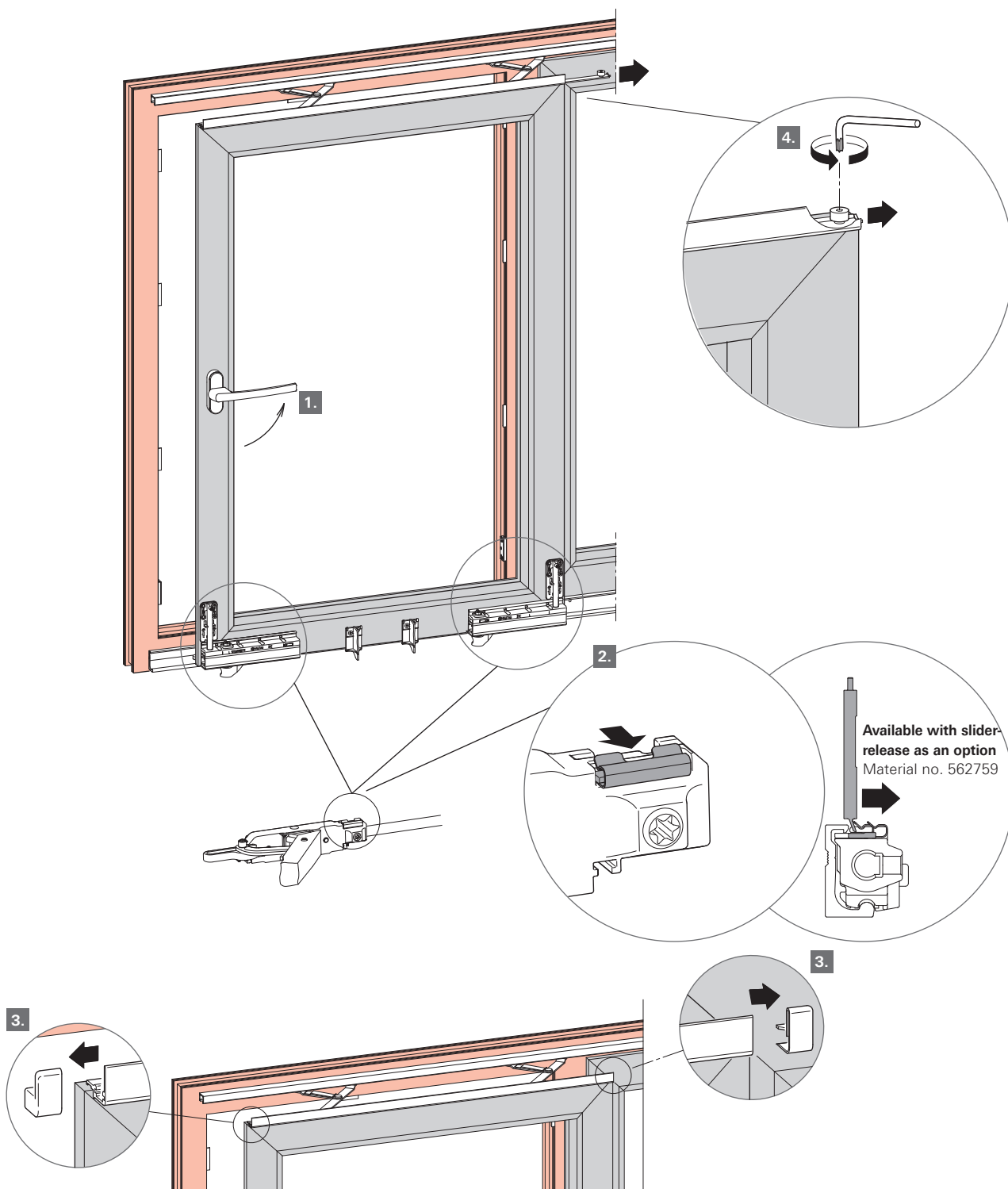
1. Open the sash.
2. Bring each of the bogie safety mechanisms into the disengaged position.



Caution!

Safeguard the sash against falling out prior to releasing the locking screw.

3. Detach the cover caps from the stay-connecting profile.
4. Loosen the locking screw.
5. Slide the scissors-slider out of the stay-connecting profile.
6. Tilt the disengaged sash and lift it from the roller track (not dep.).



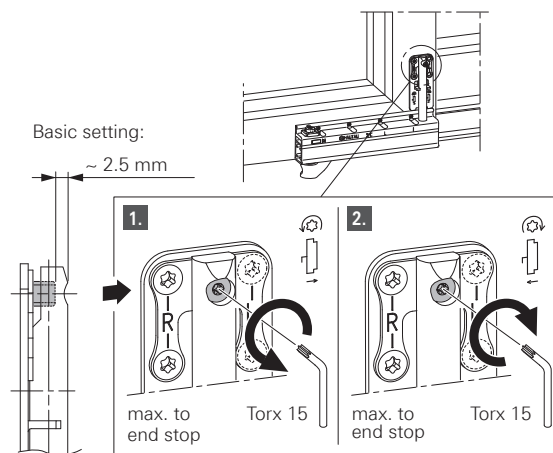
Adjust the reinforcement brackets to optimise the smooth running of the sash in the frame.

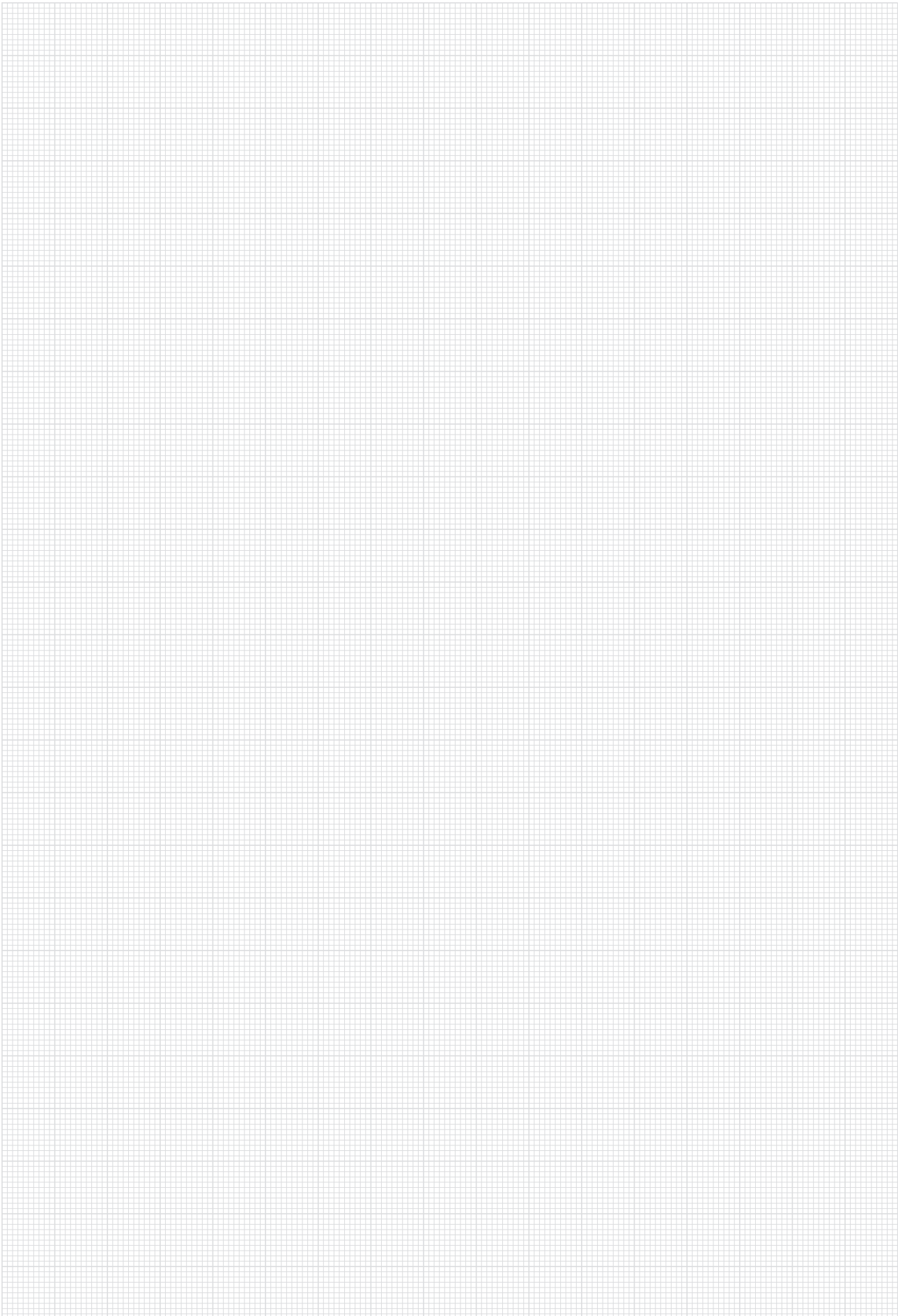
1. Facilitate running in.
2. Facilitate running out.



NOTE!

From the basic setting, both reinforcement brackets should only be moved in **1.** direction. Too strong adjustment in **1.** direction may result in rubbing of the bogies, depending on profile and sash weight. In this case, adjust the reinforcement brackets in **2.** direction until the bogies can be moved without rubbing.







DANGER!

Danger to life from incorrect handling and transport!

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

Therefore:

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

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

Therefore observe the following during all transport, loading, and unloading:

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

This applies particularly for the hinge positions.



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



NOTE!

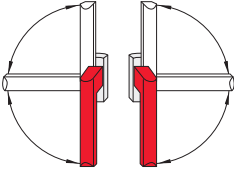
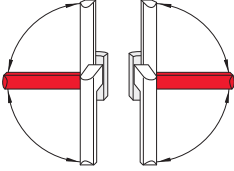
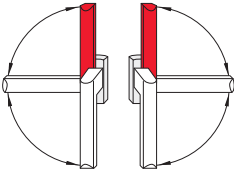
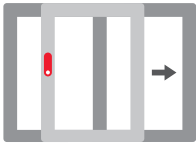
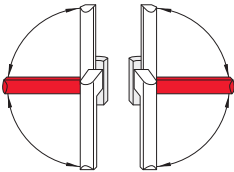
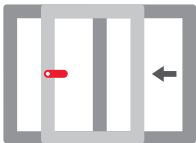
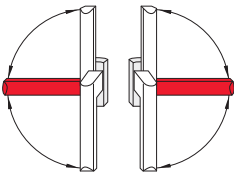
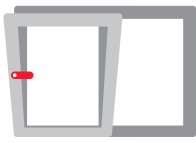
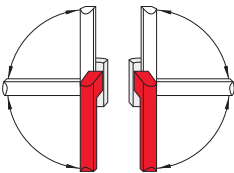
Claim any damage as soon as it is detected. Claims for damage can only be invoked within the statutory reclamation period.

Operation

Operating information

Tilt&Slide hardware handle position

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

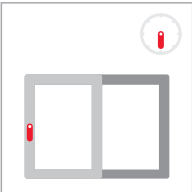
Handle position	Sash position	Symbol	Meaning
			Closed position of the sash
			Opened tilt position of the sash
			Opened slide position of the sash
			Closed slide position of the sash
			Engaging opened tilt position of the sash
			Closed position of the sash



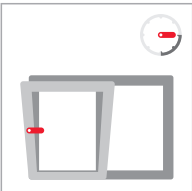


**Kippschiebe-
beschlag**
Tilt&Slide hardware

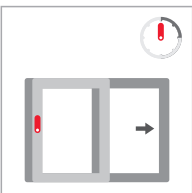
geschlossen
closed



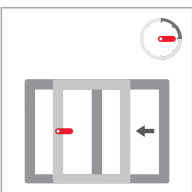
kippen
tilt



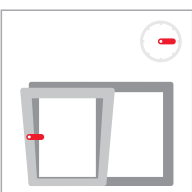
öffnen
open



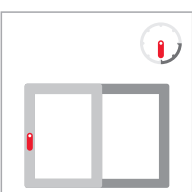
schieben
slide



einrasten
snap



schliessen
close



12/2011 OPR_8_DE_v1

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

Please order stickers separately (OPR_8_EN_v1).

Troubleshooting

Problem	Cause	Corrective action	Specialist company	End-users
Handle is difficult to rotate.	– Frame parts are not properly greased. – Faulty handle. – Handle screws are screwed in too strong. – Oblique screws in the sash. – Faulty sash parts. – Faulty striker locations.	– Grease frame parts. – Replace the handle. – Slightly loosen the screws. – Straight screw-fixing of the sash parts. – Replace the sash parts. – Adjust the striker locations.	□ ■ ■ ■ ■ ■	□ – – – – –
Handle can not rotate 180°.	– Faulty hinging or installation of sash parts.	– Check adjustment in turn position (if necessary, rehing the sash proceeding from T&T espagnolette).	■	–
Sash is rubbing in tilt mode.	– Insufficient clearance on top.	– Lower the bogie.	■	–
Locking cams rubber at striker.	– Faulty hinging of the sash. – Faulty striker locations.	– Hinge the sash once again. – Adjust the striker locations.	■ ■	– –

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

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

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



Locking cam adjustment instructions

Cam type	Adjustment range	Gasket-compression	Height	Side view	Tools
E cam					
		$\pm 0.8 \text{ mm}$			

Locking cam adjustment instructions

Locking cam V	Adjustment range in °	Gasket-compression adjustment in mm	Height adjustment in mm
0 = Original position - 0.8 mm max. adjustment + 0.8 mm max. adjustment	Original position 	-	-
		± 0.8	± 0.2
		-	± 0.4
		± 0.8	± 0.6
		-	± 0.8

Maintenance



WARNING!

Danger of injury through incorrectly conducted maintenance work!

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

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

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

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

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NOTE!

Observe the following environmental protection notes during maintenance work:

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

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



Inspection

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

	Specialist company	End-users
Check that safety-relevant hardware components are mounted securely.	☐	☐
Examine safety-relevant hardware components for wear and tear.	☐	☐
All movable parts are to be operation-tested.	☐	☐
All locking points are to be operation-tested.	☐	☐
The hardware's smooth operation can be checked by means of moving the window handle.		
– In accordance with DIN 18055, the locking and unlocking moment is max. 10 Nm.	■	–
– It can be checked using a torque wrench.	■	–
– The smooth operation can be improved by greasing/oiling or adjusting the hardware.	■	–

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Care

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

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



Protection against corrosion

	Specialist company	End-users
Aggressive vapours (e.g. by means of formic acid or acetic acid, ammonia, amine or ammonia compounds, aldehydes, phenols, chlorine, tannic acid etc.) in the vicinity of the windows must be absolutely avoided.	■	—
Never use acetic-acid or crosslinked acidic sealing compounds or those with the above mentioned contents, since both the direct contact with the sealing compound and its vaporisation can attack the hardware's surface.	■	—
Always use stainless-steel screws.	■	—

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Protection against dirt

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

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Protection against (permanent) moist interior air

	Specialist company	End-users
Ventilate the hardware and the rebate areas – especially in the construction phase – so that they are neither exposed to direct contact with water nor to formation of condensation water.	☐	☐
Ensure that (permanently) damp spatial air cannot condense in the hinge and rebate areas: – Force ventilate several times each day (open all windows for approx. 15 minutes). – Also ventilate during holidays and absences. – For more complex construction projects, develop a ventilation plan if necessary. If described systematic ventilation is not possible, e.g. because fresh screed must not be traversed, or it cannot take draughts, put the windows into the tilted position and make them airtight by taping on the indoor side. Divert the moisture present in the room air to the outside by means of condensation dryers.	☐	☐

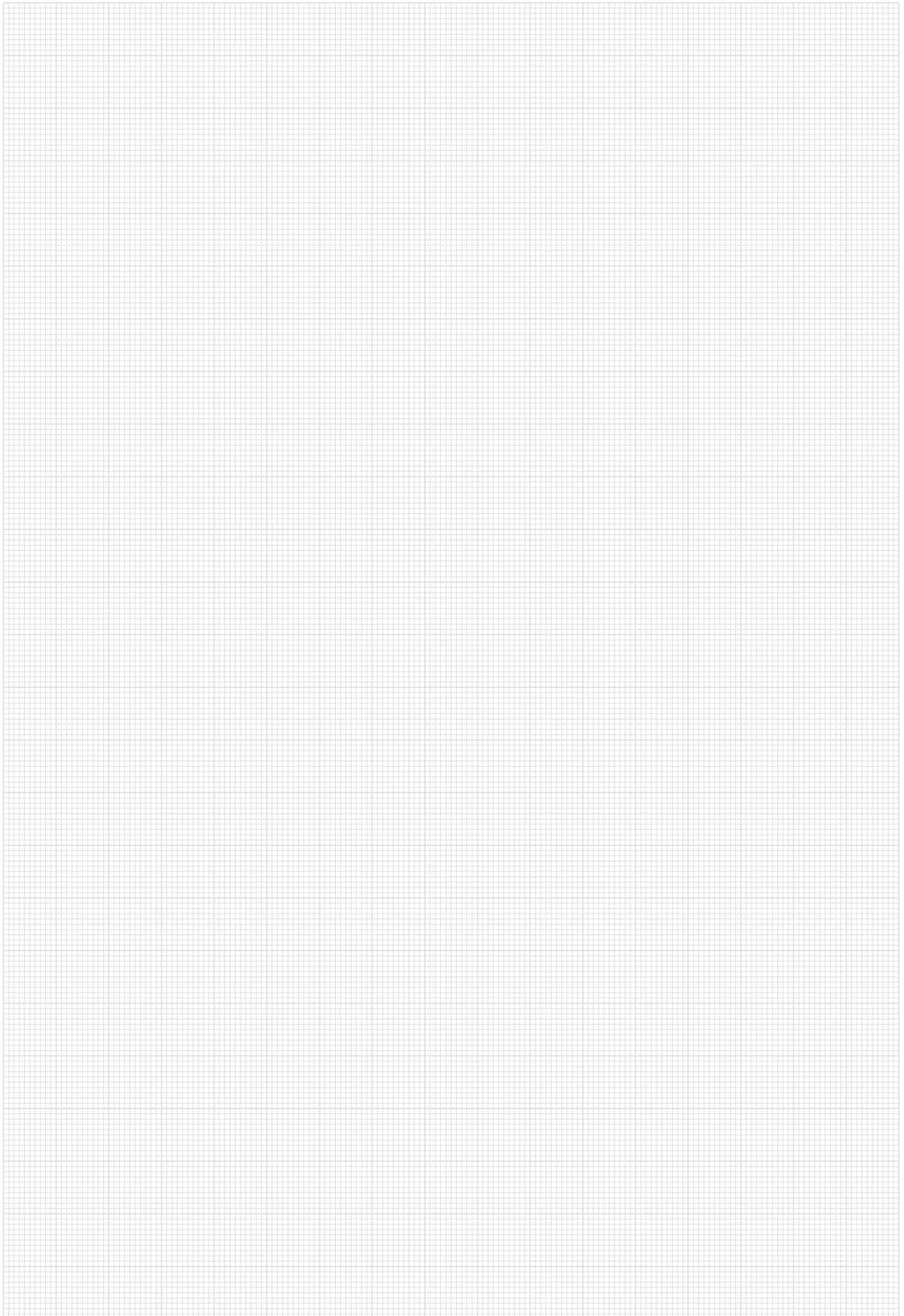
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Separate the hardware components from the window and dispose of as metal scrap.





Creates inner values

Roto Frank AG
Window and door technology

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From a single source: The optimum hardware system to meet all challenges

- Roto Patio** | Hardware systems for large sliding windows and doors
- Roto AluVision** | Comprehensive hardware solutions for aluminium windows and doors
- Roto Door** | The attuned range of components for permanently tight shutting doors
- Roto NT** | The world's biggest selling Tilt&Turn hardware system for windows and balcony doors