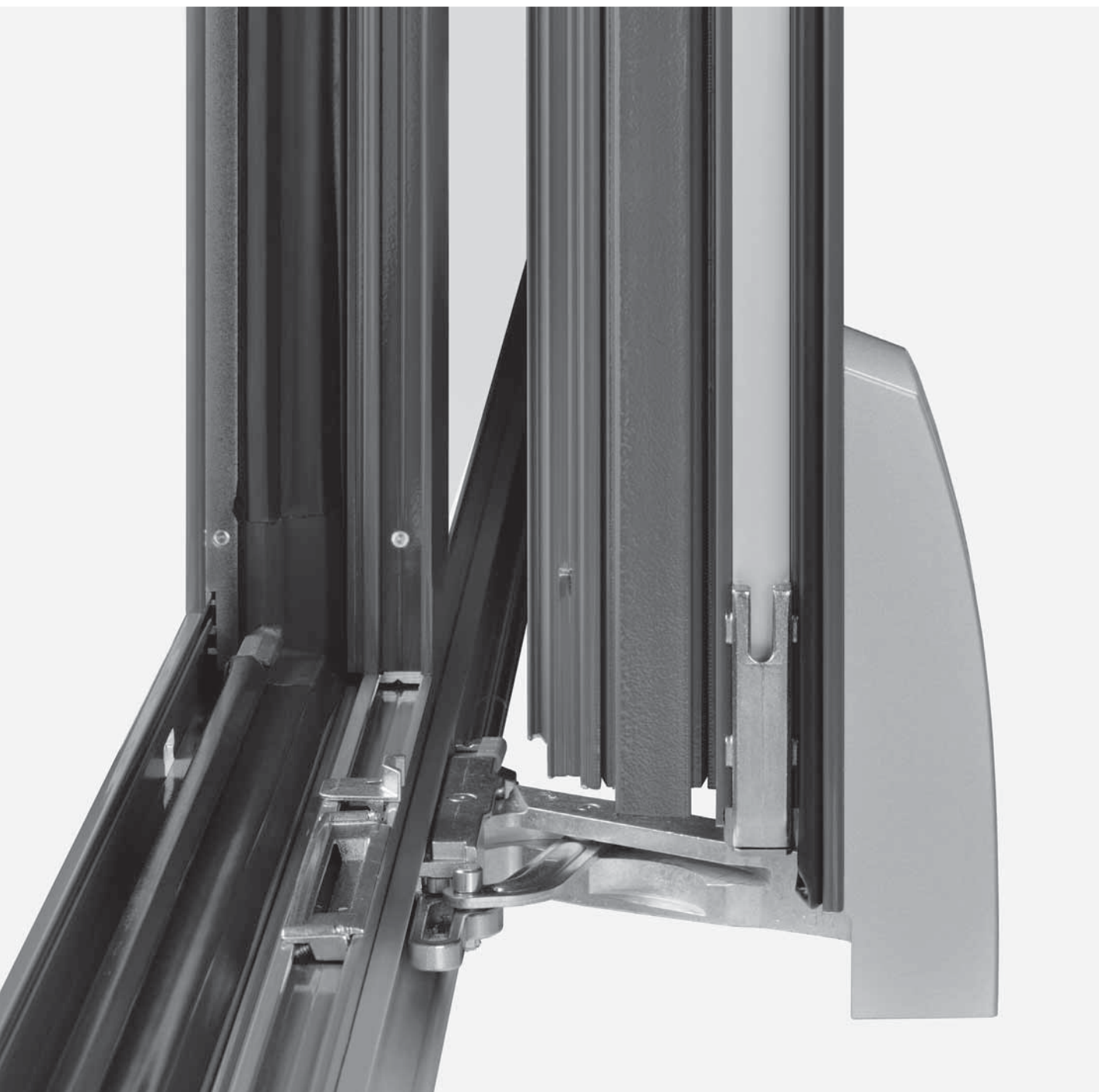


Roto Patio S

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

Installation, maintenance and operation instructions
for aluminium profiles



Imprint

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

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

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

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

- Directives 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
SW	Sash width
SH	Sash height
SW	Sash weight

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/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 warrant 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!**


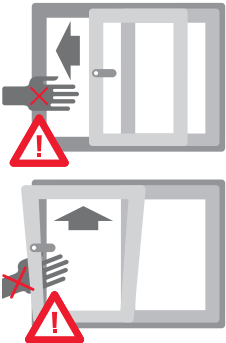
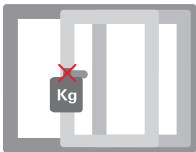

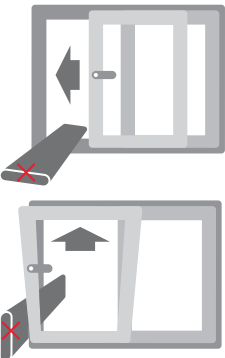
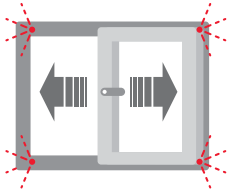
Misuse of windows and balcony doors can result in dangerous circumstances.

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
	<p>DANGER! Danger of injury from falling through open windows and balcony doors.</p> <ul style="list-style-type: none"> – 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.
	<p>WARNING! Danger of injury through trapping of body parts in the opening gap between sash and frame.</p> <ul style="list-style-type: none"> – 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.
	<p>WARNING! Danger of injury and material damage from overloading the sash</p> <ul style="list-style-type: none"> – Do not overload the sash.
	<p>CAUTION! Danger of injury from the effect of wind</p> <ul style="list-style-type: none"> – Prevent wind from acting on the open sash. – During wind and drafts, close and lock windows and balcony door sashes.
	<p>CAUTION! Danger of injury and material damage from insertion of obstructions into the opening gap between sash and frame</p> <ul style="list-style-type: none"> – Do not insert obstructions into the opening gap between sash and frame.
	<p>CAUTION! Injury and property damage from uncontrolled opening and closing of the sash</p> <ul style="list-style-type: none"> – 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).

**Safety advice**
Tilt&Slide hardware



03/2012 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 programs.
- 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 geared-handle	2	M5x12 ISO 7045	5.5	⊕
RotoLine window handle	2	M5x30	3.9/10.1/12	⊕
RotoLine handle, inside and outside operation	4	M5x110	10/12	⊕

General hardware characteristics

- Spring catch in tilted position, anti-slam scissors-slider
- Concealed central locking system
- Sash arrangement according to diagram A, B, C, 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 width: max. 1680 mm
- Sash height: max. 2380 mm
- Sash weight: max. 160 kg
- Clearance 11.5–12 mm
- Minimum overlap height 7 mm
- Frame groove V.01/V.02
- Sash groove 15/20
- Sash thickness max. 87 mm
(for sash thicknesses of more than 87 mm, technical examination is necessary)



Application diagram

Patio 100S Aluminium

Limitation of sash formats depending on the glass thickness

Application range

Sash width **SW** 670 – 1280 mm

Sash height **SH** 930 – 2380 mm

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

Sash thickness max. 87 mm


(for sash thicknesses of more than 87 mm, technical examination is necessary)

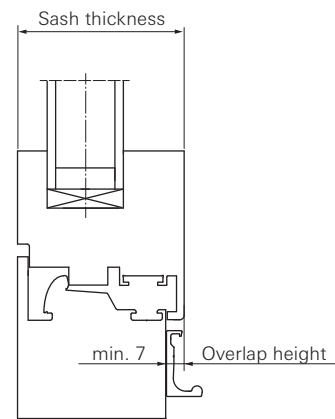
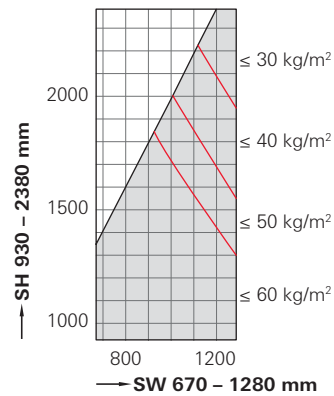
Glass weight max. 60 kg / m²

SH : SW = 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

Patio 160S Aluminium

Limitation of sash formats depending on the glass thickness

Application range

Sash width **SW**670 – 1680 mm

Sash height **SH**930 – 2380 mm

Sash weight **S.kg** max. 160 kg

Sash thickness max. 87 mm

(for sash thicknesses of more than 87 mm, technical examination is necessary)

Glass weightmax. 60 kg / m²

SH : SW = 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

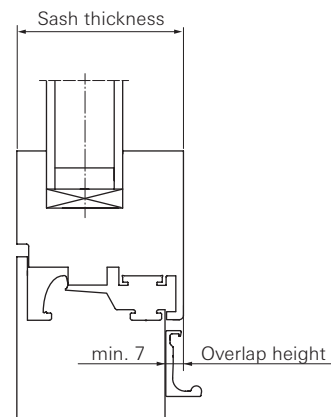
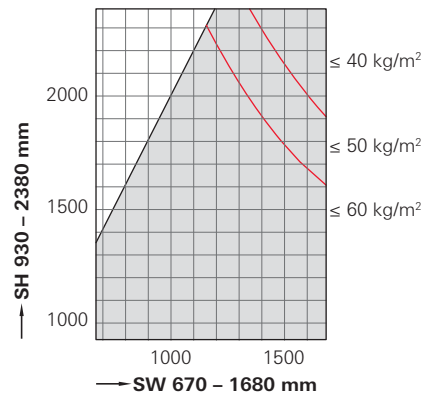




Diagram A

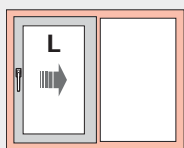


Diagram A
1 sliding sash (L or R)
1 fixed glazing

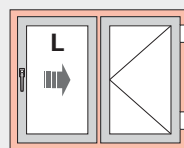


Diagram A
1 sliding sash (L or R)
1 Turn-Only sash

Diagram B



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

Diagram C

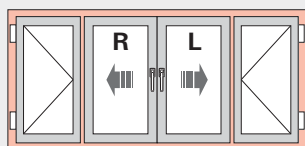


Diagram C
2 sliding sashes (L and R) with/without centre post
2 Turn-Only sashes (alternatively fixed glazing)

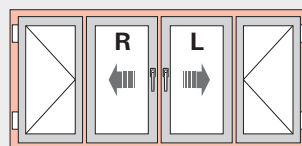


Diagram C
2 sliding sashes (L and R) with fixed centre post
2 Turn-Only sashes (alternatively fixed glazing)

Diagram D

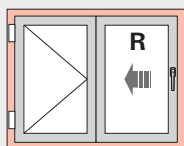


Diagram D
1 sliding sash (L or R) with/without centre post profile, slidable guide block required (Installation situation of guide block see page 82).
1 Turn-Only sash

Diagram G

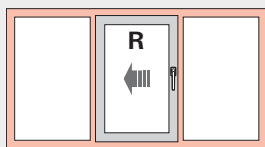


Diagram G
1 sliding sash (L or R)
2 fixed glazings

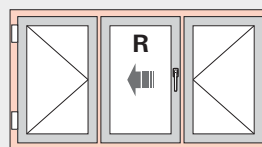


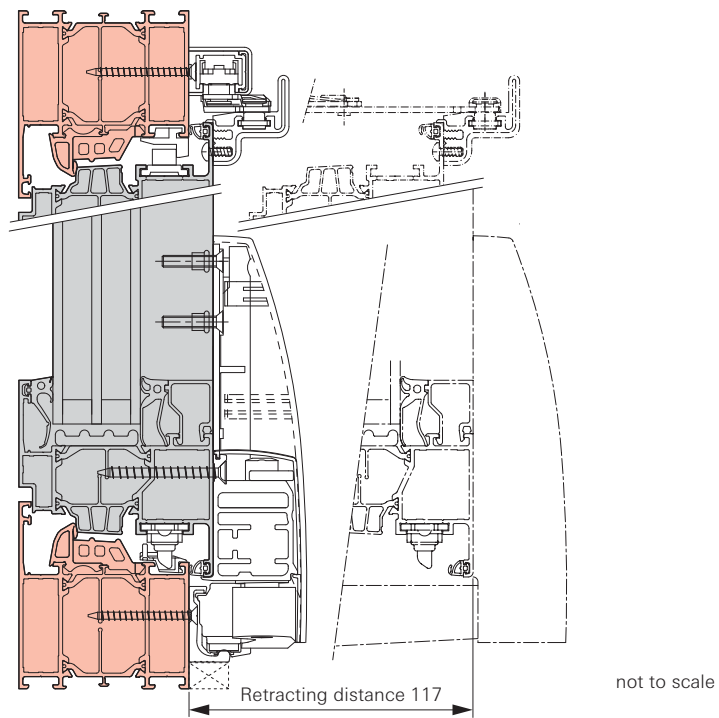
Diagram G
1 sliding sash (L or R)
2 Turn-Only sashes

Diagram K

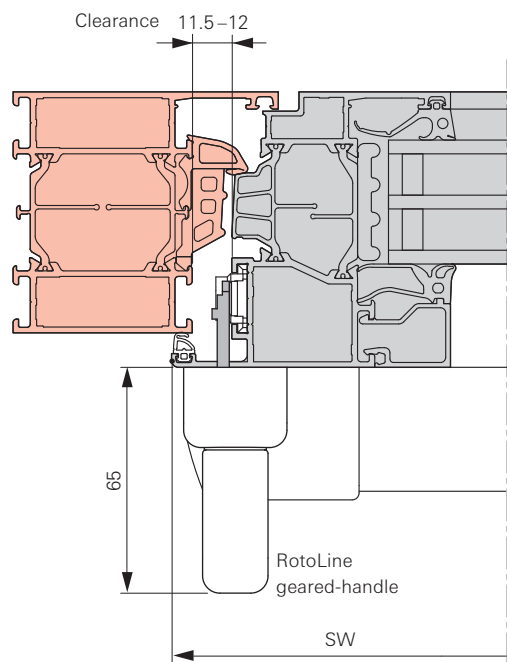


Diagram K
2 sliding sashes (L and R)
1 fixed glazing

Complete vertical cross section

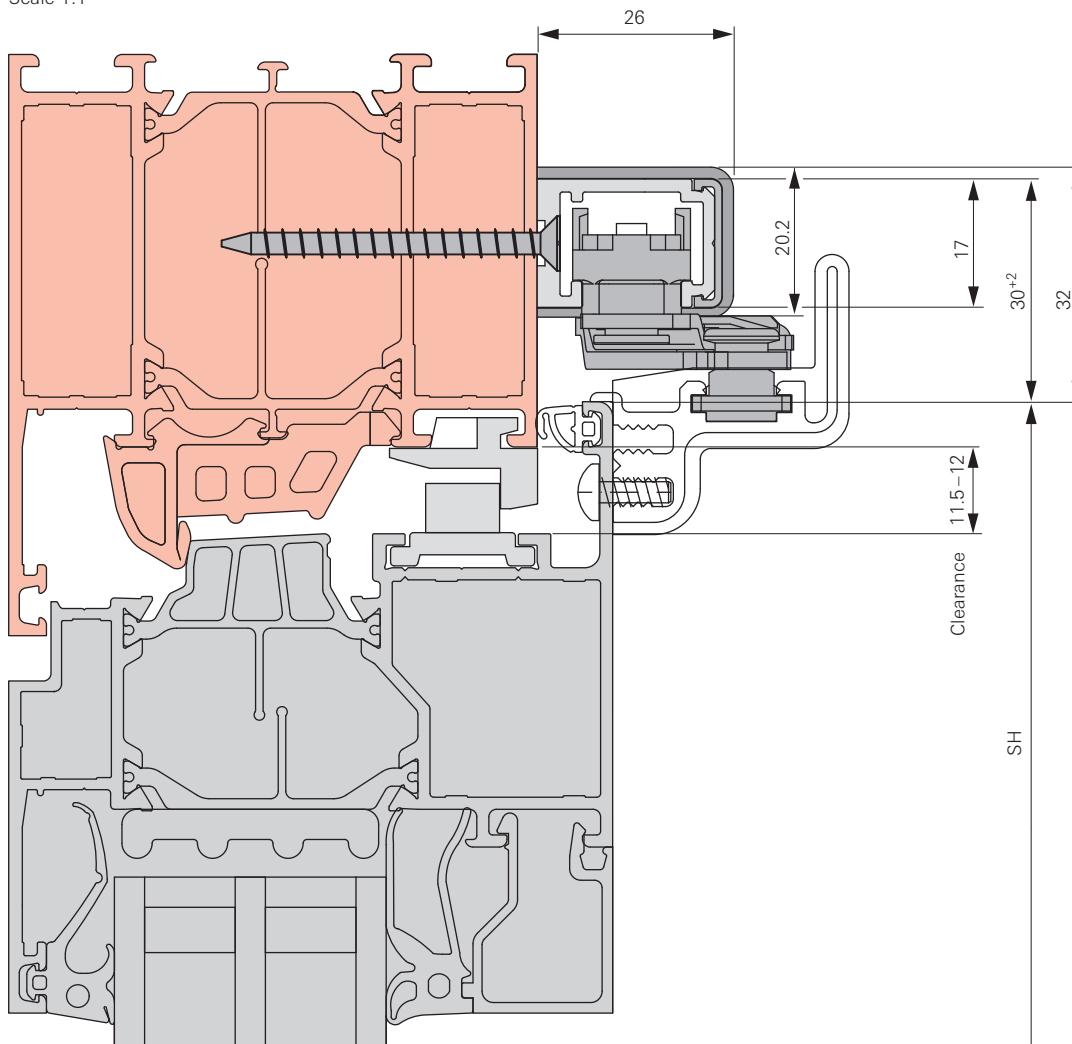


Horizontal cross section, handle



Vertical cross section, top

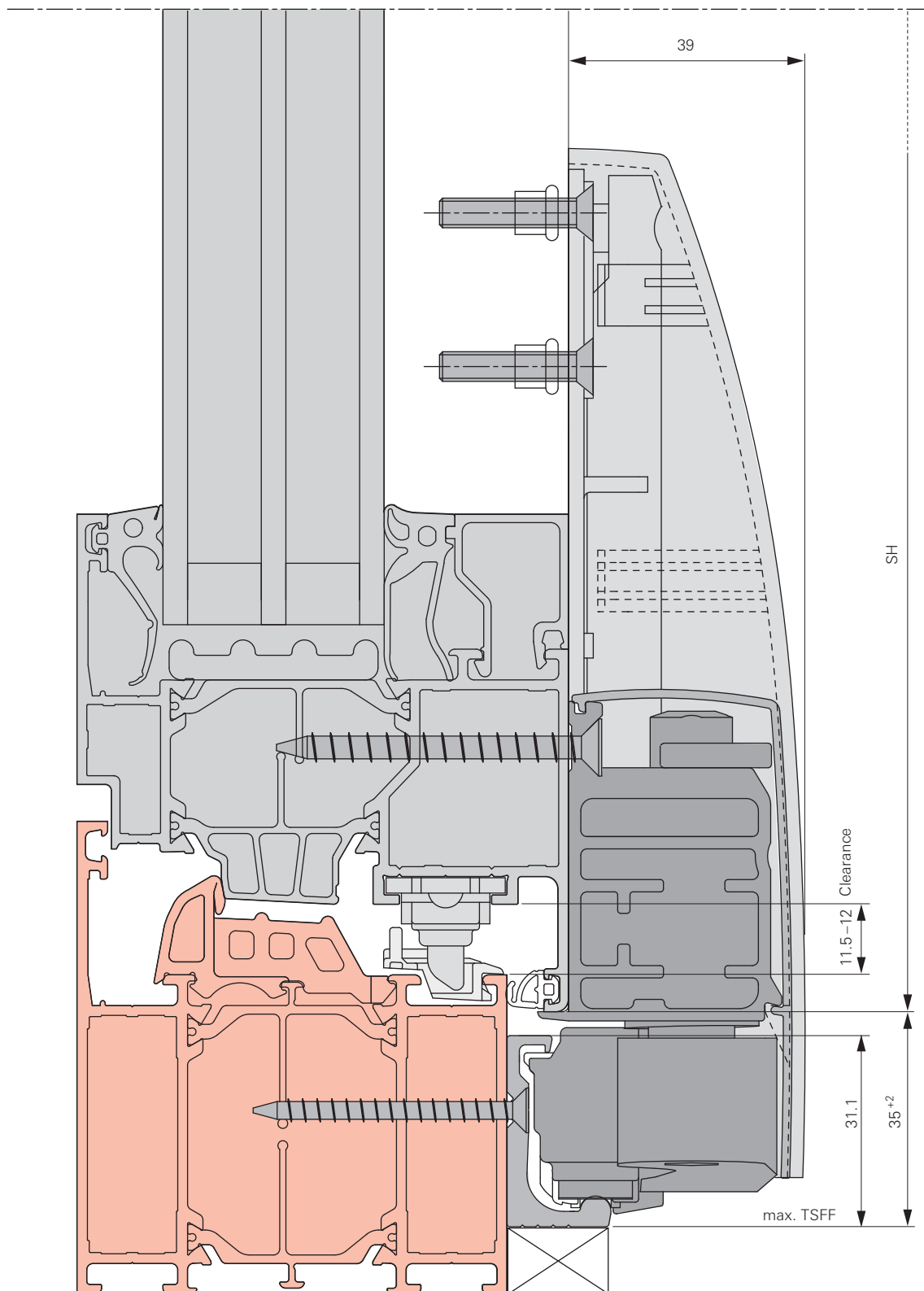
Scale 1:1



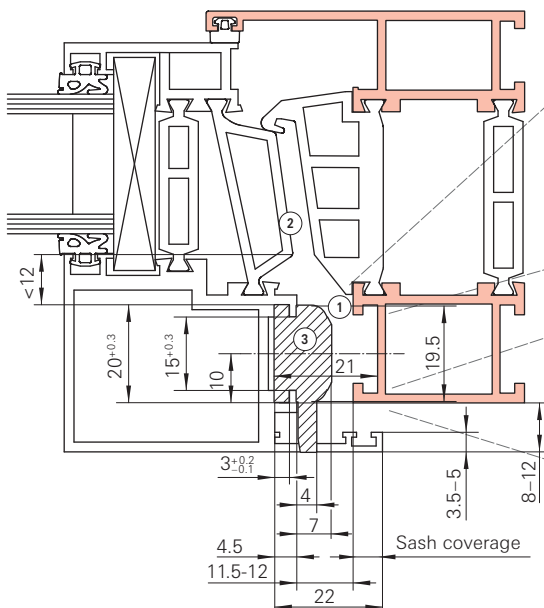


Vertical cross section, bottom

Scale 1:1



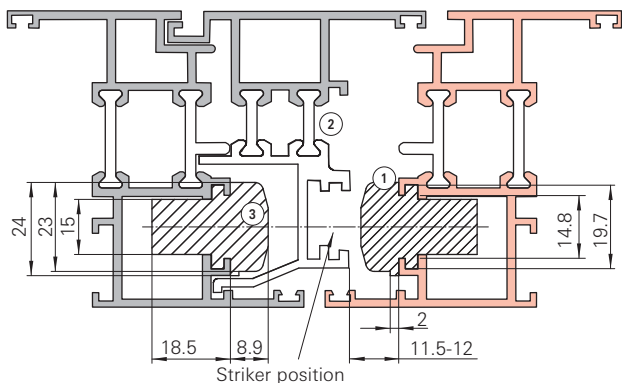
Space requirement for the hardware, for RotoLine geared-handle



Frame groove version V.01

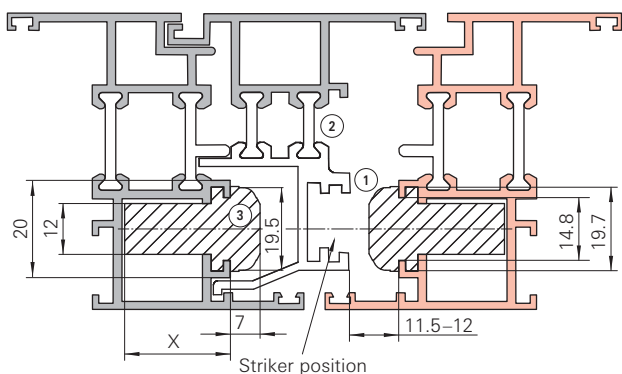
Frame groove version V.02

Space requirement for the hardware, diagram C for flush-encased gearbox 377446 and 378338

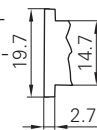


- ① It is imperative to adhere to the sash-frame alignment!
- ② No contact lip from the central gasket etc. may extend beyond the connecting-rod C-groove plane.
- ③ Required space.
Upon deviating dimensions, please consult with Roto!
All dimensions in mm.

Space requirement for the hardware, diagram C for flush-encased gearbox B25, 30, 35, 40



- ④ Minimal dimensions of the connecting-rod C-groove, in which the hardware components must slide easily, even after colour coating.
- ⑤ Specific connecting-rod profile for AluVision.

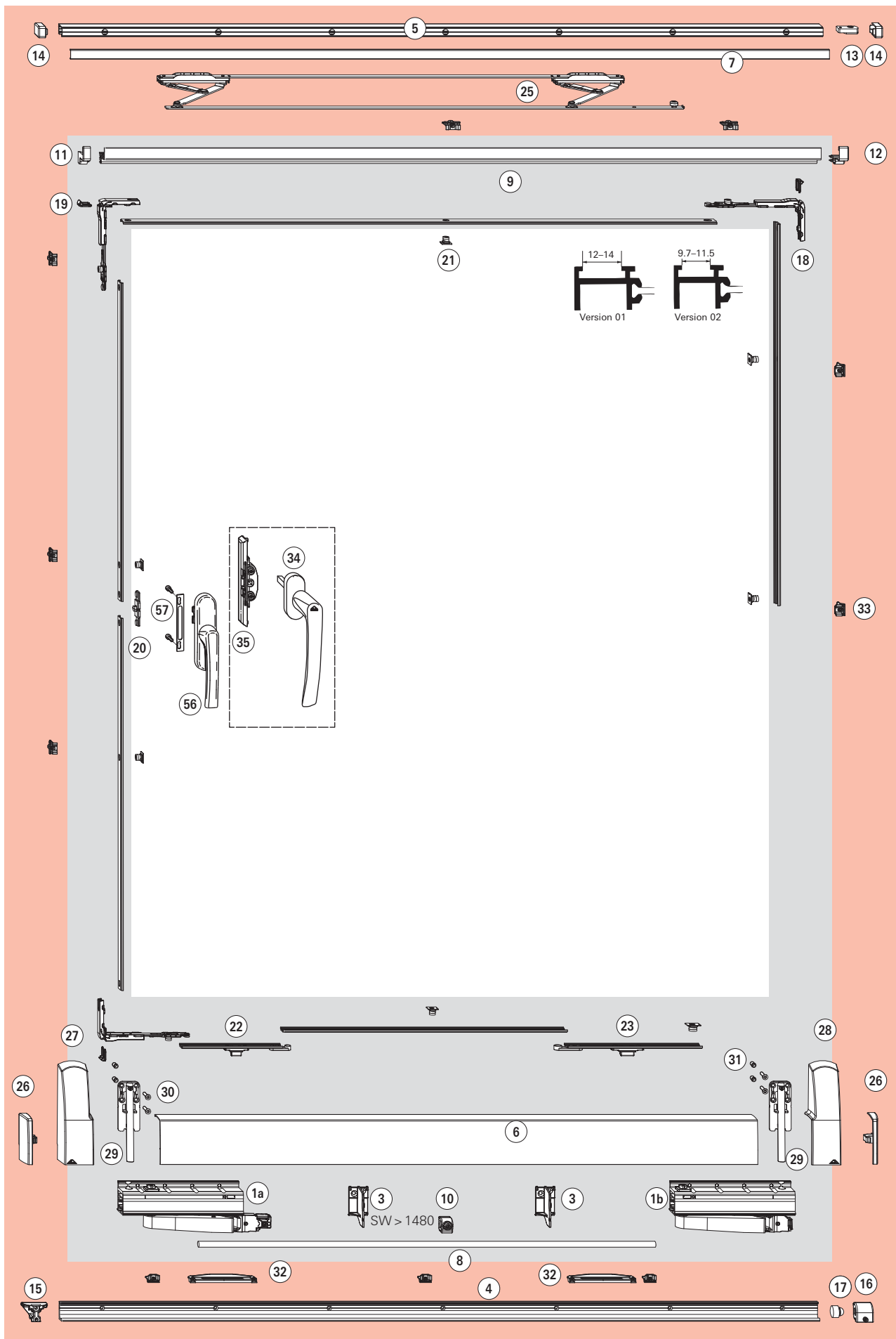


Backset	Dimension X	
	without profile cylinder	with profile cylinder
25 mm	35 mm	38 mm
30 mm	40 mm	43 mm
35 mm	45 mm	48 mm
40 mm	50 mm	53 mm

Hardware overview

Patio 100S/160S Aluminium

Hardware overview D10





Application range

Sash width **SW** 670 – 1680 mm
 Sash height **SH** 930 – 2380 mm
 Sash weight **S.kg** max. 160 kg



Basic carton Patio 100S/160S Aluminium	
Patio S Aluminium Basic carton	L 625395
Contents:	
①a	1 leading bogie
①b	1 trailing bogie
③	2 cover support brackets
	12 supporting-pin countersunk tapping-screws 4.8x50 T25 (not dep.)

Patio S Aluminium Basic carton	
R 625384	
Contents:	
②a	1 leading bogie (not dep.)
②b	1 trailing bogie (not dep.)
③	2 cover support brackets
	12 supporting-pin countersunk tapping-screws 4.8x50 T25 (not dep.)

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

Non-treated		
SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625445
931 – 1080	2230	625450
1081 – 1280	2630	625455
1281 – 1480	3030	625460
1481 – 1680	3430	625465

R01.5 Silver		
SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625442
931 – 1080	2230	625447
1081 – 1280	2630	625452
1281 – 1480	3030	625457
1481 – 1680	3430	625462

R05.4 Dark bronze		
SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625446
931 – 1080	2230	625451
1081 – 1280	2630	625456
1281 – 1480	3030	625461
1481 – 1680	3430	625466

R06.2 Jet-black		
SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625444
931 – 1080	2230	625449
1081 – 1280	2630	625454
1281 – 1480	3030	625459
1481 – 1680	3430	625464

R07.2 Traffic-white		
SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625443
931 – 1080	2230	625448
1081 – 1280	2630	625453
1281 – 1480	3030	625458
1481 – 1680	3430	625463

- Contents:**
- Track set:**
- ④ 1 roller track *)
 - ⑤ 1 guide track *)
 - ⑥ 1 cover profile
 - ⑦ 1 PVC cover profile
 - ⑧ 1 connecting rod
 - ⑨ 1 stay-connecting profile
 - ⑩ 1 connecting-rod support-block
(additionally included from SW > 1480)

- Misc. small components pack:**
- ⑪ 1 cover cap for stay-connecting profile, left
 - ⑫ 1 cover cap for stay-connecting profile, right
 - ⑬ 1 buffer stop, top
 - ⑭ 2 cover caps guide track
 - ⑮ 1 guide block
 - ⑯ 1 buffer stop, bottom
 - ⑰ 1 rubber buffer stop, bottom
 - 10 pan-head tapping screws 3.9x9.5 T15 (not dep.)
 - 40 supporting-pin countersunk tapping-screws
3.9x9.5 T15 (not dep.)

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

Lock S R/L D10 626523

Contents of the misc. small components pack:

- ⑱ 3 corner drives D10
- ⑲ 3 retaining forks
- ㉑ 1 locking cam, insertable

Bullet catch track S 15/20 D10 625484

Contents of the misc. small components pack:

- ㉒ 1 bullet catch track, left
- ㉓ 1 bullet catch track, right

㉔ Scissors-slider

SW / mm	Material no.
670 – 930	603930
931 – 1280	603931
1281 – 1680	603932

Cover caps

㉖ 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

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

Contents:

- ㉗ 1 cover cap, left
- ㉘ 1 cover cap, right
- ㉙ 2 reinforcement brackets, adjustable

Misc. small components pack:

- ⑳ 4 countersunk screws M5 x 25 T25
- ㉑ 4 blind rivet nuts M5

Guide strikers

Strikers and guide strikers D10/V.01 625495

Strikers and guide strikers D10/V.02 625497

Contents of the misc. small components pack:

- ㉒ 2 guide strikers
- ㉓ 8 strikers
- ㉑ 3 locking cams, insertable

Profile system assignment → page 55

Guide strikers (spare part)

Guide strikers V.01 625499

Guide strikers V.02 625500

Contents of the misc. small components pack:

- ㉒ 2 guide strikers

Profile system assignment → page 55

for SW > 1280 mm and SH > 1800 mm additionally

Strikers and guide strikers, insertable V.01 625493

Strikers and guide strikers, insertable V.02 625494

Contents of the misc. small components pack:

- ㉓ 10 strikers
- ㉑ 10 locking cams, insertable

Profile system assignment → page 55

㉑ Locking cam, insertable 625491

Contents of the misc. small components pack:

3 locking cams, insertable

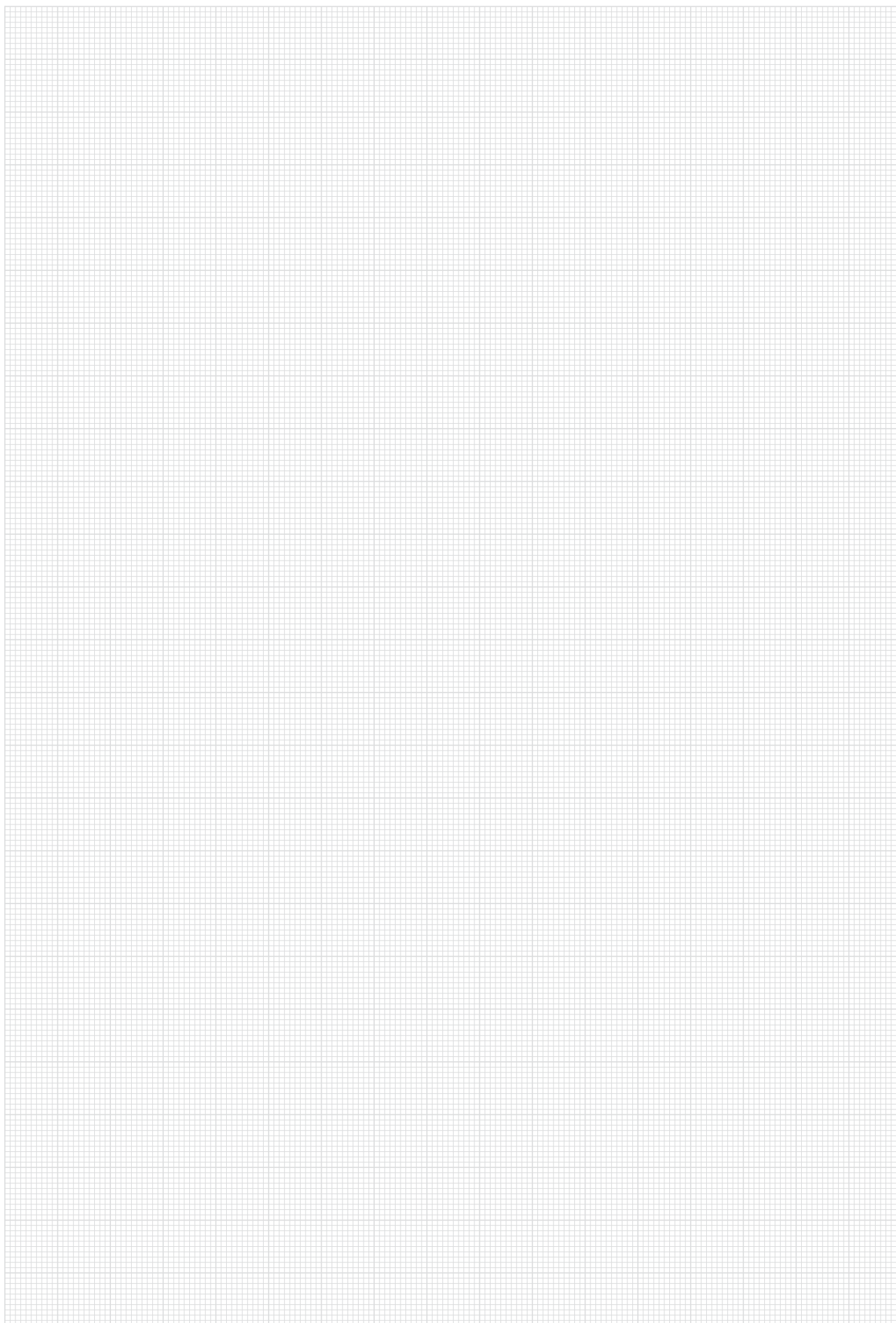
㉖ RotoLine geared-handle → page 44

㉗ Connector sets and accessories → page 45

㉘

㉙ Handles → page 46

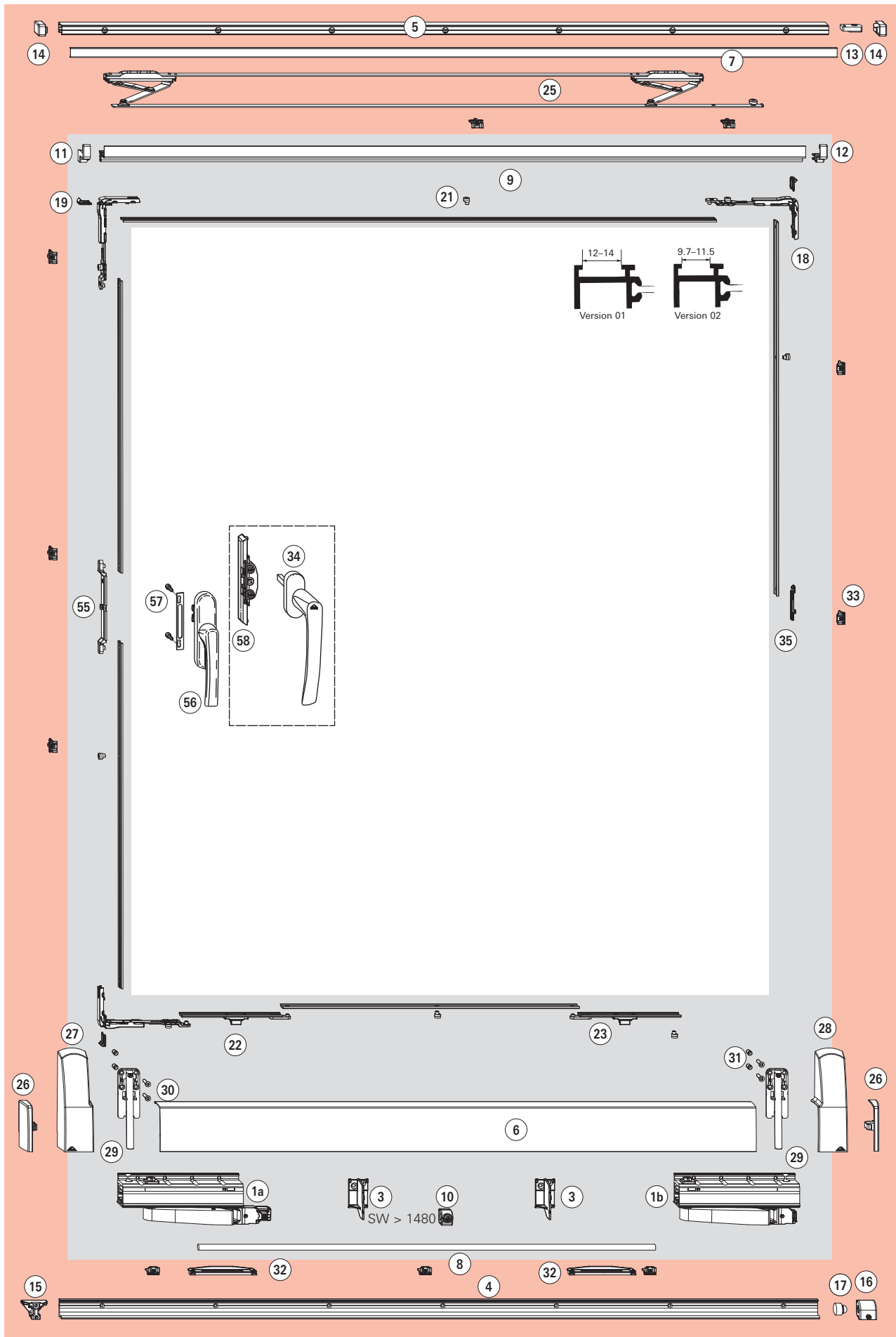
㉚ Flush-encased gearbox → page 49



Hardware overview

Patio 100S/160S Aluminium

Hardware overview D6





Application range

Sash width **SW** 670 – 1680 mm
 Sash height **SH** 930 – 2380 mm
 Sash weight **S.kg** max. 160 kg



Basic carton Patio 100S/160S Aluminium	
Patio S Aluminium Basic carton	L 625395
Contents:	
①a	1 leading bogie
①b	1 trailing bogie
③	2 cover support brackets
	12 supporting-pin countersunk tapping-screws 4.8x50 T25 (not dep.)

Patio S Aluminium Basic carton	
	R 625384
Contents:	
②a	1 leading bogie (not dep.)
②b	1 trailing bogie (not dep.)
③	2 cover support brackets
	12 supporting-pin countersunk tapping-screws 4.8x50 T25 (not dep.)

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

Non-treated		
SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625445
931 – 1080	2230	625450
1081 – 1280	2630	625455
1281 – 1480	3030	625460
1481 – 1680	3430	625465

R01.5 Silver		
SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625442
931 – 1080	2230	625447
1081 – 1280	2630	625452
1281 – 1480	3030	625457
1481 – 1680	3430	625462

R05.4 Dark bronze		
SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625446
931 – 1080	2230	625451
1081 – 1280	2630	625456
1281 – 1480	3030	625461
1481 – 1680	3430	625466

R06.2 Jet-black		
SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625444
931 – 1080	2230	625449
1081 – 1280	2630	625454
1281 – 1480	3030	625459
1481 – 1680	3430	625464

R07.2 Traffic-white		
SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625443
931 – 1080	2230	625448
1081 – 1280	2630	625453
1281 – 1480	3030	625458
1481 – 1680	3430	625463

- Contents:**
- Track set:**
- ④ 1 roller track*)
 - ⑤ 1 guide track*)
 - ⑥ 1 cover profile
 - ⑦ 1 PVC cover profile
 - ⑧ 1 connecting rod
 - ⑨ 1 stay-connecting profile
 - ⑩ 1 connecting-rod support-block
(additionally included from SW > 1480)

- Misc. small components pack:**
- ⑪ 1 cover cap for stay-connecting profile, left
 - ⑫ 1 cover cap for stay-connecting profile, right
 - ⑬ 1 buffer stop, top
 - ⑭ 2 cover caps guide track
 - ⑮ 1 guide block
 - ⑯ 1 buffer stop, bottom
 - ⑰ 1 rubber buffer stop, bottom
 - 10 pan-head tapping screws 3.9x9.5 T15 (not dep.)
 - 40 supporting-pin countersunk tapping-screws
3.9x9.5 T15 (not dep.)

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



Lock S R/L D6 626522

Contents of the misc. small components pack:

- ⑱ 3 corner drives D6
- ⑲ 3 retaining forks
- ⑳ 1 locking cam 67

Bullet catch track S 15/20 D6 625485

Contents of the misc. small components pack:

- ㉒ 1 bullet catch track, left
- ㉓ 1 bullet catch track, right

㉔ Scissors-slider

SW / mm	Material no.
670 – 930	603930
931 – 1280	603931
1281 – 1680	603932

Cover caps

㉖ 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

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

Contents:

- ㉗ 1 cover cap, left
- ㉘ 1 cover cap, right
- ㉙ 2 reinforcement brackets, adjustable

Misc. small components pack:

- ㉚ 4 countersunk screws M5 x 25 T25
- ㉛ 4 blind rivet nuts M5

Guide strikers

Strikers and guide strikers D6/V.01 625496

Strikers and guide strikers D6/V.02 625498

Contents of the misc. small components pack:

- ㉜ 2 guide strikers
- ㉝ 8 strikers
- ㉞ 3 CL cams

Profile system assignment → page 55

Guide strikers (spare part)

Guide strikers V.01 625499

Guide strikers V.02 625500

Contents of the misc. small components pack:

- ㉟ 2 guide strikers

Profile system assignment → page 55

for SW > 1280 mm and SH > 1800 mm additionally

Strikers and CL cams V.01 625800

Strikers and CL cams V.02 625801

Contents of the misc. small components pack:

- ㉟ 10 strikers
- ㊱ 10 CL cams

Profile system assignment → page 55

㊲ CL cam 625492

Contents of the misc. small components pack:

3 CL cams

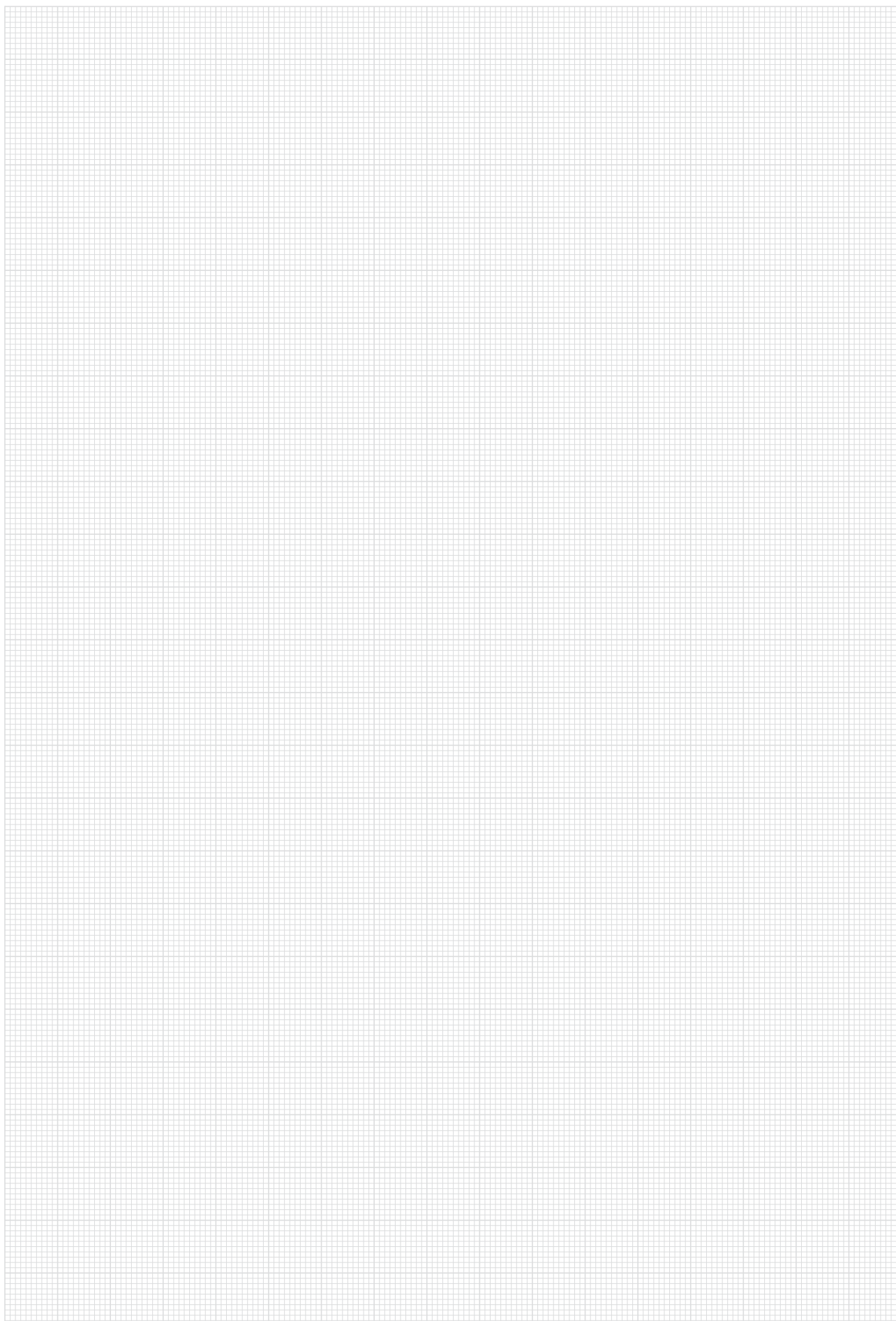
㊳ RotoLine geared-handle → page 44

㊴ Connector sets and accessories → page 45

㊵

㊶ Handles → page 46

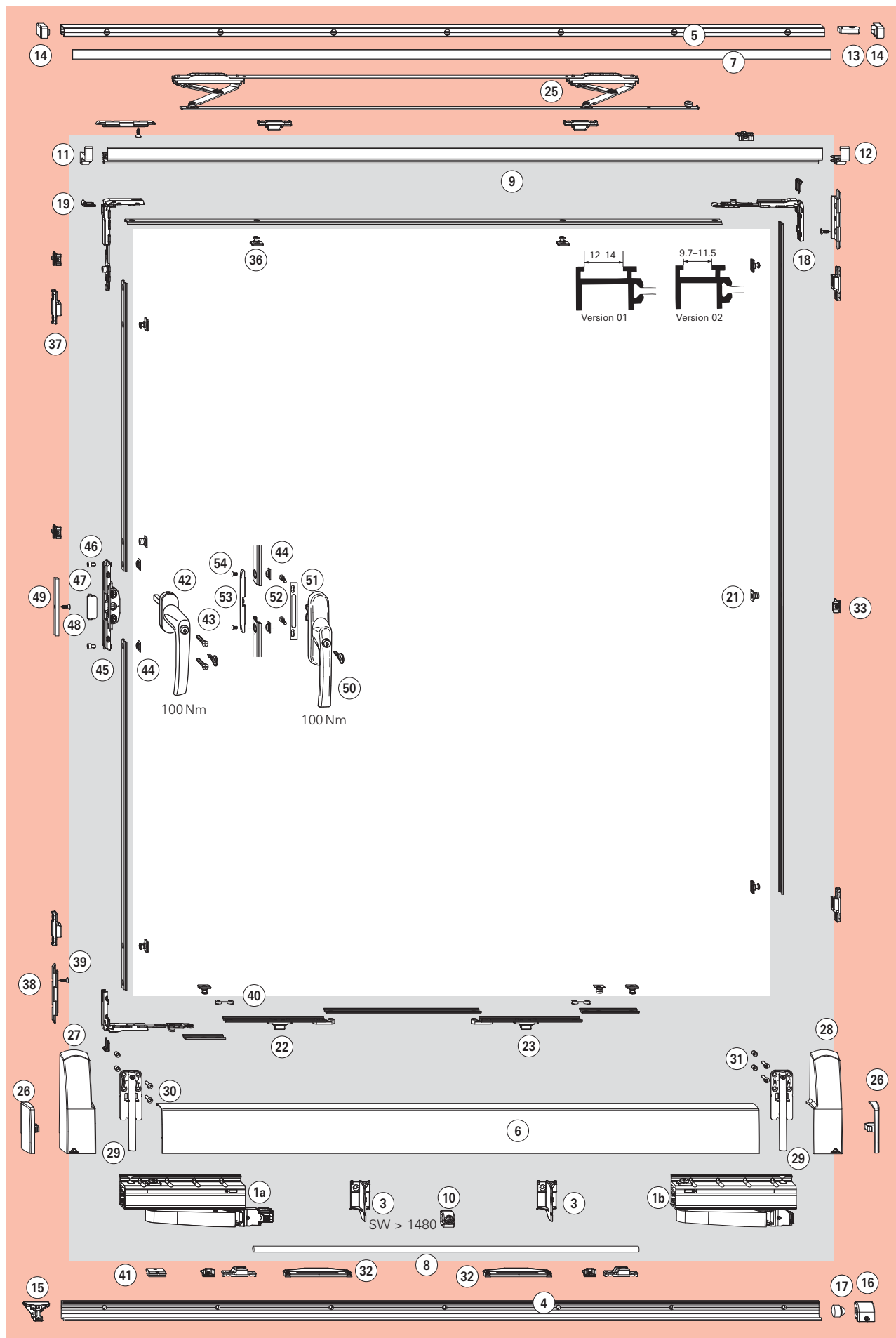
㊷ Flush-encased gearbox → page 49



Hardware overview

Patio 100S/160S Aluminium – RC2

Hardware overview





Application range

Sash width **SW**850 – 1680 mm
 Sash height **SH**930 – 2380 mm
 Sash weight **S.kg**max. 160 kg



Basic carton Patio 100S/160S Aluminium

Patio S Aluminium Basic carton L 625395

Contents:

- ①a 1 leading bogie
- ①b 1 trailing bogie
- ③ 2 cover support brackets
- 12 supporting-pin countersunk tapping-screws
4.8x50 T25 (not dep.)

Patio S Aluminium Basic carton R 625384

Contents:

- ②a 1 leading bogie (not dep.)
- ②b 1 trailing bogie (not dep.)
- ③ 2 cover support brackets
- 12 supporting-pin countersunk tapping-screws
4.8x50 T25 (not dep.)

Track set

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

Non-treated

SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625445
931 – 1080	2230	625450
1081 – 1280	2630	625455
1281 – 1480	3030	625460
1481 – 1680	3430	625465

R01.5 Silver

SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625442
931 – 1080	2230	625447
1081 – 1280	2630	625452
1281 – 1480	3030	625457
1481 – 1680	3430	625462

R05.4 Dark bronze

SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625446
931 – 1080	2230	625451
1081 – 1280	2630	625456
1281 – 1480	3030	625461
1481 – 1680	3430	625466

R06.2 Jet-black

SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625444
931 – 1080	2230	625449
1081 – 1280	2630	625454
1281 – 1480	3030	625459
1481 – 1680	3430	625464

R07.2 Traffic-white

SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625443
931 – 1080	2230	625448
1081 – 1280	2630	625453
1281 – 1480	3030	625458
1481 – 1680	3430	625463

Contents:

Track set:

- ④ 1 roller track*)
- ⑤ 1 guide track*)
- ⑥ 1 cover profile
- ⑦ 1 PVC cover profile
- ⑧ 1 connecting rod
- ⑨ 1 stay-connecting profile
- ⑩ 1 connecting-rod support-block
(additionally included from SW > 1480)

Misc. small components pack:

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

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

Lock S R/L D10 626523

Contents of the misc. small components pack:

- 18 3 corner drives D10
- 19 3 retaining forks
- 21 1 locking cam, insertable

Bullet catch track S 15/20 625484

Contents of the misc. small components pack:

- 22 1 bullet catch track, left
- 23 1 bullet catch track, right

25 Scissors-slider

SW / mm	Material no.
670 – 930	603930
931 – 1280	603931
1281 – 1680	603932

Cover caps

26 Cover caps small (pair) 200Z 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

Cover caps large (pair) 200Z up to 200 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

Contents:

- 27 1 cover cap, left
- 28 1 cover cap, right
- 29 2 reinforcement brackets, adjustable

Misc. small components pack:

- 30 4 countersunk screws M5 x 25 T25
- 31 4 blind rivet nuts M5

Guide strikers

Strikers and guide strikers D10/V.01	625495
Strikers and guide strikers D10/V.02	625497

Contents of the misc. small components pack:

- 32 2 guide strikers
- 33 8 strikers
- 21 3 locking cams, insertable

Profile system assignment → page 55

Guide strikers (spare part)

Guide strikers V.01	625499
Guide strikers V.02	625500

Contents of the misc. small components pack:

- 32 2 guide strikers

Profile system assignment → page 55

for SW > 1280 mm and SH > 1800 mm additionally

Strikers and guide strikers, insertable V.01	625493
Strikers and guide strikers, insertable V.02	625494

Contents of the misc. small components pack:

- 33 10 strikers
- 21 10 locking cams, insertable

Profile system assignment → page 55

21 Locking cam, insertable	625491
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Contents of the misc. small components pack:

3 locking cams, insertable

SEC hardware components

Pos.	Pieces	Description	Material no.
36	8-12	SEC locking cam, insertable, RC2	447245
37	8-12	SEC striker V.01	212637
	8-12	SEC striker V.02	212638
38	3	SEC rebate clearance reduction	447112
39	3	Screw M4.8 x 16	212754
40	2	SEC coupler component	348576
41	1	Run-up wedge V.01	212762
	1	Run-up wedge V.02	212512

SEC handles

Pos.	Pieces	Description	Material no.
42	1	RotoLine window handle, lockable	→ p. 48
43	2	Countersunk screw (stainless steel) M3x30	212501
44	2	SEC connector	447113
45	1	SEC flush-encased gearbox	457210
46	2	Cylinder screw M5 x 6	335249
47	1	SEC drilling protection	487406
48	1	Screw M4.8 x 16	212754
49	1	SEC rebate clearance reduction	334360
50	1	RotoLine geared-handle 26, lockable	→ p. 46
51	1	Geared-handle support	331937
52	2	Flat-headed screw M5 x 12	212500
53	1	SEC geared-handle protection	487407
54	2	Countersunk screw M5 x 10	210970
44	2	SEC connector	447113

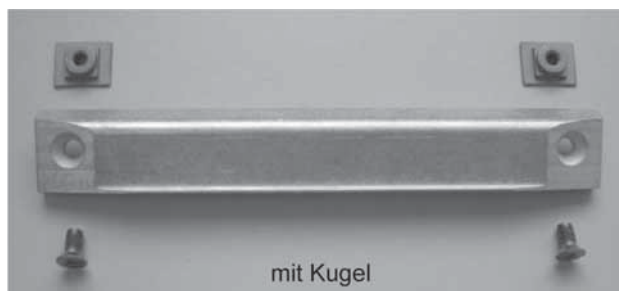


Security sets

Pos.	Pieces	Description	PQ	Material no.
		SEC flush-encased gearbox set	10	457209

Contents of the misc. small components pack:

④5	1	SEC flush-encased gearbox		
④4	2	SEC connector		
④9	1	SEC rebate clearance reduction		
④6	2	Countersunk screw M5 x 6, blue		
④8	1	Screw M4.8 x 16		
④7	1	SEC drilling protection flush-encased gearbox		



Pos.	Pieces	Description	PQ	Material no.
		SEC geared-handle protection set	10	485768

Contents of the misc. small components pack:

⑤3	1	SEC geared-handle protection		
④4	2	SEC connector		
⑤4	2	Countersunk screw M5 x 10, blue		



Pos.	Pieces	Description	PQ	Material no.
		SEC rebate clearance reduction corner drive set	10	335247

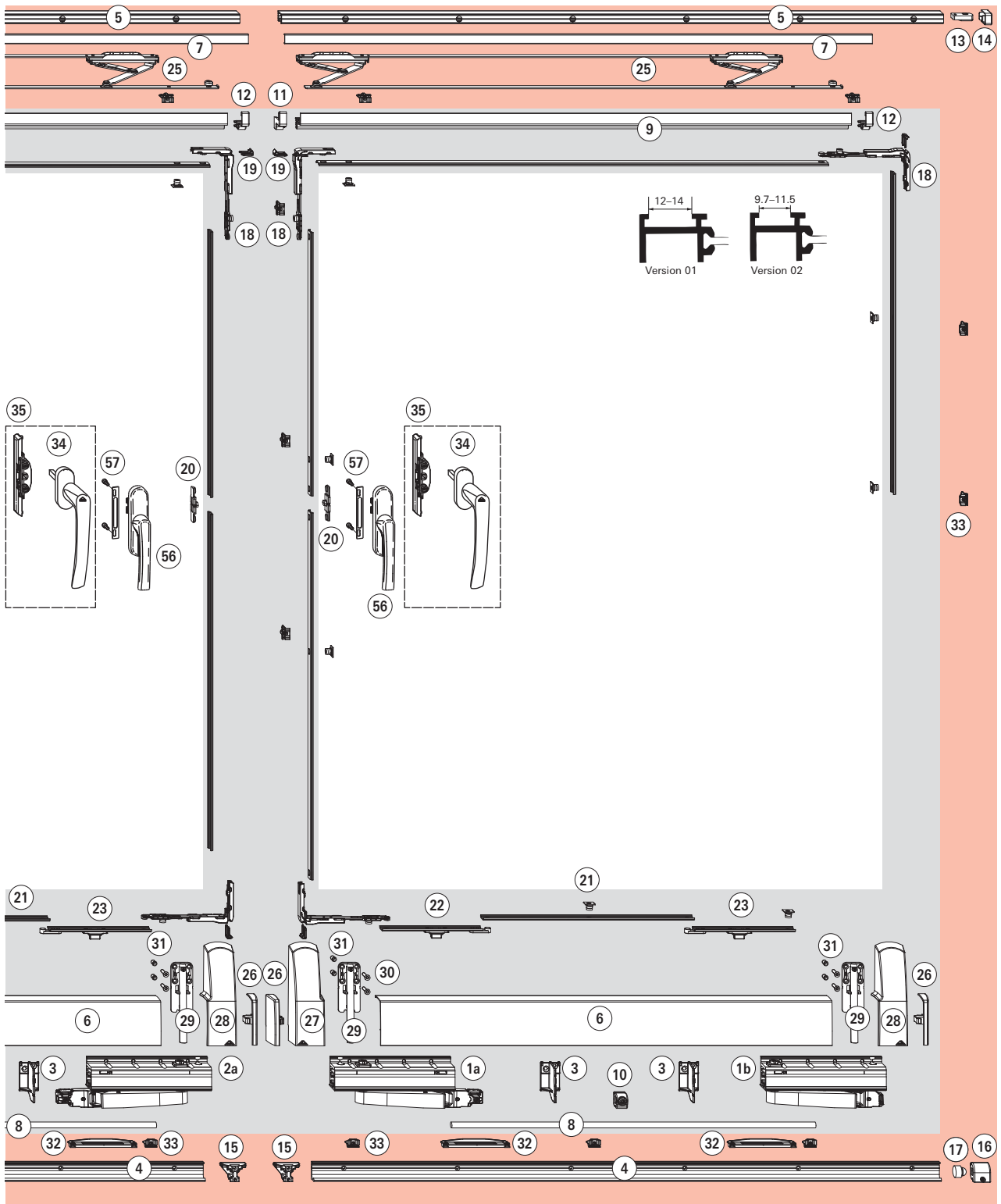
Contents of the misc. small components pack:

③8	1	SEC rebate clearance reduction corner drive		
③9	1	Screw M4.8 x 16		

Hardware overview

Patio 100S/160S Aluminium – 2-sashed

Hardware overview D10





Application range

Sash width **SW** 670 – 1680 mm

Sash height **SH** 930 – 2380 mm

Sash weight **S.kg** max. 160 kg

Basic carton Patio 100S / 160S Aluminium, 1 piece per sash	
Patio S Aluminium Basic carton	L 625395
Contents:	
①a	1 leading bogie
①b	1 trailing bogie
③	2 cover support brackets
	12 supporting-pin countersunk tapping-screws 4.8x50 T25 (not dep.)

Patio S Aluminium Basic carton	
	R 625384
Contents:	
②a	1 leading bogie (not dep.)
②b	1 trailing bogie (not dep.)
③	2 cover support brackets
	12 supporting-pin countersunk tapping-screws 4.8x50 T25 (not dep.)

Track set, 1 piece per sash

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

Non-treated		
SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625445
931 – 1080	2230	625450
1081 – 1280	2630	625455
1281 – 1480	3030	625460
1481 – 1680	3430	625465

R01.5 Silver		
SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625442
931 – 1080	2230	625447
1081 – 1280	2630	625452
1281 – 1480	3030	625457
1481 – 1680	3430	625462

R05.4 Dark bronze		
SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625446
931 – 1080	2230	625451
1081 – 1280	2630	625456
1281 – 1480	3030	625461
1481 – 1680	3430	625466

R06.2 Jet-black		
SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625444
931 – 1080	2230	625449
1081 – 1280	2630	625454
1281 – 1480	3030	625459
1481 – 1680	3430	625464

R07.2 Traffic-white		
SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625443
931 – 1080	2230	625448
1081 – 1280	2630	625453
1281 – 1480	3030	625458
1481 – 1680	3430	625463

Contents:

Track set:	
④	1 roller track*)
⑤	1 guide track*)
⑥	1 cover profile
⑦	1 PVC cover profile
⑧	1 connecting rod
⑨	1 stay-connecting profile
⑩	1 connecting-rod support-block (additionally included from SW > 1480)

Misc. small components pack:	
⑪	1 cover cap for stay-connecting profile, left
⑫	1 cover cap for stay-connecting profile, right
⑬	1 buffer stop, top
⑭	2 cover caps guide track
⑮	1 guide block
⑯	1 buffer stop, bottom
⑰	1 rubber buffer stop, bottom
	10 pan-head tapping screws 3.9x9.5 T15 (not dep.)
	40 supporting-pin countersunk tapping-screws 3.9x9.5 T15 (not dep.)

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



Lock S R/L D10 1 piece per sash 626523

Contents of the misc. small components pack:

- ⑱ 3 corner drives D10
- ⑲ 3 retaining forks
- ⑳ 1 locking cam, insertable

Bullet catch track S 15/20 D10, 1 piece per sash 625484

Contents of the misc. small components pack:

- ㉒ 1 bullet catch track, left
- ㉓ 1 bullet catch track, right

㉔ Scissors-slider, 1 piece per sash

SW / mm	Material no.
670 – 930	603930
931 – 1280	603931
1281 – 1680	603932

Cover caps, 1 pair per sash

㉖ 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

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

Contents:

- ㉗ 1 cover cap, left
- ㉘ 1 cover cap, right
- ㉙ 2 reinforcement brackets, adjustable

Misc. small components pack:

- ㉚ 4 countersunk screws M5 x 25 T25
- ㉛ 4 blind rivet nuts M5

Misc. small components pack, 1 pair per sash

Strikers and guide strikers D10/V.01 625495

Strikers and guide strikers D10/V.02 625497

Contents of the misc. small components pack:

- ㉜ 2 guide strikers
- ㉝ 8 strikers
- ㉞ 3 locking cams, insertable

Profile system assignment → page 55

Guide strikers (spare part)

Guide strikers V.01 625499

Guide strikers V.02 625500

Contents of the misc. small components pack:

- ㉟ 2 guide strikers

Profile system assignment → page 55

for SW > 1280 mm and SH > 1800 mm additionally

Strikers and guide strikers, insertable V.01 625493

Strikers and guide strikers, insertable V.02 625494

Contents of the misc. small components pack:

- ㉟ 10 strikers
- ㊱ 10 locking cams, insertable

Profile system assignment → page 55

㊲ Locking cam, insertable 625491

Contents of the misc. small components pack:

3 locking cams, insertable

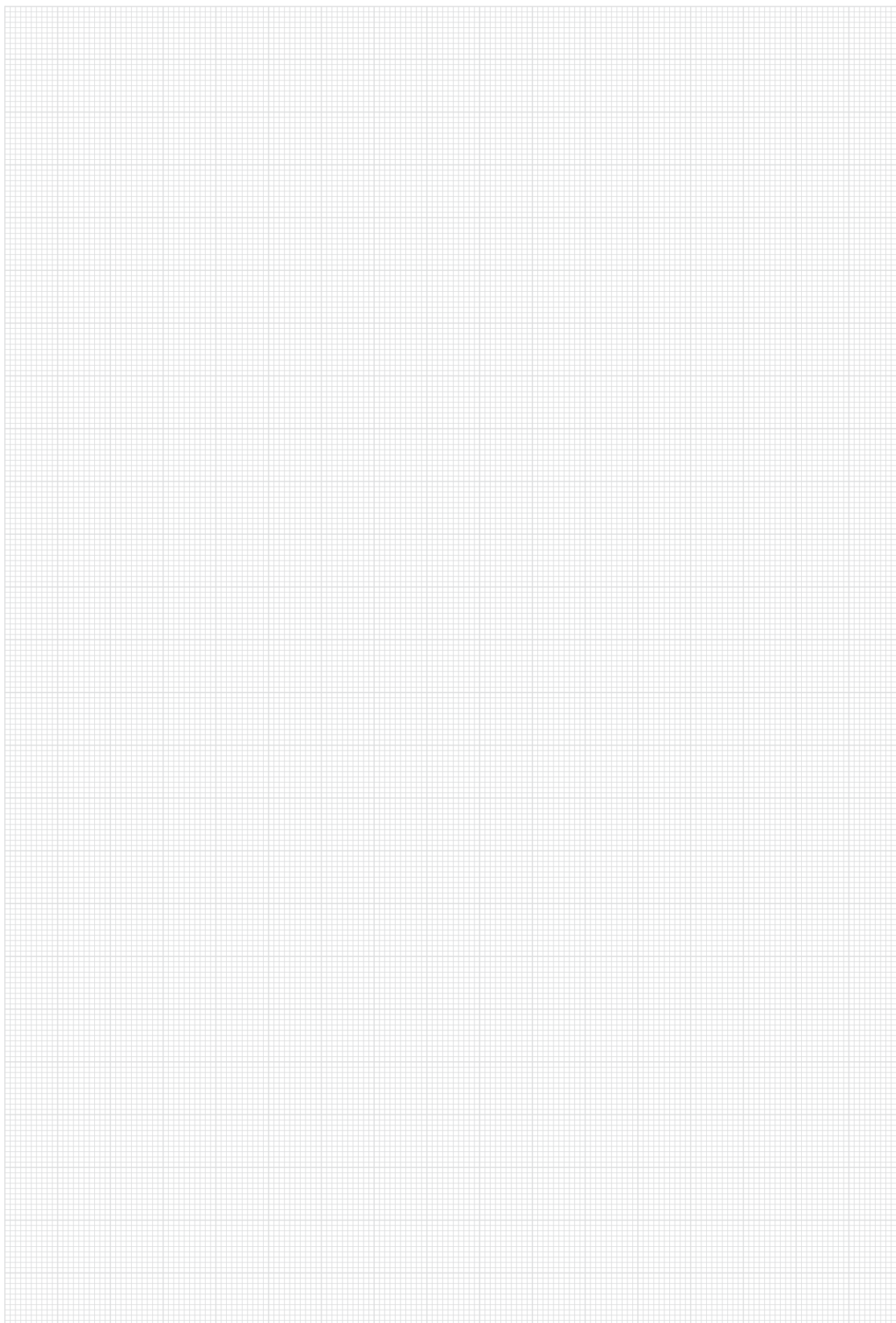
㊳ RotoLine geared-handle → page 44

㊴ Connector sets and accessories → page 45

㊵

㊶ Handles → page 46

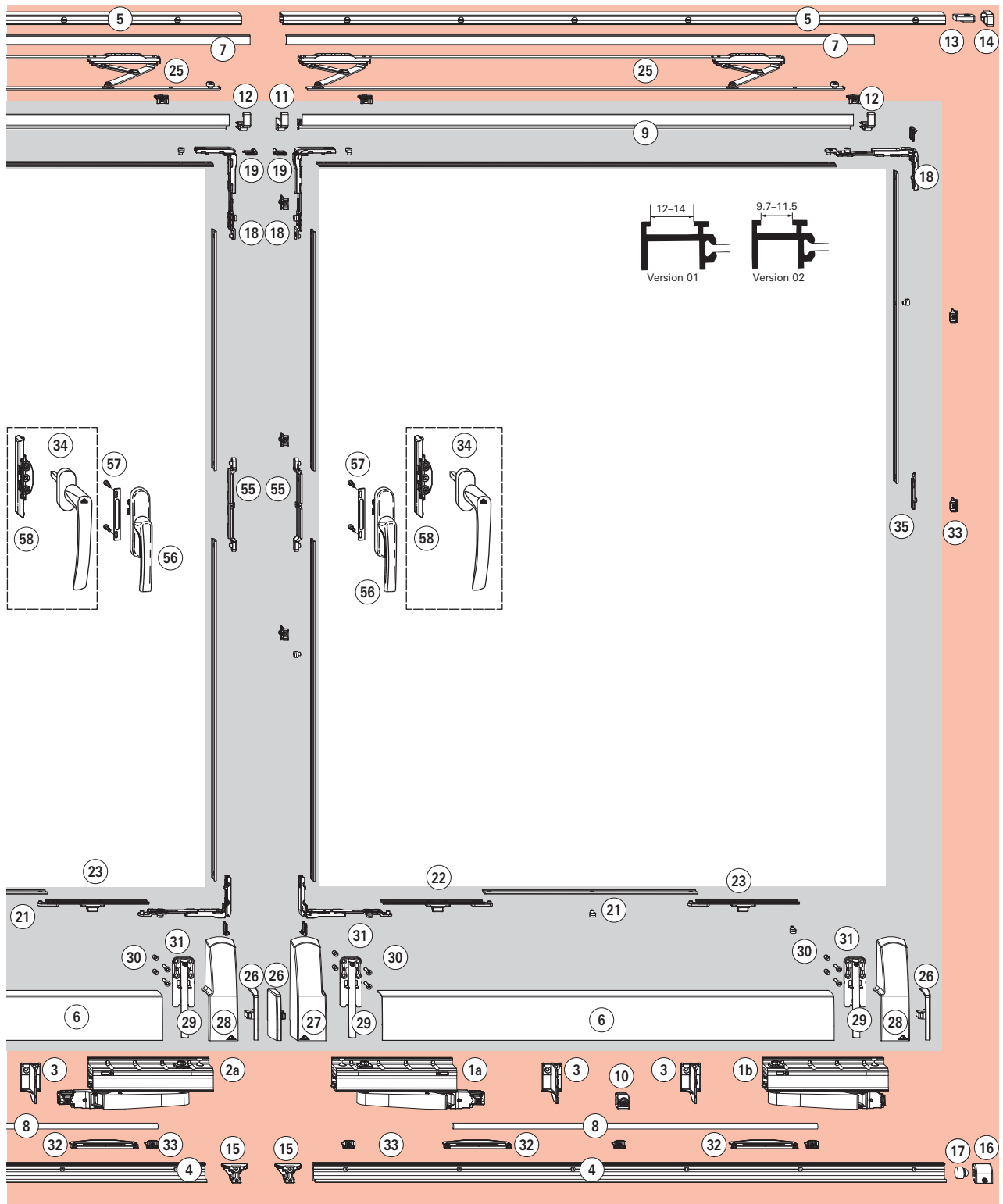
㊷ Flush-encased gearbox → page 49



Hardware overview

Patio 100S/160S Aluminium – 2-sashed

Hardware overview D6





Application range

Sash width **SW** 670 – 1680 mm

Sash height **SH** 930 – 2380 mm

Sash weight **S.kg** max. 160 kg

Basic carton Patio 100S/160S Aluminium, 1 piece per sash

Patio S Aluminium Basic carton L 625395

Contents:

- ①a 1 leading bogie
- ①b 1 trailing bogie
- ③ 2 cover support brackets
- 12 supporting-pin countersunk tapping-screws
4.8x50 T25 (not dep.)

Patio S Aluminium Basic carton R 625384

Contents:

- ②a 1 leading bogie (not dep.)
- ②b 1 trailing bogie (not dep.)
- ③ 2 cover support brackets
- 12 supporting-pin countersunk tapping-screws
4.8x50 T25 (not dep.)

Track set, 1 piece per sash

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

Non-treated

SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625445
931 – 1080	2230	625450
1081 – 1280	2630	625455
1281 – 1480	3030	625460
1481 – 1680	3430	625465

R01.5 Silver

SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625442
931 – 1080	2230	625447
1081 – 1280	2630	625452
1281 – 1480	3030	625457
1481 – 1680	3430	625462

R05.4 Dark bronze

SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625446
931 – 1080	2230	625451
1081 – 1280	2630	625456
1281 – 1480	3030	625461
1481 – 1680	3430	625466

R06.2 Jet-black

SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625444
931 – 1080	2230	625449
1081 – 1280	2630	625454
1281 – 1480	3030	625459
1481 – 1680	3430	625464

R07.2 Traffic-white

SW / mm	Frame external width (FEW) / mm	Material no.
670 – 930	1930	625443
931 – 1080	2230	625448
1081 – 1280	2630	625453
1281 – 1480	3030	625458
1481 – 1680	3430	625463

Contents:

Track set:

- ④ 1 roller track*)
- ⑤ 1 guide track*)
- ⑥ 1 cover profile
- ⑦ 1 PVC cover profile
- ⑧ 1 connecting rod
- ⑨ 1 stay-connecting profile
- ⑩ 1 connecting-rod support-block
(additionally included from SW > 1480)

Misc. small components pack:

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

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

Lock S R/L D6 1 piece per sash 626522

Contents of the misc. small components pack:

- ⑱ 3 corner drives D6
- ⑲ 3 retaining forks
- ⑳ 1 locking cam 67

Bullet catch track S 15/20 D6, 1 piece per sash 625485

Contents of the misc. small components pack:

- ㉒ 1 bullet catch track, left
- ㉓ 1 bullet catch track, right

㉔ Scissors-slider, 1 piece per sash

SW / mm	Material no.
670 – 930	603930
931 – 1280	603931
1281 – 1680	603932

Cover caps, 1 pair per sash

㉖ 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

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

Contents:

- ㉗ 1 cover cap, left
- ㉘ 1 cover cap, right
- ㉙ 2 reinforcement brackets, adjustable

Misc. small components pack:

- ㉚ 4 countersunk screws M5 x 25 T25
- ㉛ 4 blind rivet nuts M5

Misc. small components pack, 1 pair per sash

Strikers and guide strikers D6/V.01 625496

Strikers and guide strikers D6/V.02 625498

Contents of the misc. small components pack:

- ㉜ 2 guide strikers
- ㉝ 8 strikers
- ㉞ 3 CL cams

Profile system assignment → page 55

Guide strikers (spare part)

Guide strikers V.01 625499

Guide strikers V.02 625500

Contents of the misc. small components pack:

- ㉟ 2 guide strikers

Profile system assignment → page 55

for SW > 1280 mm and SH > 1800 mm additionally

Strikers and CL cams V.01 625800

Strikers and CL cams V.02 625801

Contents of the misc. small components pack:

- ㉟ 10 strikers
- ㊱ 10 CL cams

Profile system assignment → page 55

㊲ CL cam 625492

Contents of the misc. small components pack:

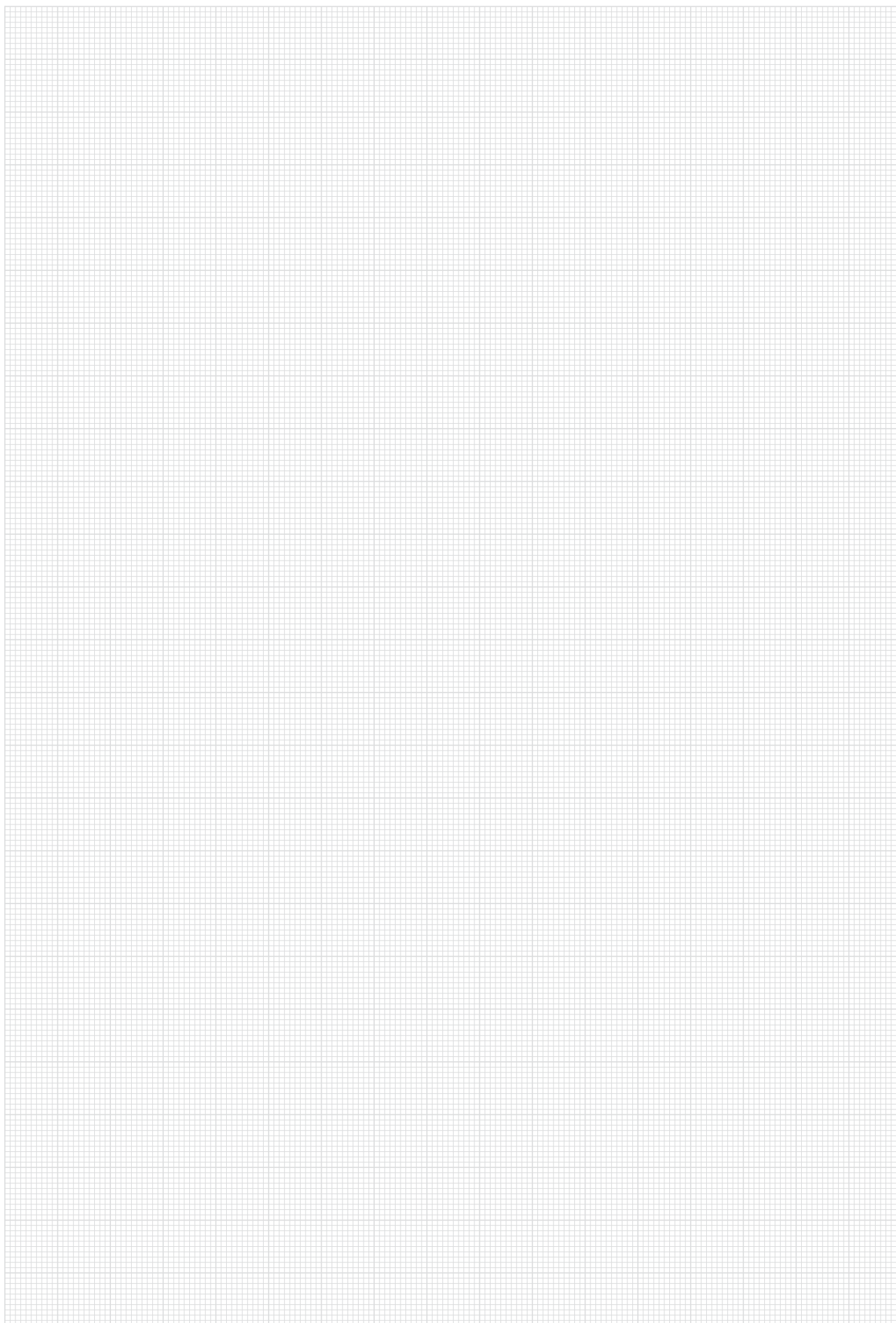
3 CL cams

㊳ RotoLine geared-handle → page 44

㊴ Connector sets and accessories → page 45

㊵ Handles → page 46

㊶ Flush-encased gearbox → page 49





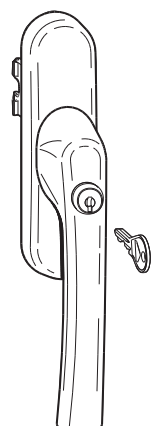
56 RotoLine geared-handle 26, with Roto logo

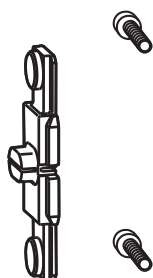
Roto colour no.	Colour	PQ	Material no.
R01.5	Silver	10	377474
R05.4	Dark bronze	10	377478
R06.2M	Jet-black, matt	10	377475
R07.2	Traffic-white	10	377477



50 RotoLine geared-handle 26, lockable, with Roto logo

Roto colour no.	Colour	PQ	Material no.
R01.5	Silver	10	378843
R05.4	Dark bronze	10	378917
R06.2M	Jet-black, matt	10	378844
R07.2	Traffic-white	10	378916



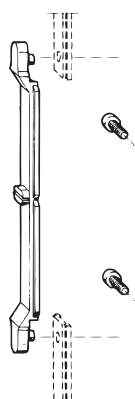


20 Connector set for RotoLine geared-handle

Component description	PQ	Material no.
Connector set D10 AluVision contains T connector and 2 screws	10	335184

Connector set bulk packaging, parts list

Component description	PQ	Material no.
T connector	100	334754
Flat-headed screw M5 x 12	100	212500

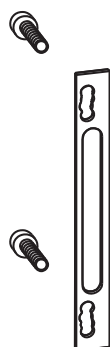


55 Connector set D6

Component description	PQ	Material no.
Connector set D6	10	490536

Connector set bulk packaging, parts list

Component description	PQ	Material no.
T connector	100	211999
Flat-headed screw M5 x 12	100	212500

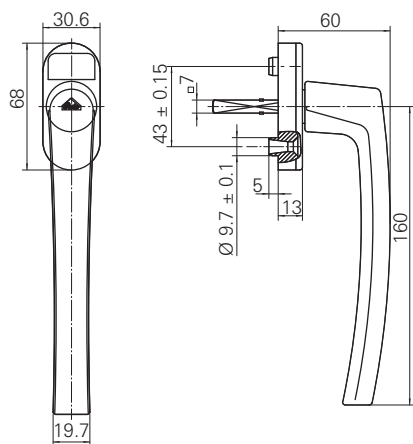


57 Espag. Accessories set AluVision

Component description	PQ	Material no.
Geared-handle support and 2 screws	10	335002

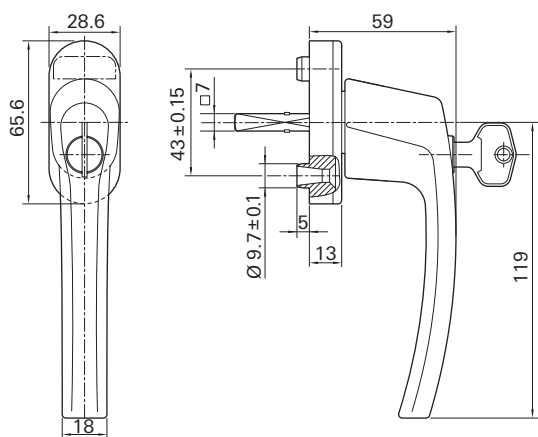
Espag. Connector set bulk packaging, parts list

Component description	PQ	Material no.
Geared-handle support	100	331937
Flat-headed screw M5 x 12	100	212500



34 RotoLine window handle Patio S with Roto logo
35 mm spindle length

Roto colour no.	Colour	PQ	Material no.
R 01.5	Silver	20	623491
R 05.4	Dark bronze	20	288727
R 06.2M	Jet-black, matt	20	626524
R 07.2	Traffic-white	20	211596



42 RotoLine window handle 100Nm, lockable, keyed-alike locking, turn cylinder, spindle length 35 mm, with Ø 10 mm lugs, including 1 nickel-plated turn-key – with Roto logo

Roto colour no.	Colour	PQ	Material no.
R 01.5	Silver	20	626525
R 05.4	Dark bronze	20	626526
R 06.2M	Jet-black, matt	20	626527
R 07.2	Traffic-white	20	333981

Replacement key 1G1 **257830**

Additional components for RotoLine handles

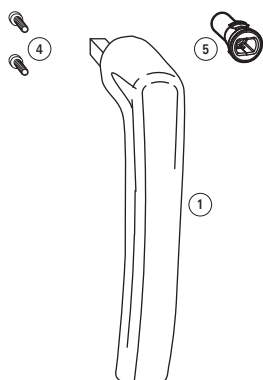
Component description	PQ	Material no.
Countersunk screws (stainless steel) M5x30	100	212501



NOTE!

RotoLine window handles for flush-encased gearboxes can be found in the handle catalogue BK 5 EN.

Depending on the profile, the spindle of 35 mm must be shortened to a spindle length of 26-3 mm.

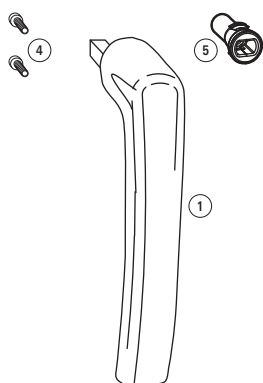


RotoLine escutcheonless handle

Pcs	Colour description	Colour	PQ	Material no.
①	Silver	R01.5	10	377908
	Jet-black	R06.2	10	377909
	Traffic-white	R07.2	10	377911
	Dark bronze	R05.4	10	377912
	Special colour	SP COL	10	377913

Packaging contains:

- ④ 2 Screws for escutcheonless handle
- ⑤ 1 Transport protection



RotoLine escutcheonless handle, lockable

Pcs	Colour description	Colour	PQ	Material no.
①	Silver	R01.5	10	377914
	Jet-black	R06.2	10	377915
	Traffic-white	R07.2	10	377917
	Dark bronze	R05.4	10	377918
	Special colour	SP COL	10	377919

Packaging contains:

- ④ 2 Screws for escutcheonless handle
- ⑤ 1 Transport protection



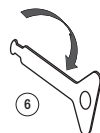
Ring for escutcheonless handle

Pcs	Colour description	Colour	PQ	Material no.
②	Silver	R01.5	10	377979
	Jet-black	R06.2	10	377980
	Traffic-white	R07.2	10	377982
	Dark bronze	R05.4	10	377983
	Special colour	SP COL	10	377984



Mounting plate AluVision

Pcs	Component description	Colour	PQ	Material no.
③	Mounting plate escutcheonless handle	–	10	378134



Pull keys

Pcs	Component description	Colour	PQ	Material no.
⑥	Pull key for escutcheonless handle	–	10	377995

for removing the transport protection

RotoLine Door handle sets

Escutcheon-cover version



Inside



Outside

55 RotoLine Door handle set for inside and outside operation
– low handle depth for roller shutter outside

Roto colour no.	Colour	PQ	Material no.
R 01.5	Silver	20	629813
R 05.4	Dark bronze	20	629814
R 06.2M	Jet-black, matt	20	629815
R 07.2	Traffic-white	20	601729

Window handle 43 mm hole distance, 114 mm length

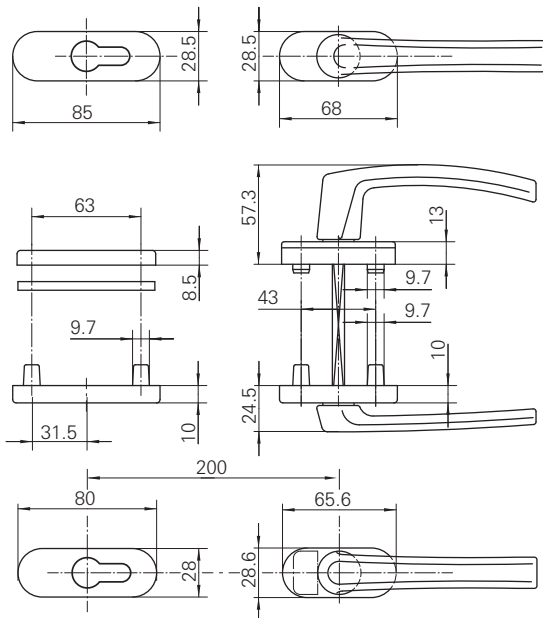
Outside	30 mm high, with threaded insert
Inside	58 mm high, with Ø10 mm lugs

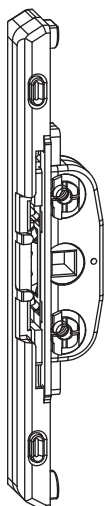
Escutcheon cover 63 mm hole distance, 31.5 mm PC distance

outside	Security escutcheon cover, punched PC, with Ø10 mm screw-fixing lugs
inside	Standard escutcheon cover, punched PC, without lugs

Fastening bolts M5x110 with notches for door-leaf thicknesses of 56–96 mm

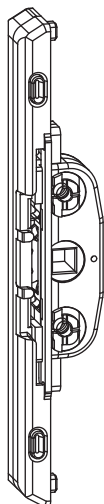
Spindle Spindle length 127 mm, for door-leaf thickness up to 96 mm included.





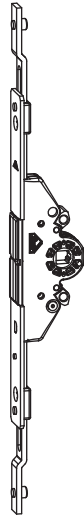
35 Flush-encased gearbox without mishandling device for window handles with 24 mm spindle length / 10 mm lugs

Component description	PQ	Material no.
Flush-encased gearbox w/o M.D. AluVision	10	378338



58 Flush-encased gearbox without mishandling device for window handles with 24 mm spindle length / 6 mm lugs

Component description	PQ	Material no.
Flush-encased gearbox w/o M.D. AluVision	10	377446

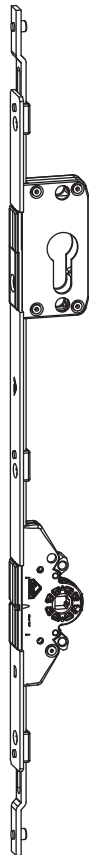


Flush-encased gearbox without profile cylinder

Backset	Cam Ø mm	Material no.
25	6	625426
30	6	625427
35	6	625428
40	6	625429

Flush-encased gearbox without profile cylinder (not dep.)

Backset	Cam Ø mm	Material no.
25	10	625430
30	10	625431
35	10	625432
40	10	625433

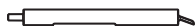


Flush-encased gearbox with profile cylinder

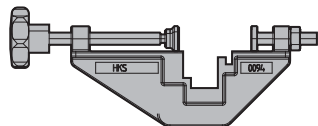
Backset	Cam Ø mm	Material no.
25	6	625434
30	6	625435
35	6	625436
40	6	625437

Flush-encased gearbox with profile cylinder (not dep.)

Backset	Cam Ø mm	Material no.
25	10	625438
30	10	625439
35	10	625440
40	10	625441



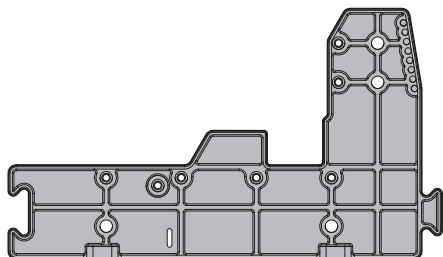
Slider-release device 562759



Jig for roller track and guide track 563967



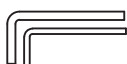
Drilling aid for roller track and guide track 207583



Drilling jig for bogie 563968



Jig for guide block 563969

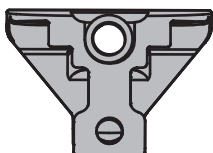


Torx key T10 625172

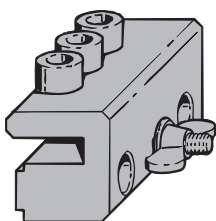
Torx key T15 625173

Torx key T25 563971

Torx key T40 563970

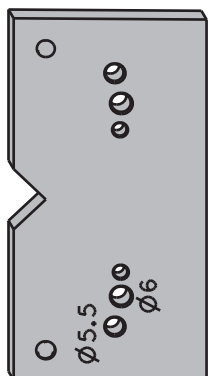


Drilling jig for guide block, adjustable 566970



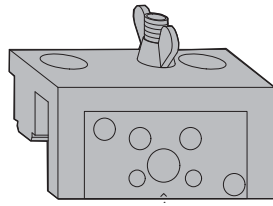
Jigs

Component description	PQ	Material no.
Jig for flush-encased gearbox	1	212155



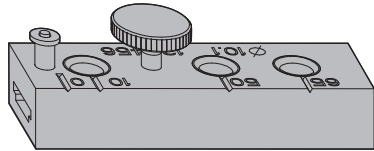
Jigs

Component description	PQ	Material no.
Connector sets for RotoLine geared-handle	1	333473



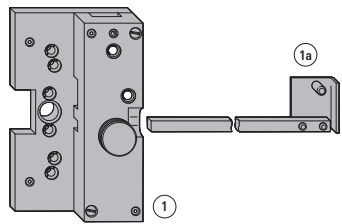
Jigs

Component description	PQ	Material no.
Jig for flush-encased gearbox and escutcheonless handle	1	365361



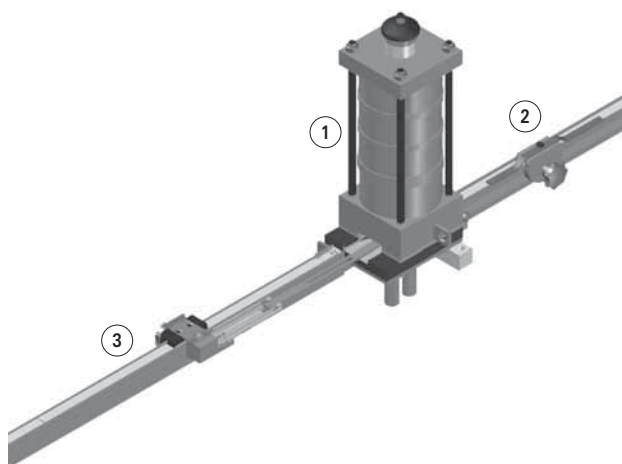
Jigs

Component description	PQ	Material no.
Jig for connecting-rod Ø 10 mm	1	333472



Jigs

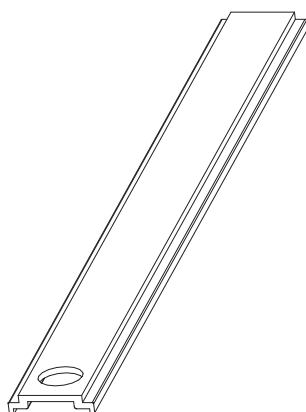
Component description	PQ	Material no.
1 Jig for gearbox and connecting-rod Ø 10 mm	1	212544
1a Jig for connecting-rod Ø 6 mm	1	212573



Croppers

Pos.	Component description	PQ	Material no.
①	'Comfort' cropper PS4 G Ø 10 mm	1	350309
②	Standard linear ruler	1	350314
③	Linear ruler for sash stay 370 / 390	1	383867

Pneumatic cropper for cropping and hole-stamping the connecting-rod.



Connecting-rod

Component description	PQ	Material no.
AluVision connecting-rod specific connecting-rod profile	6 m	334665

Description	Colour	Comment	Length in mm	Material no.
Tracks				
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				
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				
Guide track	R01.5	Silver	6070	217140
Cover profiles				
Aluminium cover profile				
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				
PVC cover profile	R01.5	Silver	6080	625482
PVC cover profile	R06.2	Jet-black	6080	217167
PVC cover profile	R07.2	Traffic-white	6080	562780
Connecting rod				
Connecting rod			3600	217057
Guide block, slidable (jig 566970 required)				
Guide block, slidable	R01.5	Silver	6070	563558
Connecting-rod support-block				
Connecting-rod support-block				625483



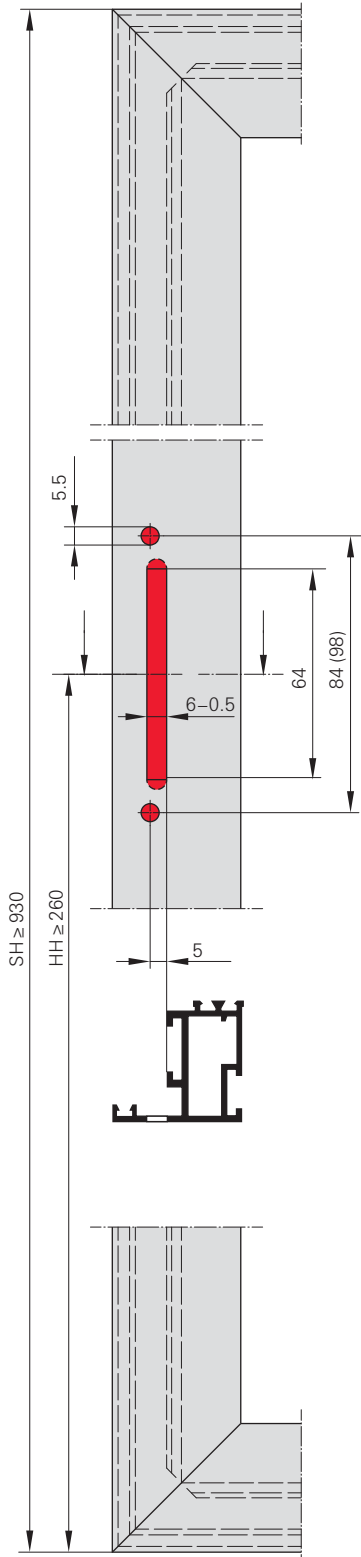
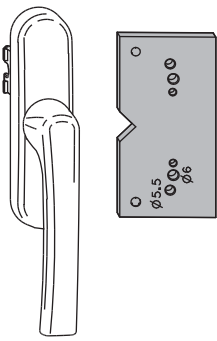
Profile system	Series	Frame groove in mm	Strikers and guide strikers		Supporting-pin guide strikers for external lock	Strikers and locking cams	
			D10	D6		D10	D6
Akotherm	AT 720/730-740	12	625495	625496	625499	625493	625800
Alcan	TC 2000	12	625495	625496	625499	625493	625800
Aliplast	Imperial Serie 800	12	625495	625496	625499	625493	625800
Alsec	Serie 3000	14	625495	625496	625499	625493	625800
Alumil	M 11000/11500/11600	14	625495	625496	625499	625493	625800
Alutherm	AT 700/800	14	625495	625496	625499	625493	625800
Bröckelmann	RG 60/75	10	625497	625498	625500	625494	625801
Domal Break	PA 63/70S	14	625495	625496	625499	625493	625800
Eural	65/75/1.0	14	625495	625496	625499	625493	625800
Graute	Therm 90	10	625497	625498	625500	625494	625801
Heroal (sash with groove 15/20)	110 ES	10	625497	625498	625500	625494	625801
	O65	10	625497	625498	625500	625494	625801
Hörmann		14	625495	625496	625499	625493	625800
Kawneer Alcoa	AA 610/630/720 HI	10	625497	625498	625500	625494	625801
Klauke	Softline	14	625495	625496	625499	625493	625800
Kubal	Serie 55/65	10	625497	625498	625500	625494	625801
Metra		12	625495	625496	625499	625493	625800
MKF	TKI 755	12	625495	625496	625499	625493	625800
Reynaers	all CS series	14	625495	625496	625499	625493	625800
SAPA	Avantis 75	14	625495	625496	625499	625493	625800
Sommer		12	625495	625496	625499	625493	625800
Sprangers		14	625495	625496	625499	625493	625800
Sun Flex		10	625497	625498	625500	625494	625801
Sykon	70/70 plus – 75/75 plus	10	625497	625498	625500	625494	625801
Technal	Soleal	10	625497	625498	625500	625494	625801
TSG	S 70/S 70V	10	625497	625498	625500	625494	625801
van Beveren	A/B/R 50	14	625495	625496	625499	625493	625800
Winsol		10	625497	625498	625500	625494	625801
Yawal	TM 77 Hi	14	625495	625496	625499	625493	625800

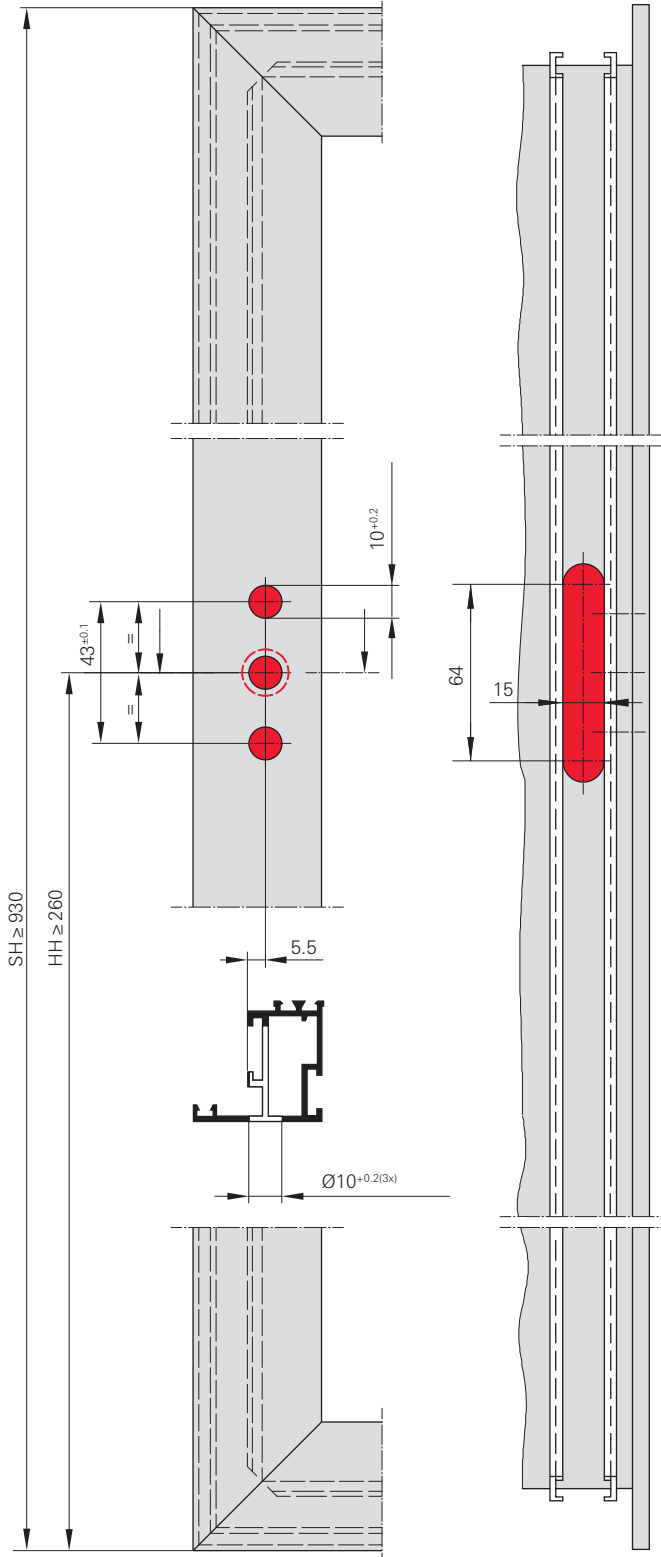
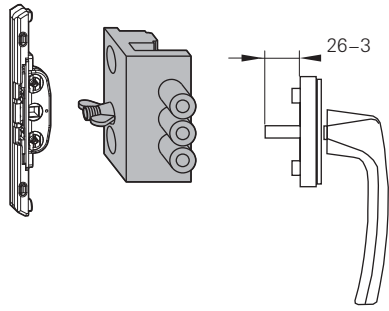
Further profiles are available upon request.

Installation

Drilling dimensions

RotoLine geared-handle 26

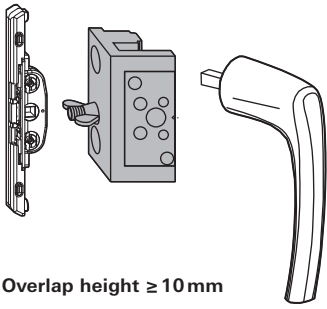




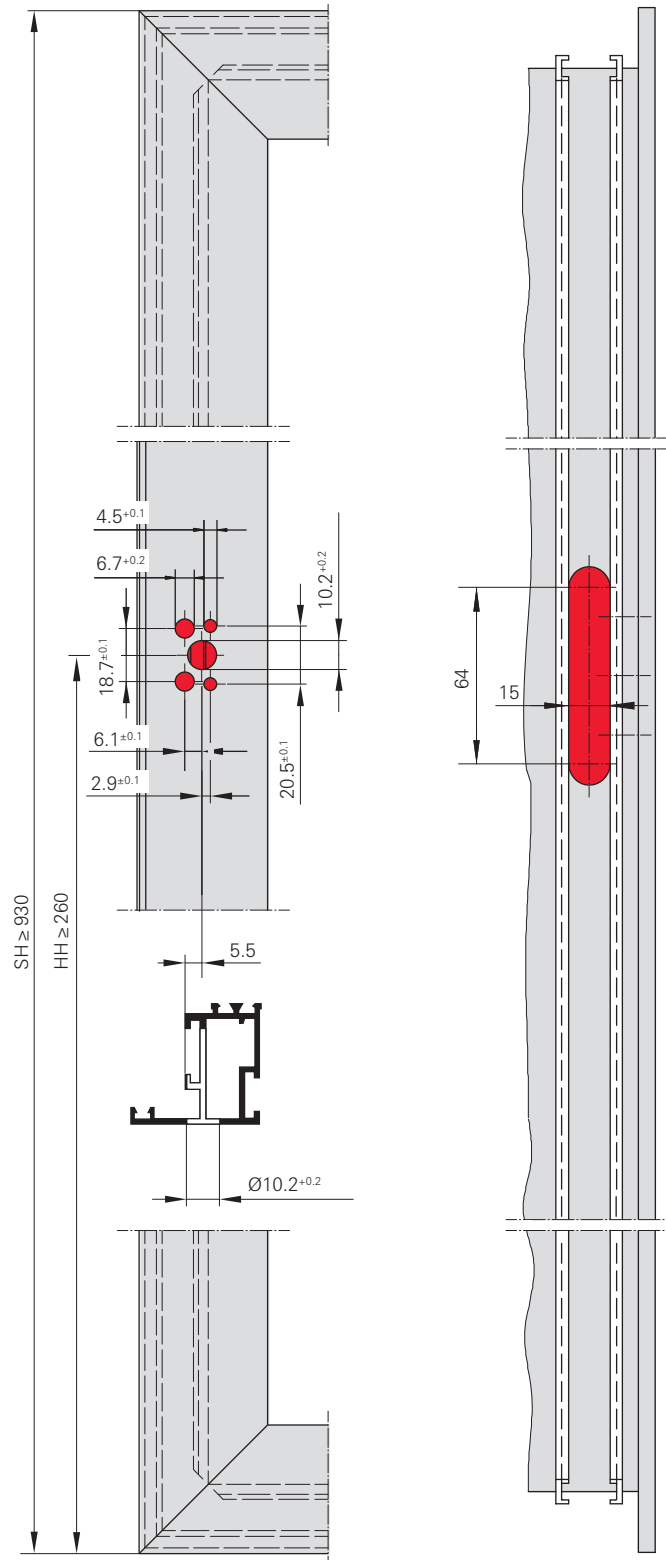
Installation

Drilling dimensions

RotoLine escutcheonless handle



Overlap height ≥ 10 mm

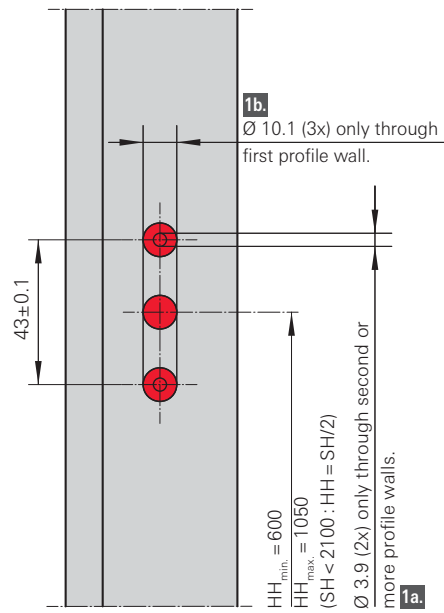




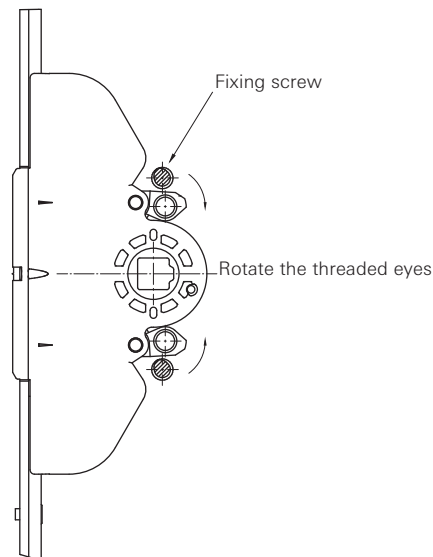
Installation

Handle installation for flush-encased gearbox B25/30/35/40

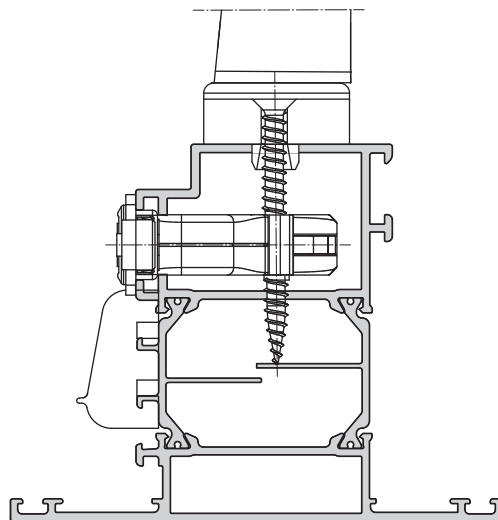
- 1a. \varnothing 3.9 (2x) only through second or more profile walls.
- 1b. \varnothing 10.1 (3x) only through first profile wall.



- 2. Rotate the threaded eyes inward, before you mount the gearbox.
Use a self-tapping screw 3.9x... for mounting the gearbox to the faceplate.

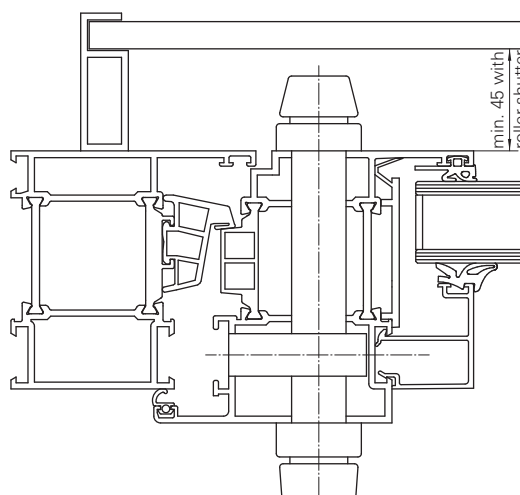
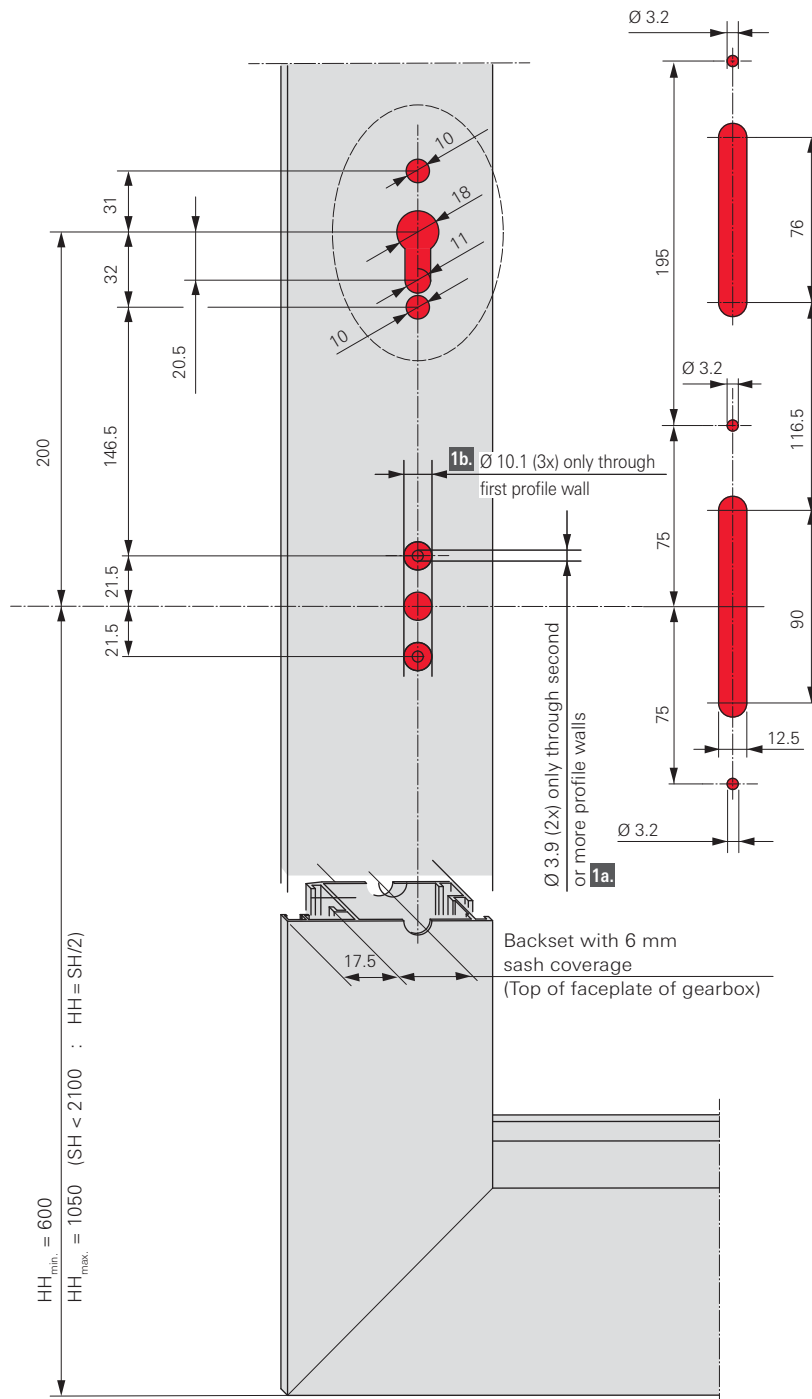


- 3. If necessary, shorten the spindle of the window handle or drill out the second profile wall to \varnothing 10.1 mm. Passing the gearbox, screw-fix the window handle with countersunk tapping-screws 4.8x50 to the second profile wall.





- 1a. Ø 3.9 (2x) only through second or more profile walls.
- 1b. Ø 10.1 (3x) only through first profile wall.

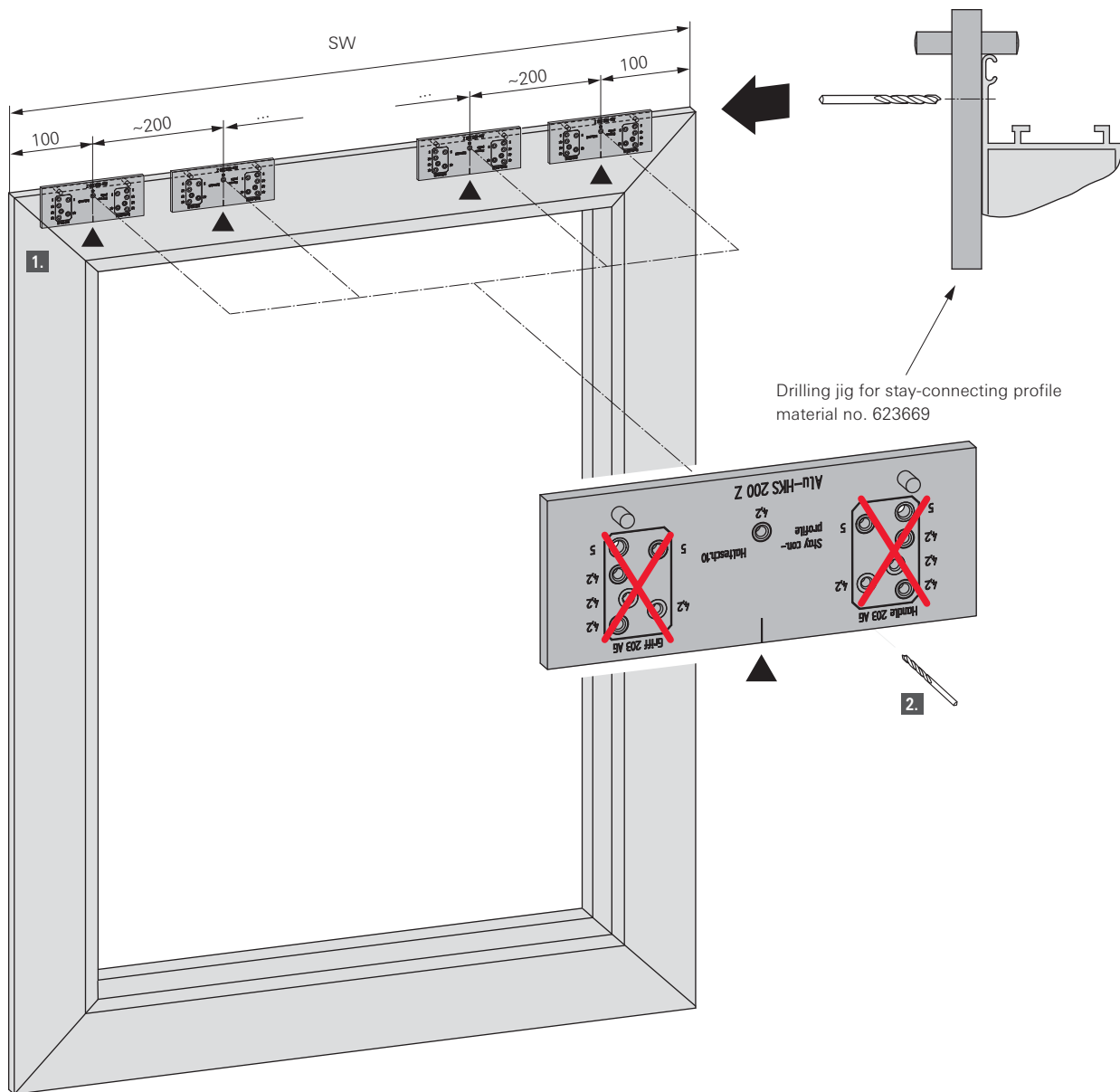


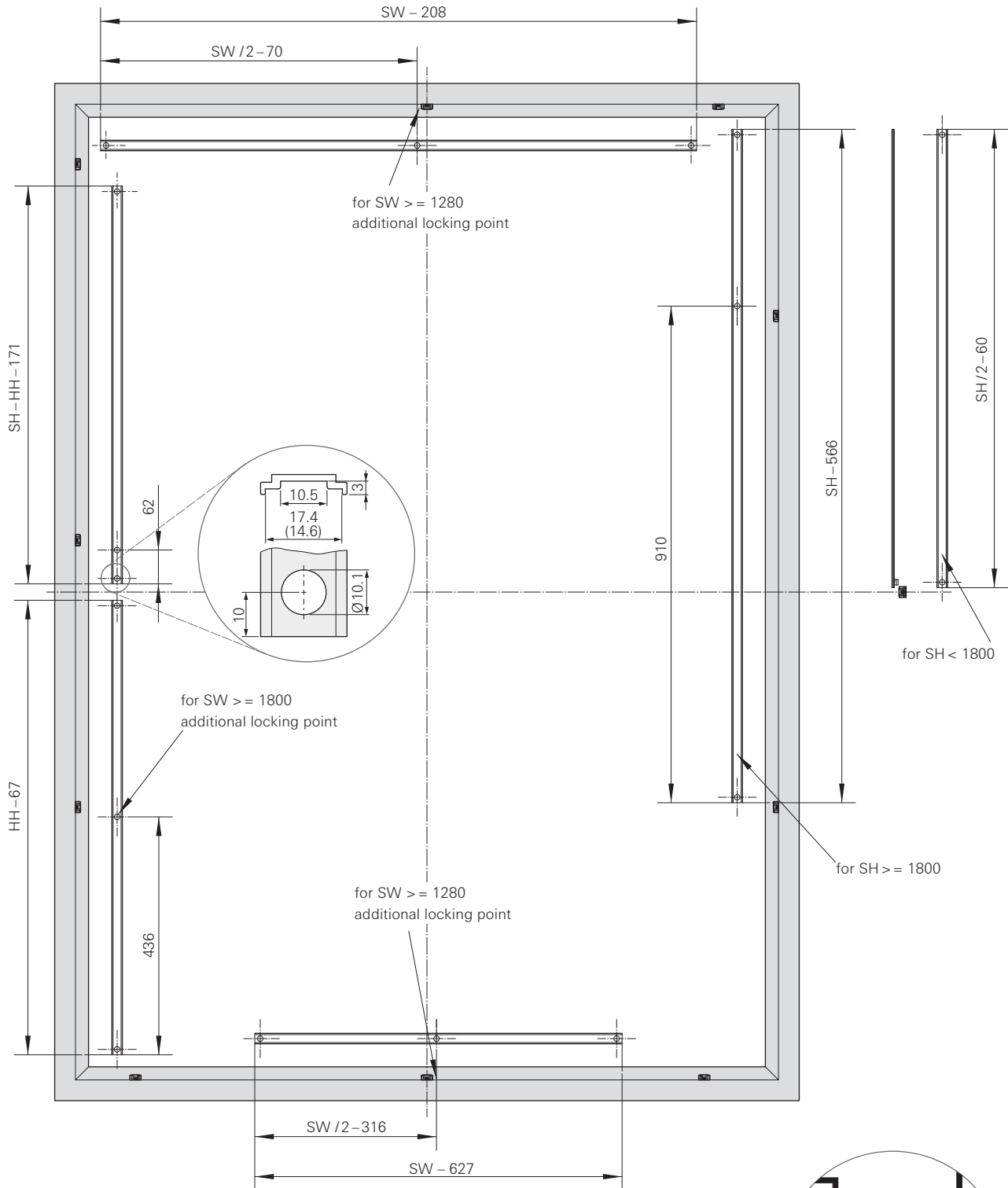
Installation

Drilling the sash drill-holes

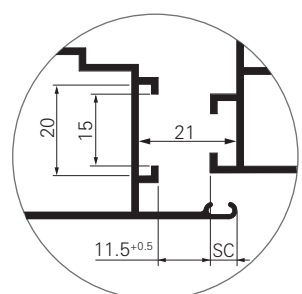
Stay-connecting profile

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.





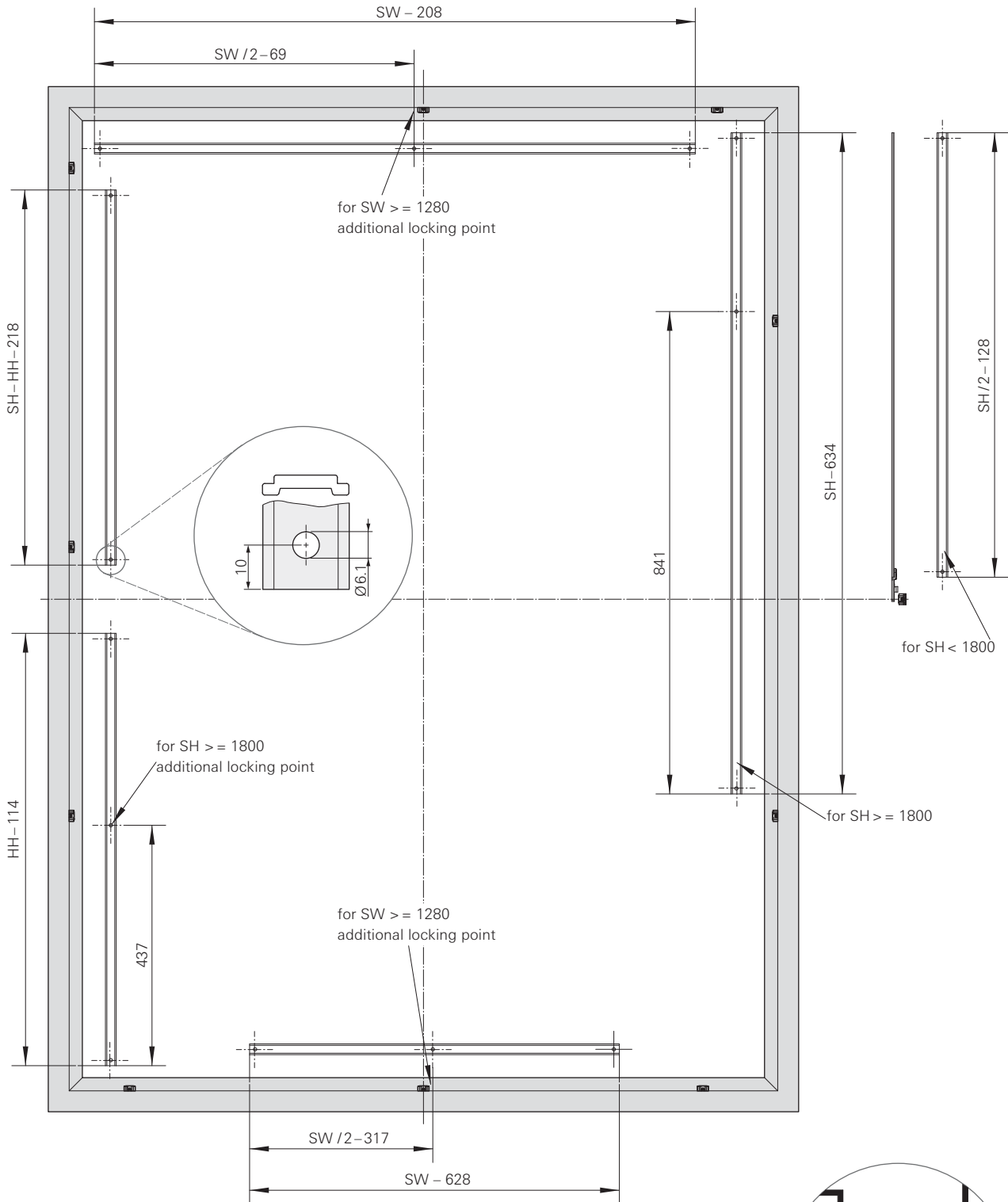
All connecting-rod dimensions only valid for sash coverage (SC) of 6 mm. Upon deviating sash coverage, the connecting-rod dimensions have to be adjusted accordingly.



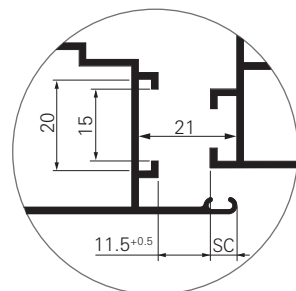
Installation

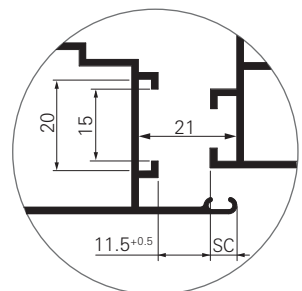
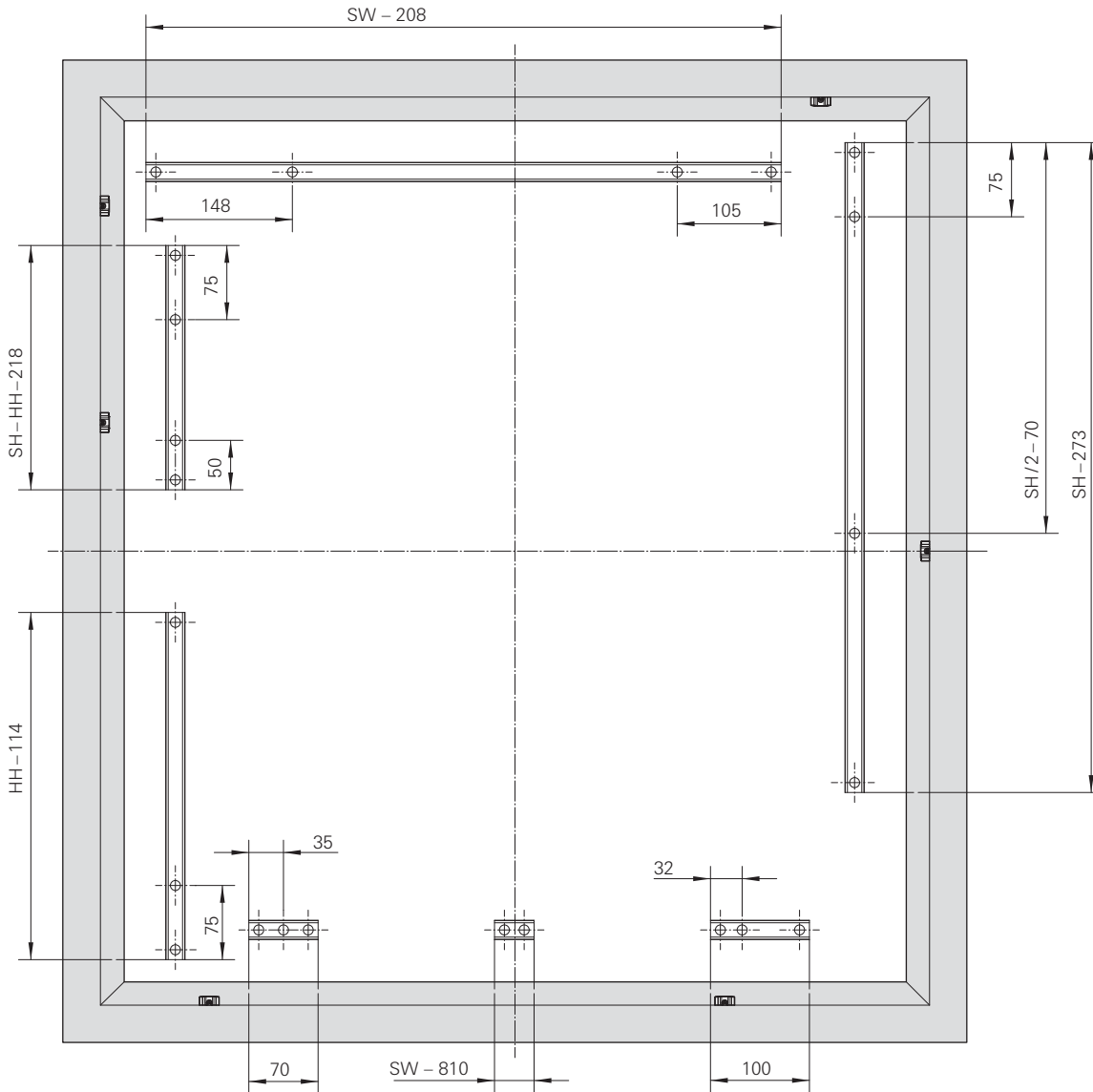
Connecting-rod dimensions

Patio S Aluminium D6, only valid for RotoLine geared-handle 26

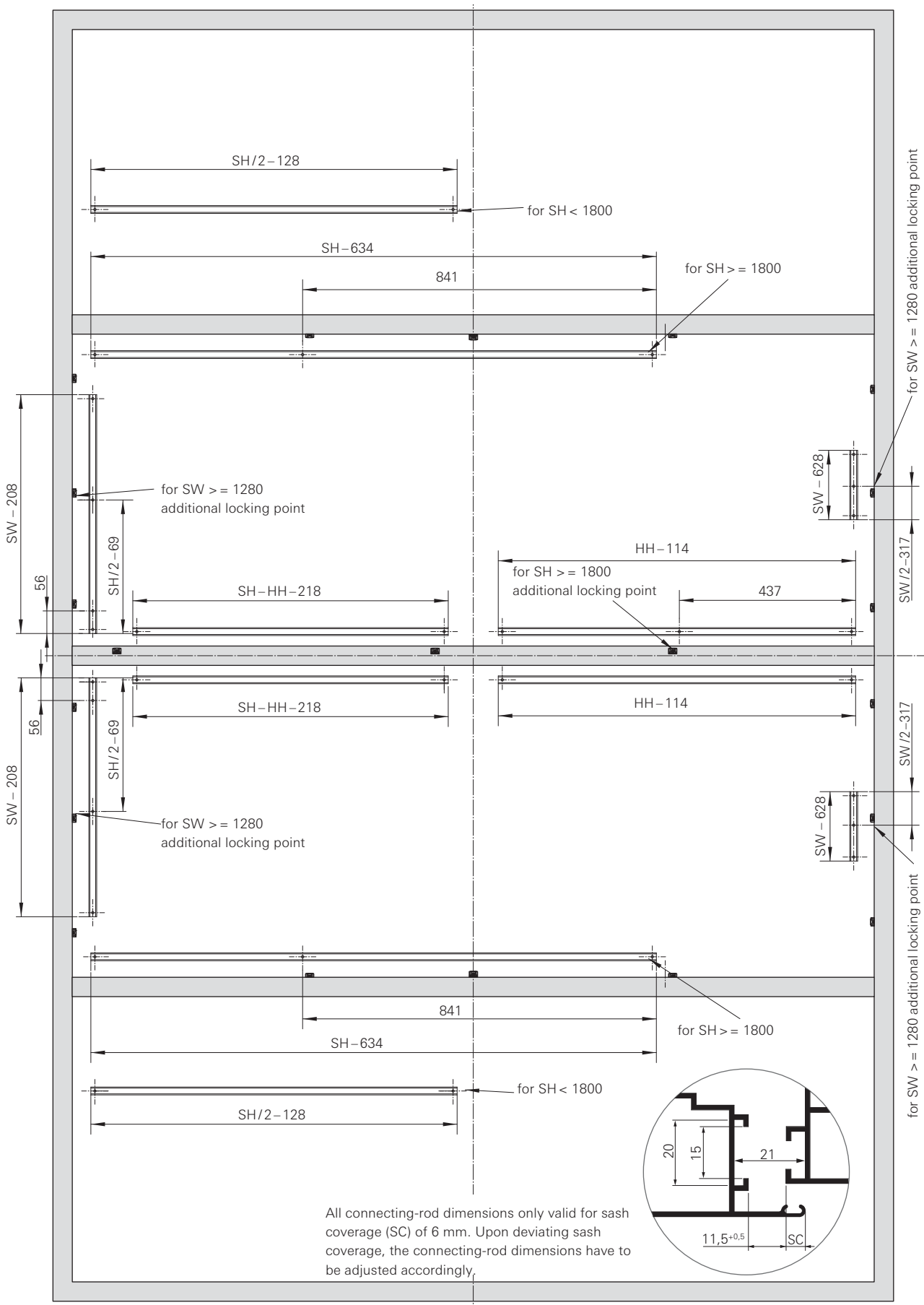


All connecting-rod dimensions only valid for sash coverage (SC) of 6 mm. Upon deviating sash coverage, the connecting-rod dimensions have to be adjusted accordingly.





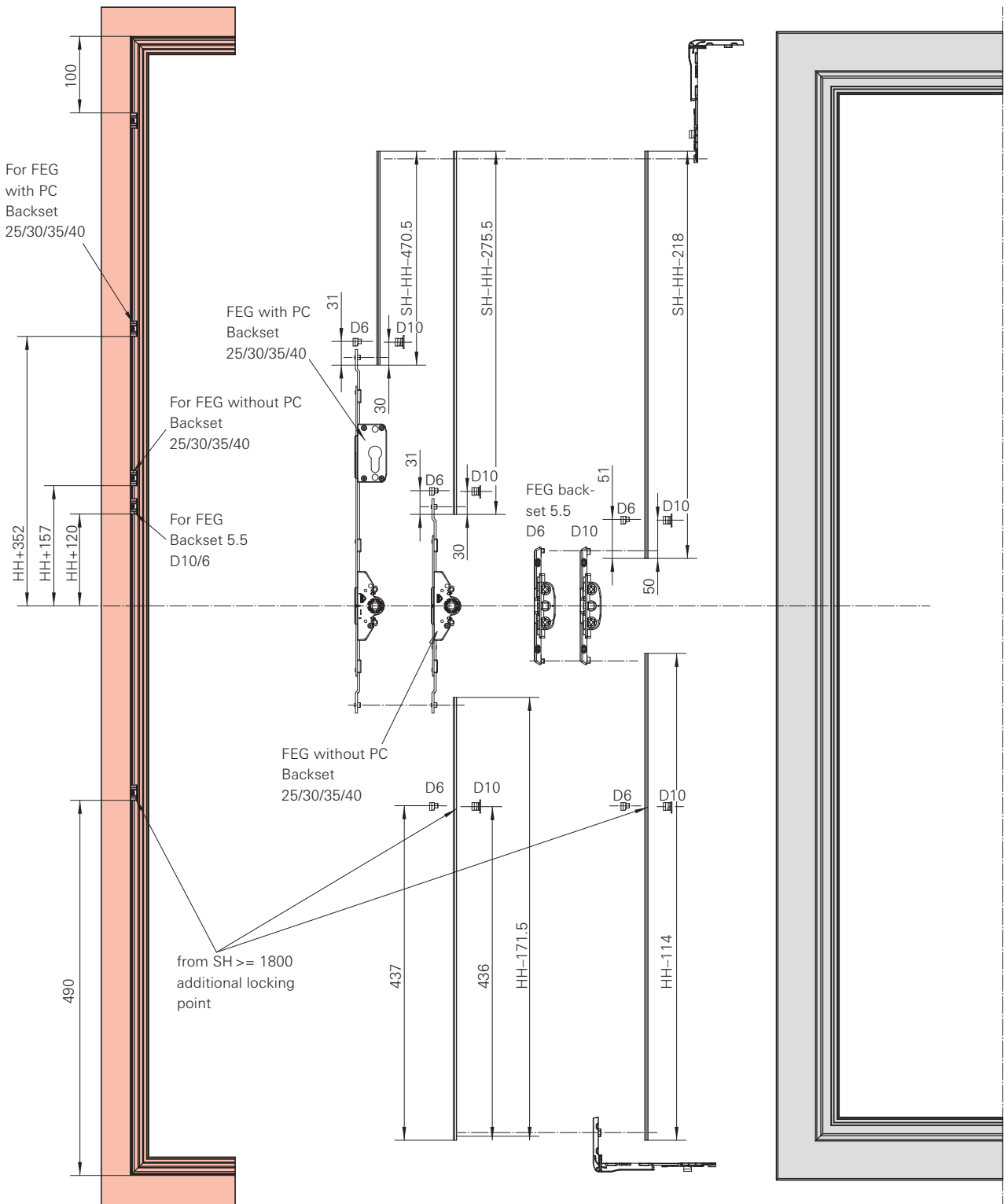
All connecting-rod dimensions only valid for sash coverage (SC) of 6 mm. Upon deviating sash coverage, the connecting-rod dimensions have to be adjusted accordingly.



Installation

Connecting-rod dimensions and striker locations

Patio S Aluminium D6 and D10, flush-encased gearbox



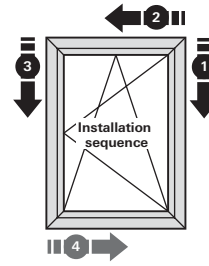
Installation

Installing sash hardware components

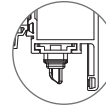
Installation sequence central locking system, left-hand version (acc. to DIN 12519)



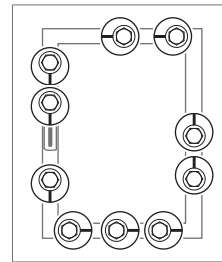
1. Connect the corresponding components with each other step-by-step and slide into the profile groove of the sash. In doing so, make sure that the installation sequence is correct.



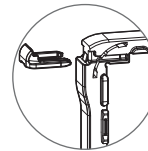
2. Ensure the correct orientation of the bullet catches.



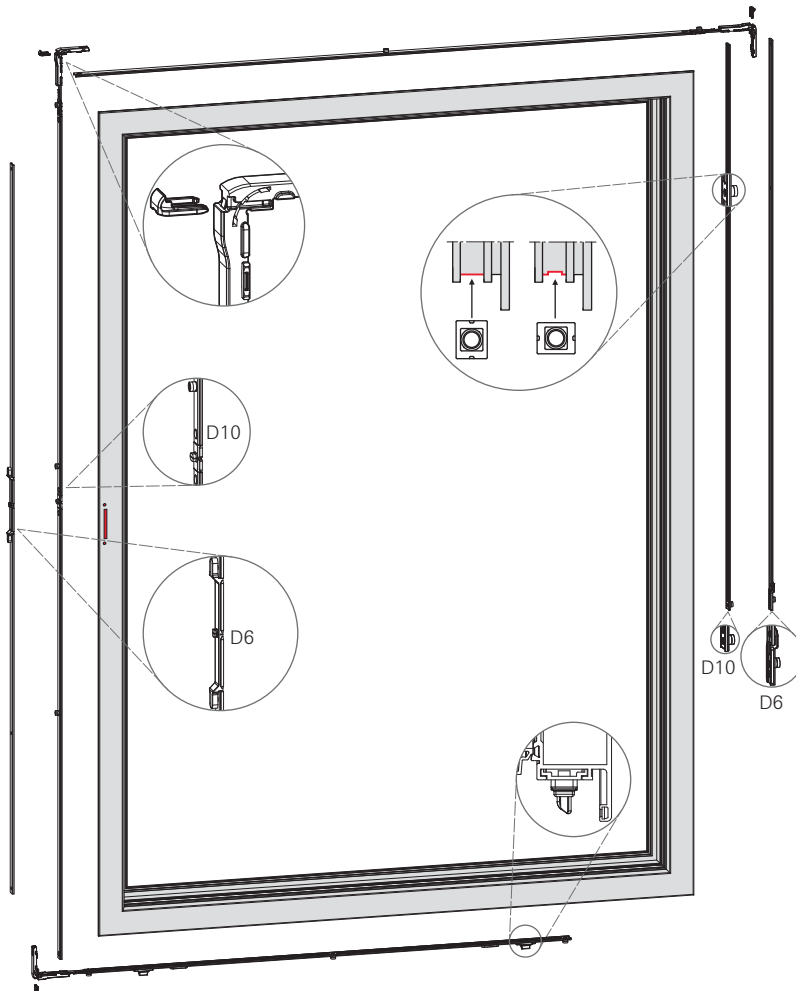
3. Ensure the correct orientation of the cams.



4. Use the retaining forks to lock the corner drives.



5. Test the function with the handle via the connector (not dep.).

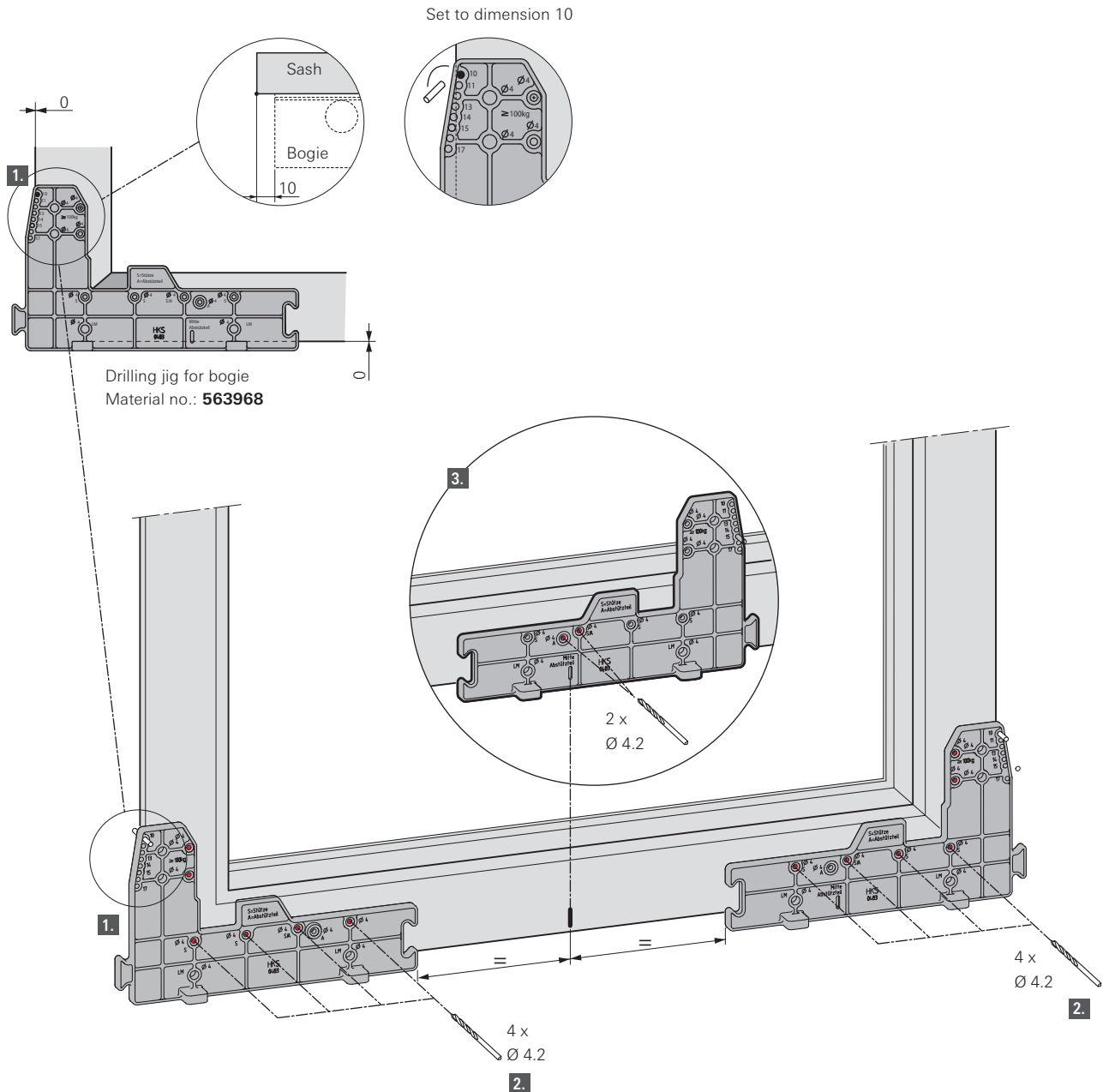


Installation

Drilling the sash drill-holes

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.



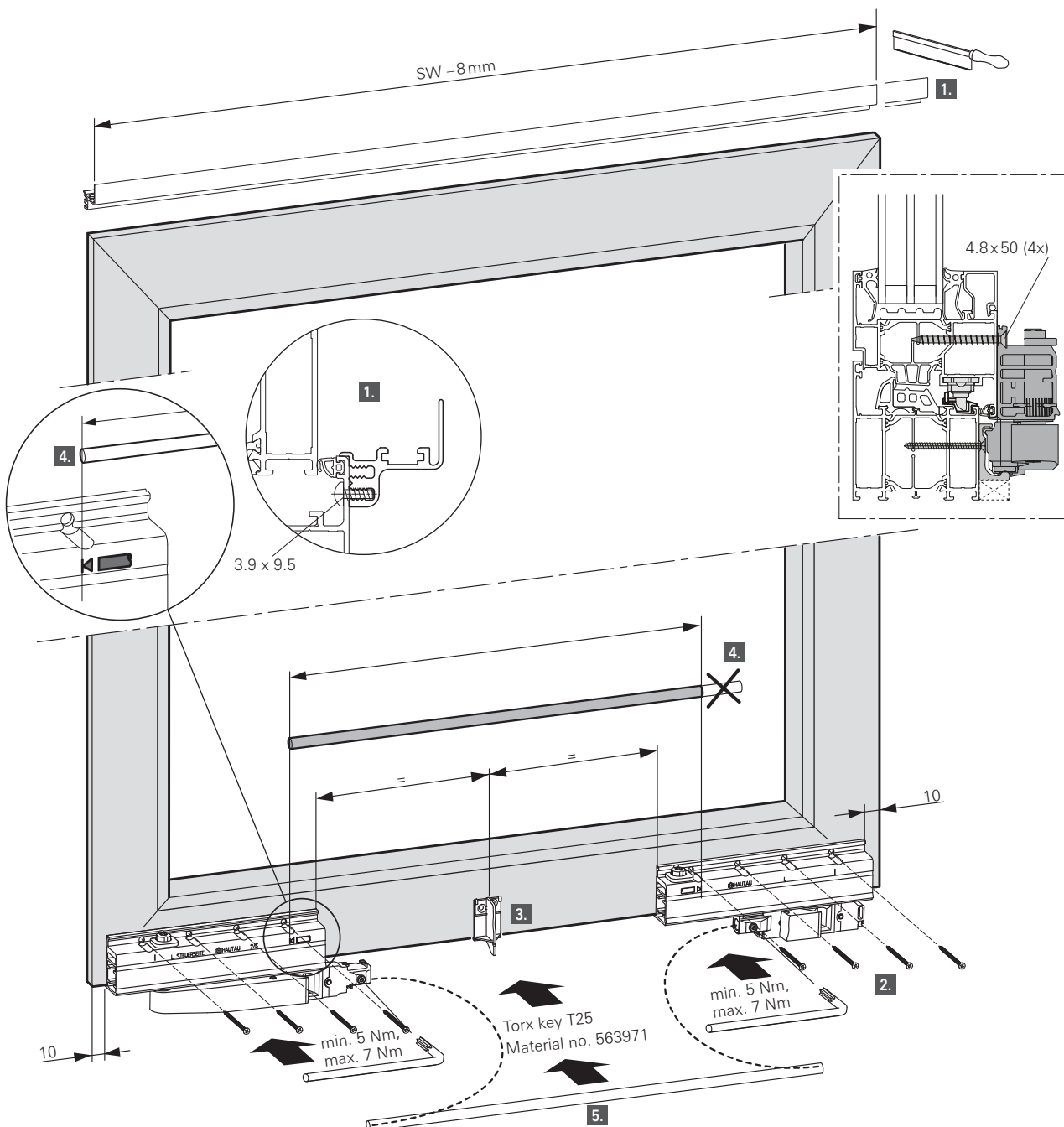
Installation

Installing sash hardware components

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).

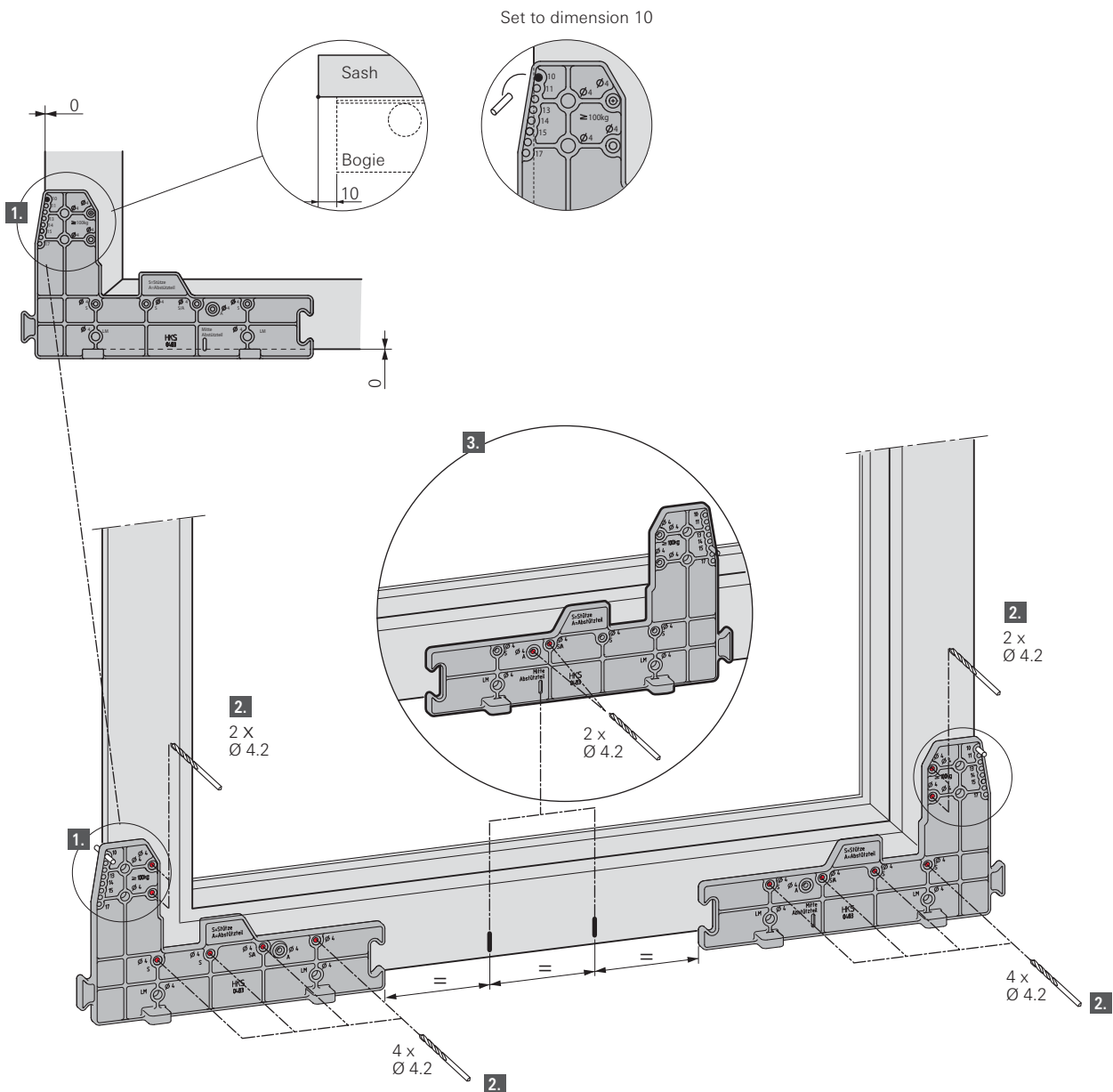


Installation

Drilling the sash drill-holes

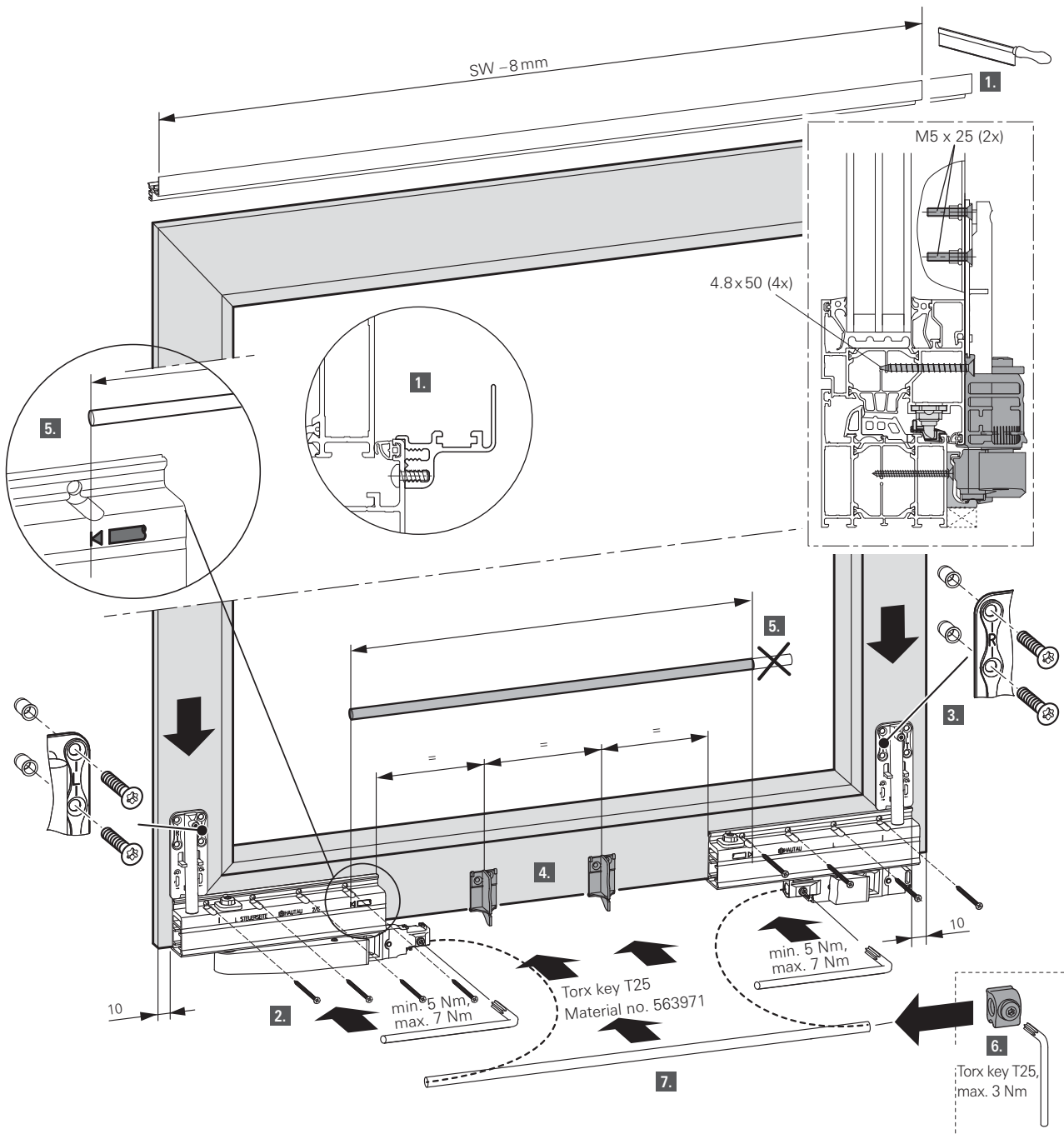
Bogies up to 160 kg sash weight

1. Set the bogie drilling jig (material no. 563968) to dimension 10 with the dowel pin.
2. Drill the holes for the bogies and reinforcement brackets. Subsequently redrill the holes for the reinforcement brackets (2 x $\text{Ø} 4.2$) to $\text{Ø} 7.1$ mm.
3. Mark the cover support bracket's position and drill (SW ≤ 1480 mm 1 cover support bracket, SW ≥ 1480 mm 2 cover support brackets).





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 Ø 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 SW >1480: 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).



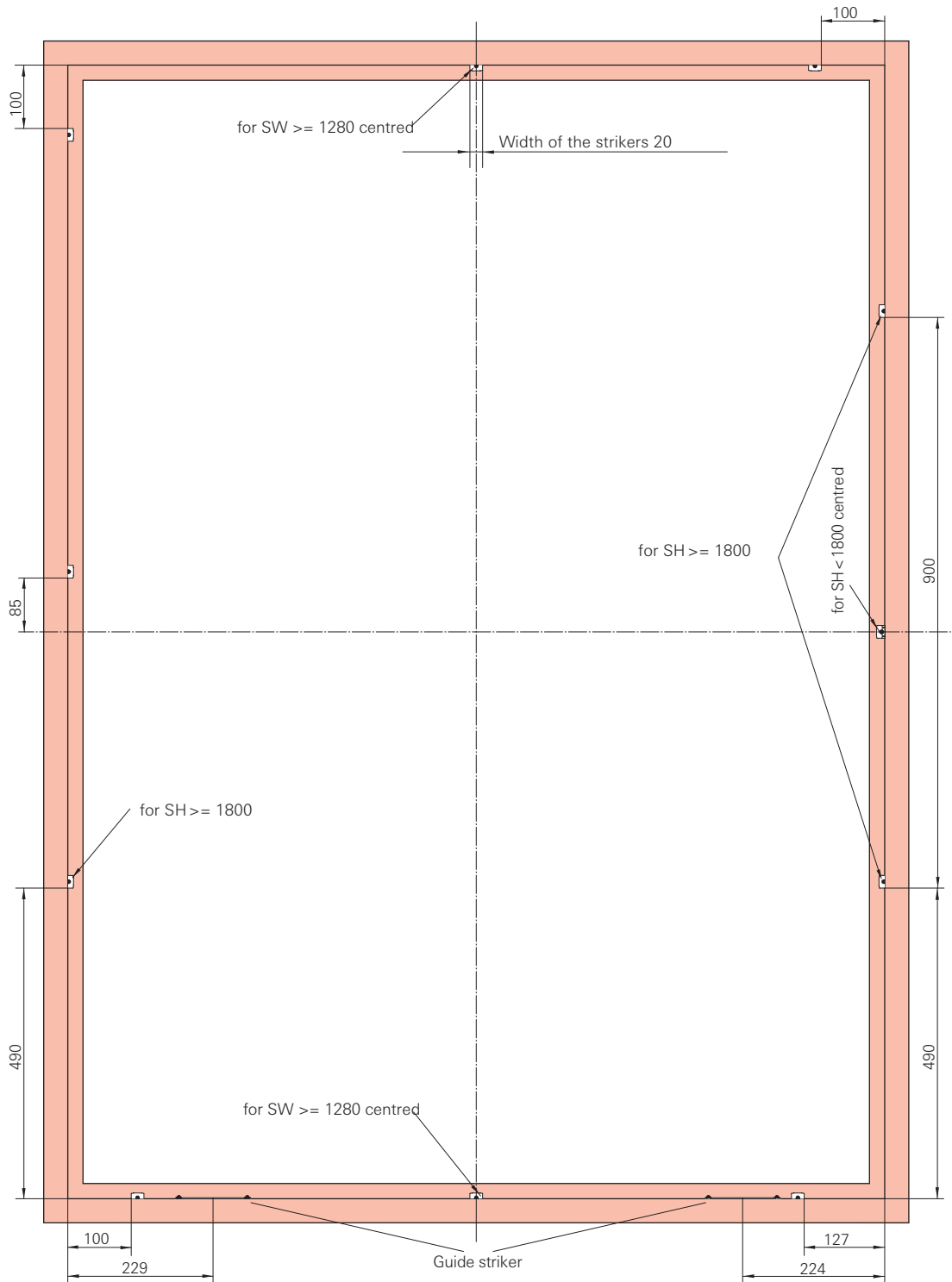
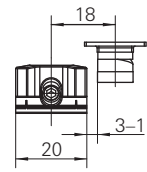
Striker locations

Patio S Aluminium D6/D10, only valid for RotoLine geared-handle 26



NOTE!

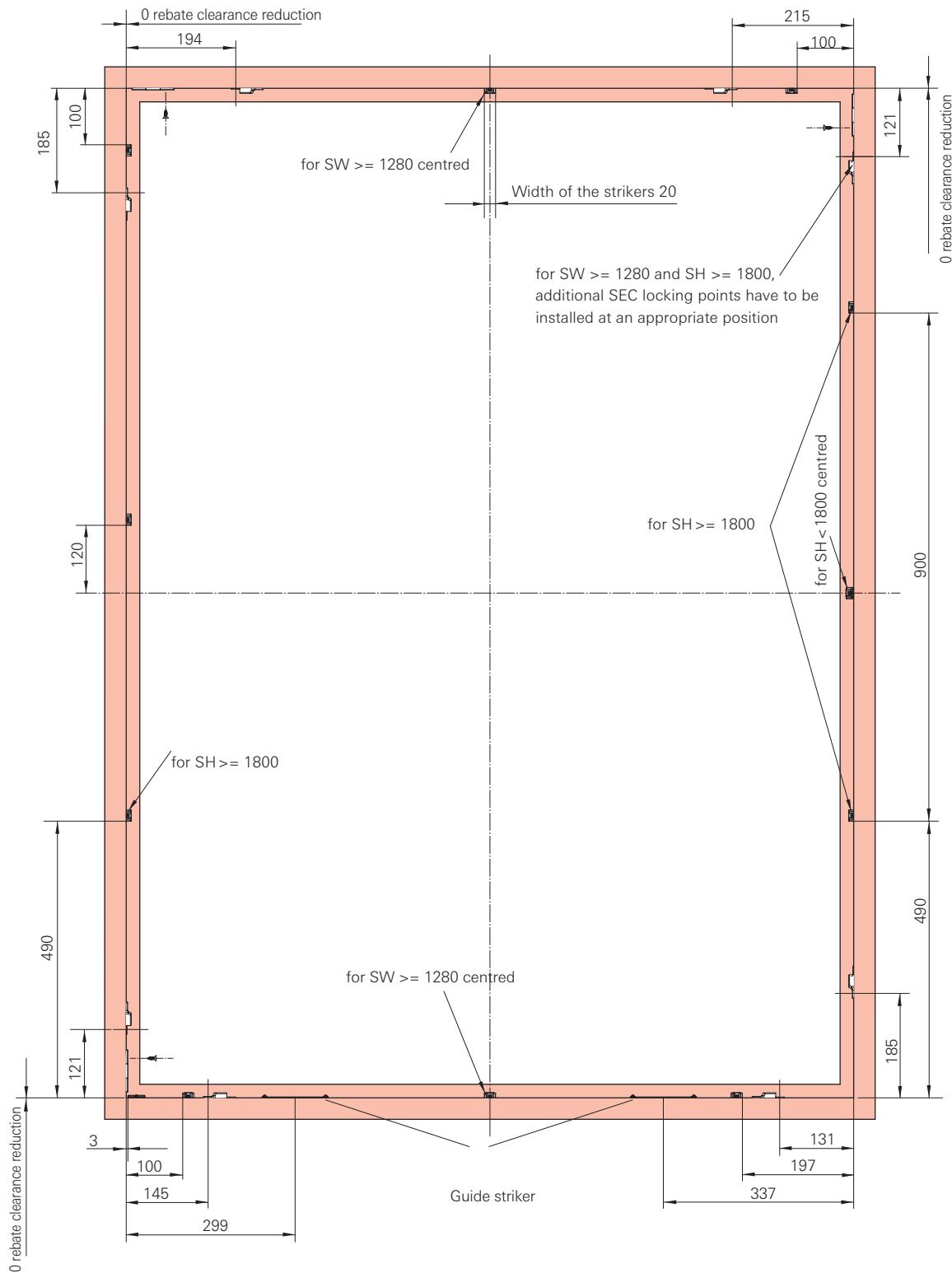
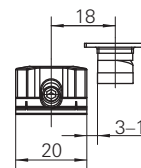
Guide strikers must be tightened with a Torx key T10. Strikers can be tightened with a Torx key T10 or an Allen key 2.5.





NOTE!

Guide strikers must be tightened with a Torx key T10. Strikers can be tightened with a Torx key T10 or an Allen key 2.5.



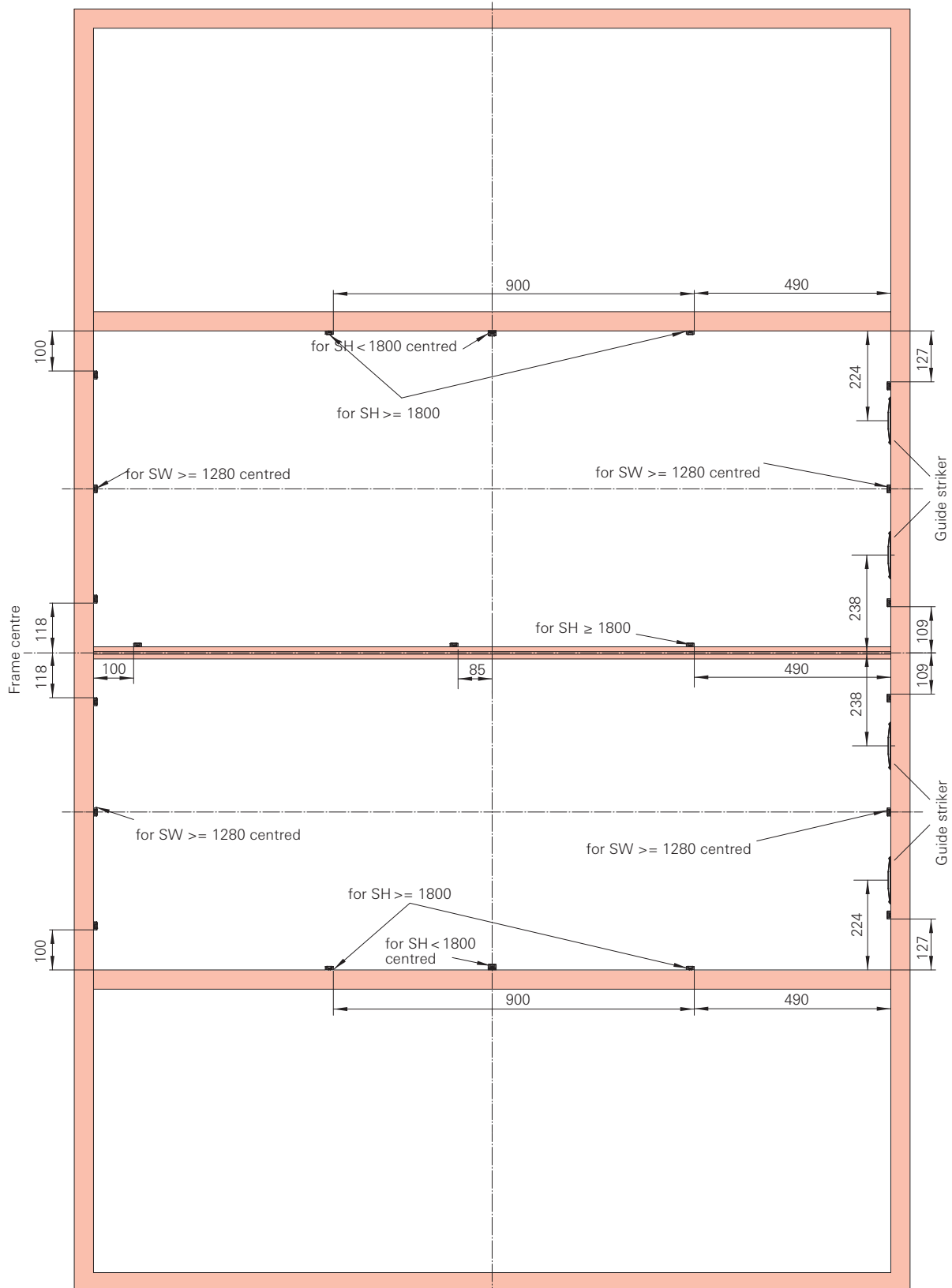
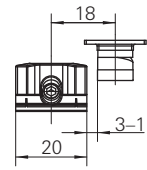
Striker locations

Patio S Aluminium, diagram C, only valid for RotoLine geared-handle 26



NOTE!

Guide strikers must be tightened with a Torx key T10. Strikers can be tightened with a Torx key T10 or an Allen key 2.5.



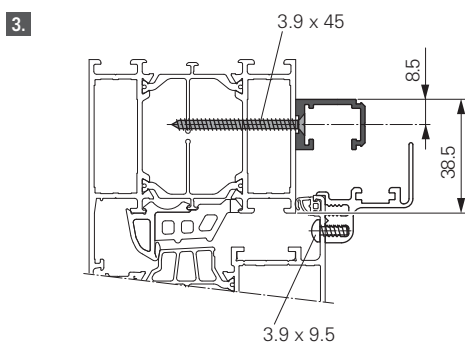
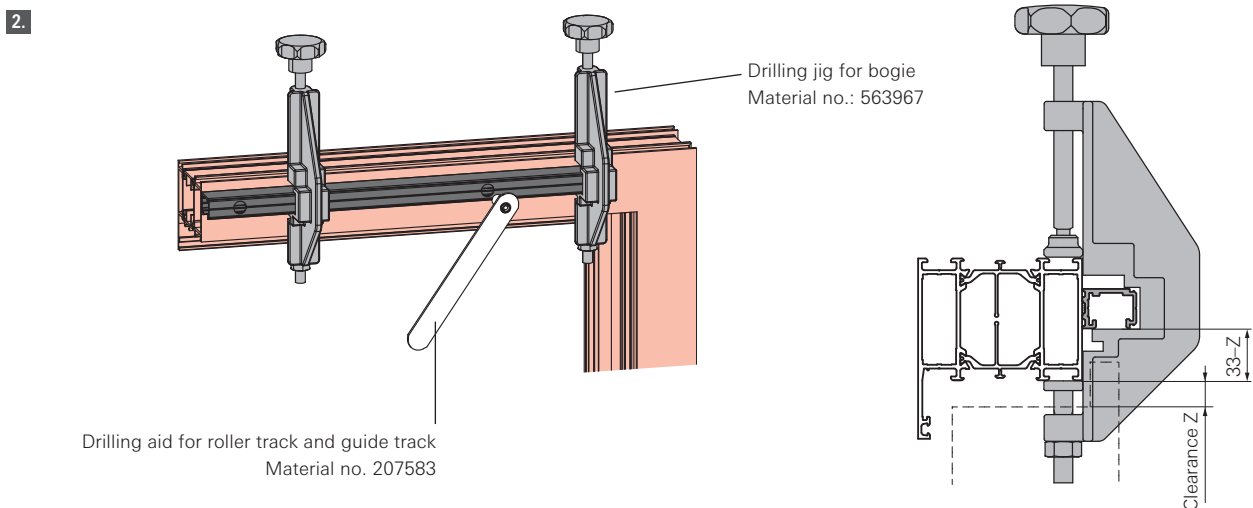
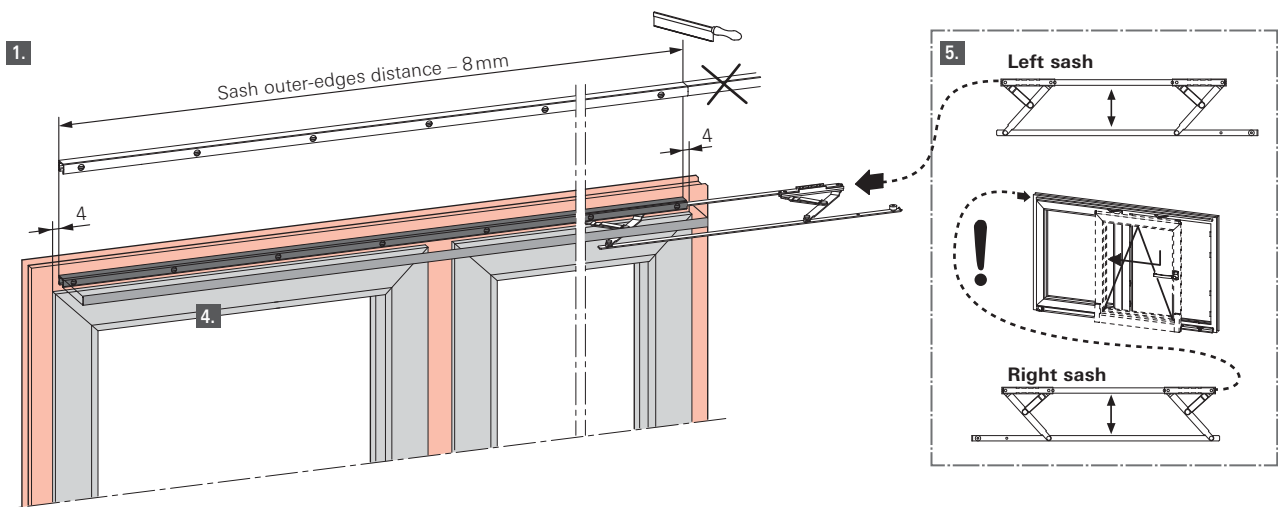


Installation

Installing frame hardware components

Guide track, scissors-slider

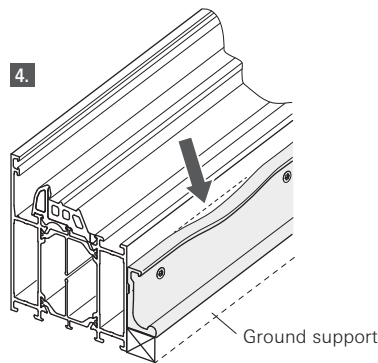
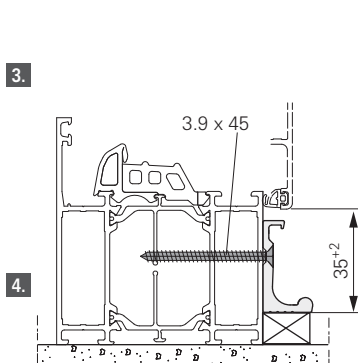
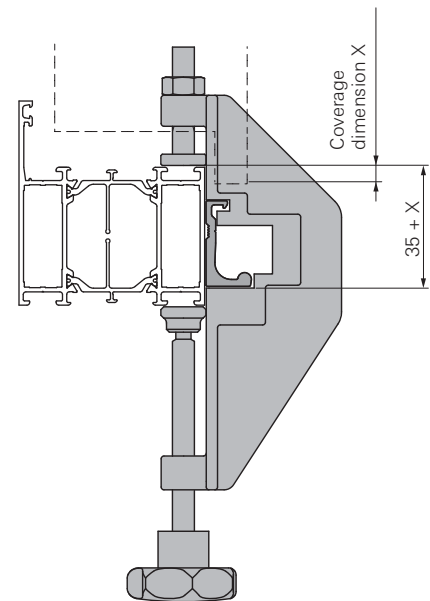
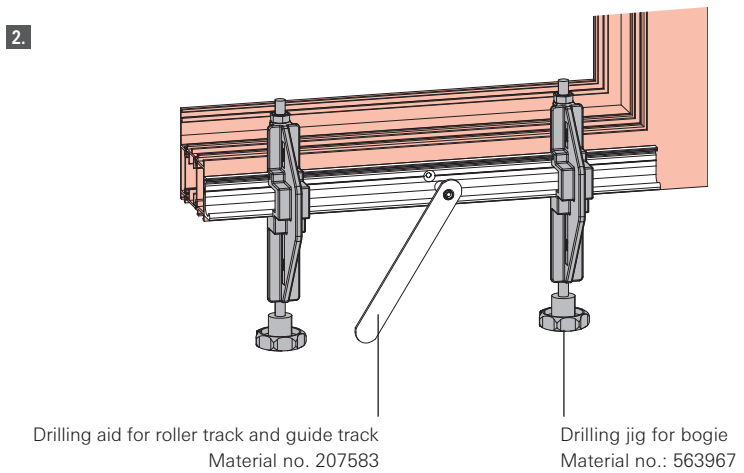
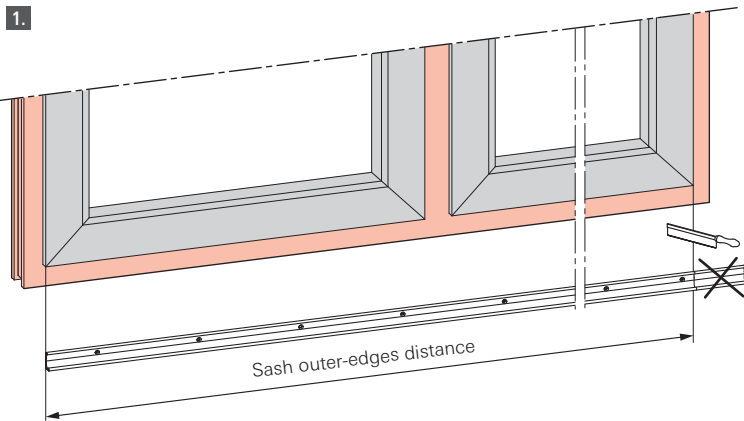
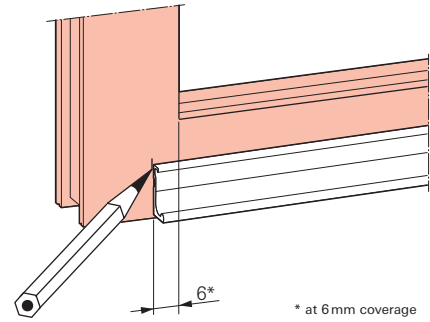
1. Cut the guide track to length: Sash outer-edges distance – 8 mm
2. Fix the guide track to the frame using the jig for roller track and guide track (material no. 563967), predrill with drilling aid (material no. 207583) and \varnothing 3.0 mm drill.
3. Screw-fix the guide track to the frame with 3.9 x 45 screws.
4. Cut the PVC cover profile to the length of the guide track and clip on.
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 escutcheonless escutcheonless escutcheonless 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:



Installation

Connecting sash and frame

Hinging the sash

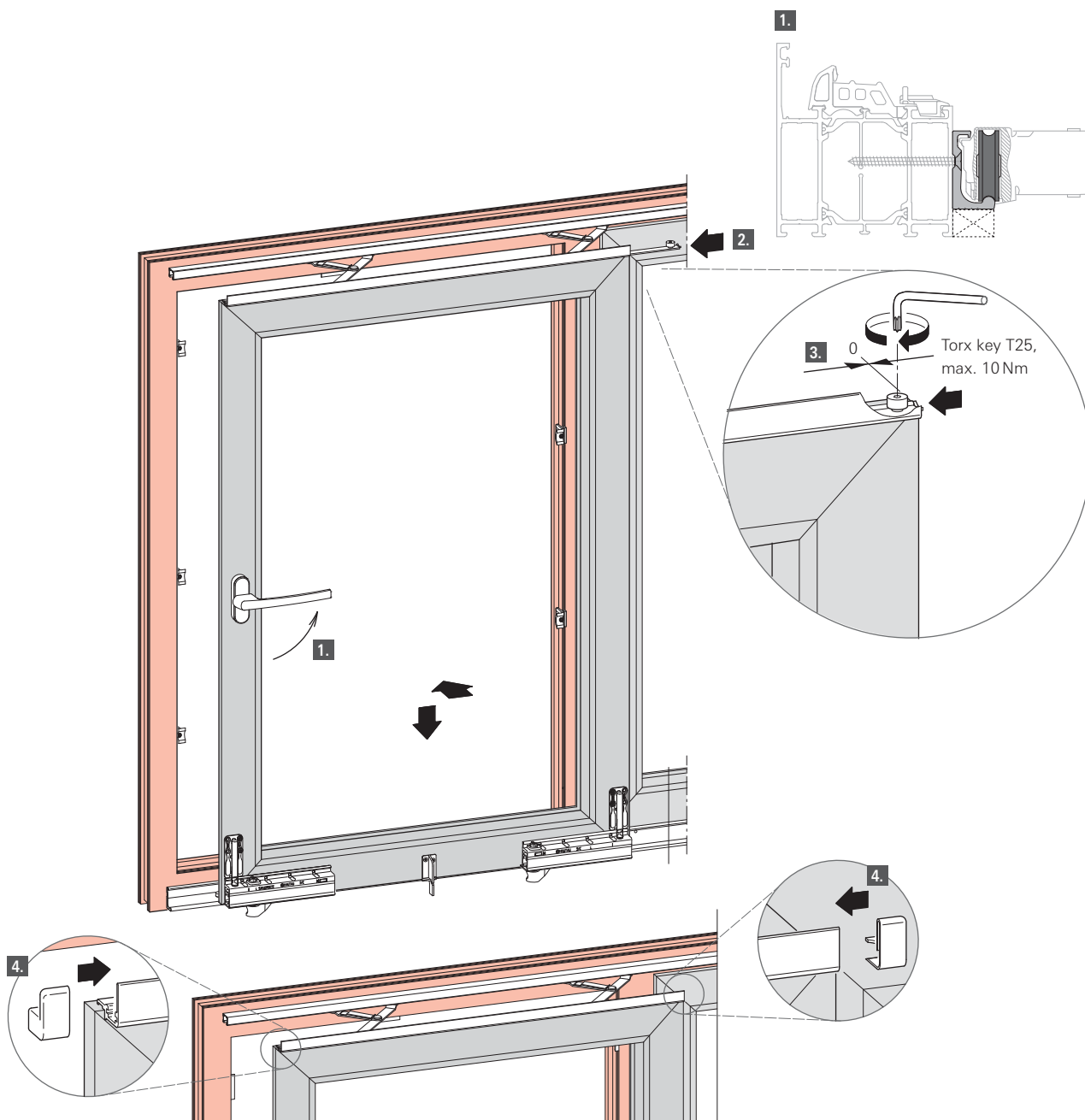
1. Move the handle into the horizontal sliding position. Lift the sash at a slight angle and set it down with the bogie rollers on the front edge of the roller track. Check the position of the rollers by pushing the sash and correct if necessary.
2. Slide the scissors-slider into the stay-connecting profile.
3. Slide the scissors-slider further until the end stop of the stay-connecting profile; tighten the locking screw (Torx key T25, max. 10Nm).



WARNING!

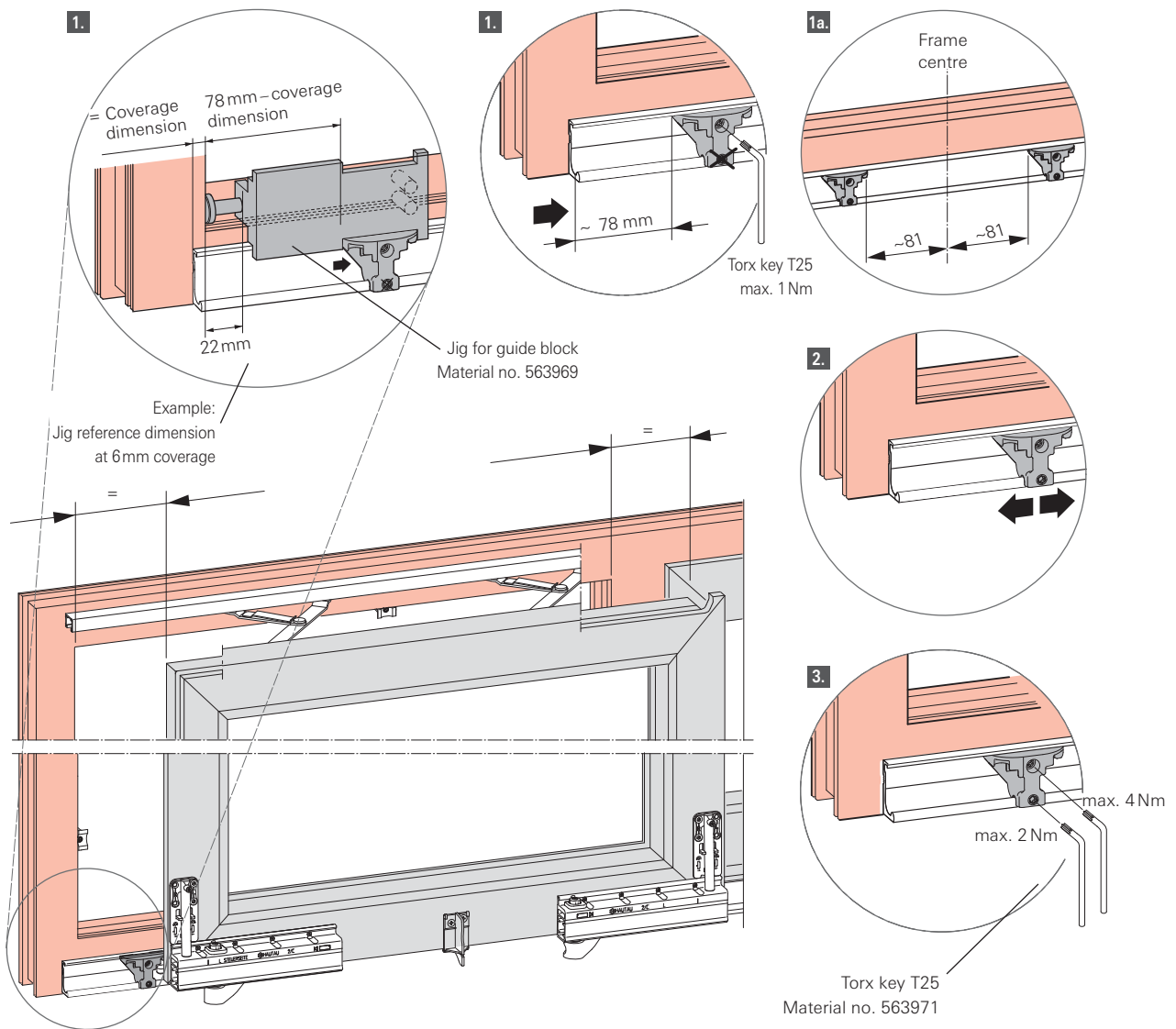
If the locking screw is not firmly connected to the stay-connecting profile, the window sash is not sufficiently secured. This can lead to grievous bodily harm.

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





- 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).
- 1a.** Note to diagram C:
With a continuous roller track, the position of the guide blocks is approx. 81 mm from the frame centre.
- 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.** First, firmly tighten the top screw of the guide block with a Torx key T25 (max. 4 Nm).
Then tighten the bottom screw with a Torx key T25 (max. 2 Nm).



Installation

Connecting sash and frame

Installing the slidable guide block for diagram D

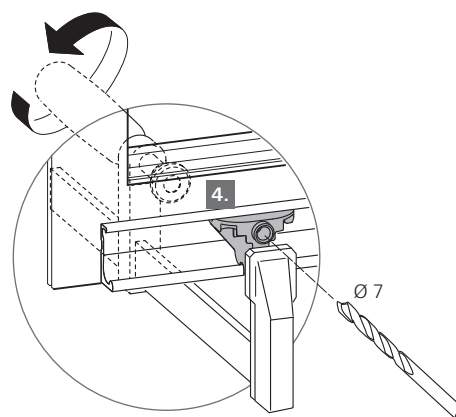
The Turn-Only sash of diagram D can be opened for cleaning and maintenance purposes.



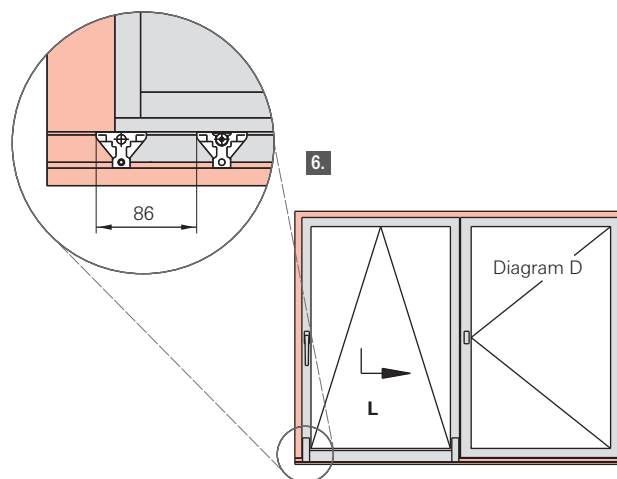
IMPORTANT ADVICE!

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

1. Install the guide block, → page 81. (Dimension approx. 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 $\varnothing 7$ 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.



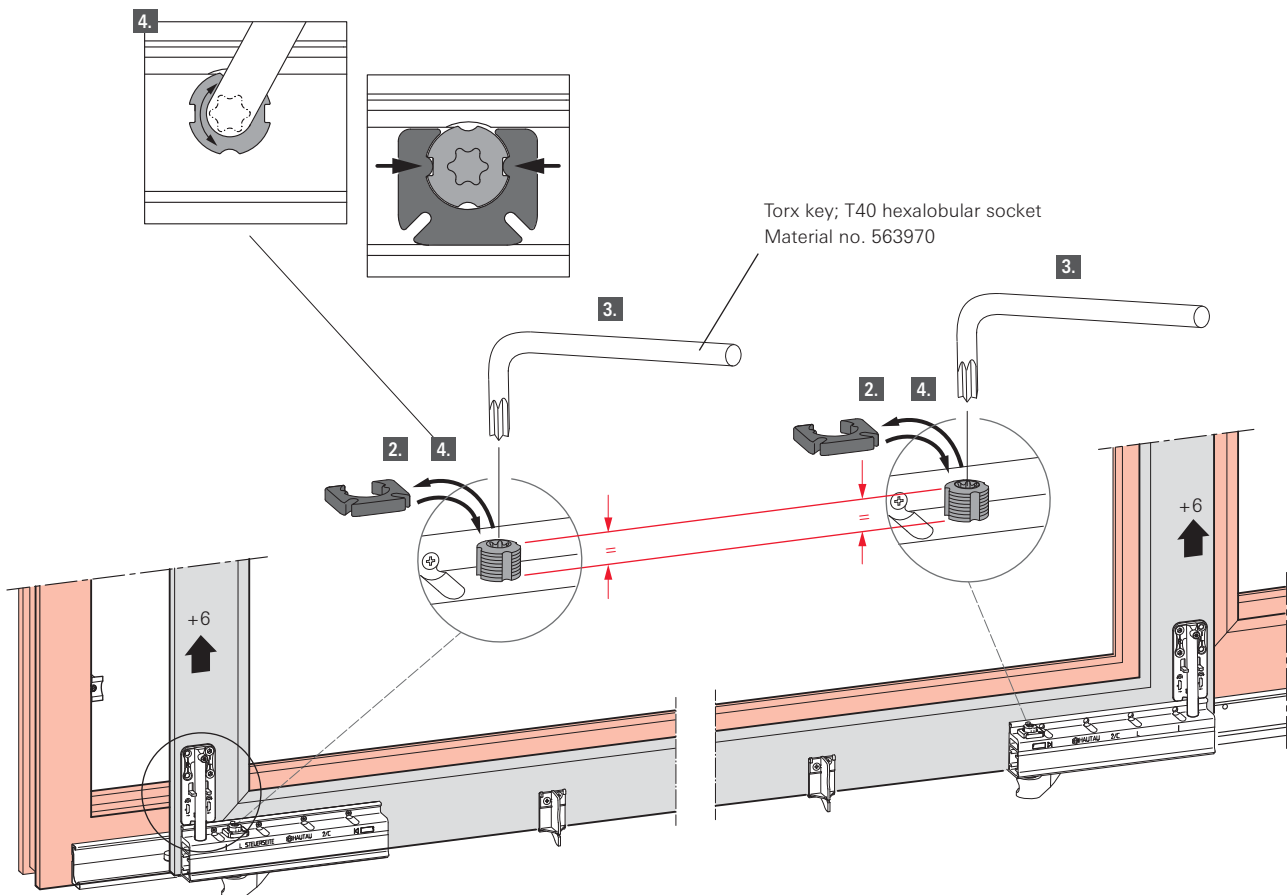
1. Check the clearance all round (not dep.).
2. Remove the anti-twist devices.
3. Raise or lower the bogies via the adjusting screws with a T40 hexalobular socket Torx key (material no. 563970).
1 adjusting screw per bogie.



PLEASE NOTE:

When installing the sash without glass or with a low sash weight, lower the bogies as far as possible with the adjusting screws. The bogies must be adjusted evenly at their adjusting screws in order to avoid jamming. (The bogies are uniformly preset in the factory.)

4. Install the anti-twist devices after adjusting the bogies, correct the adjusting screws' setting beforehand if necessary.



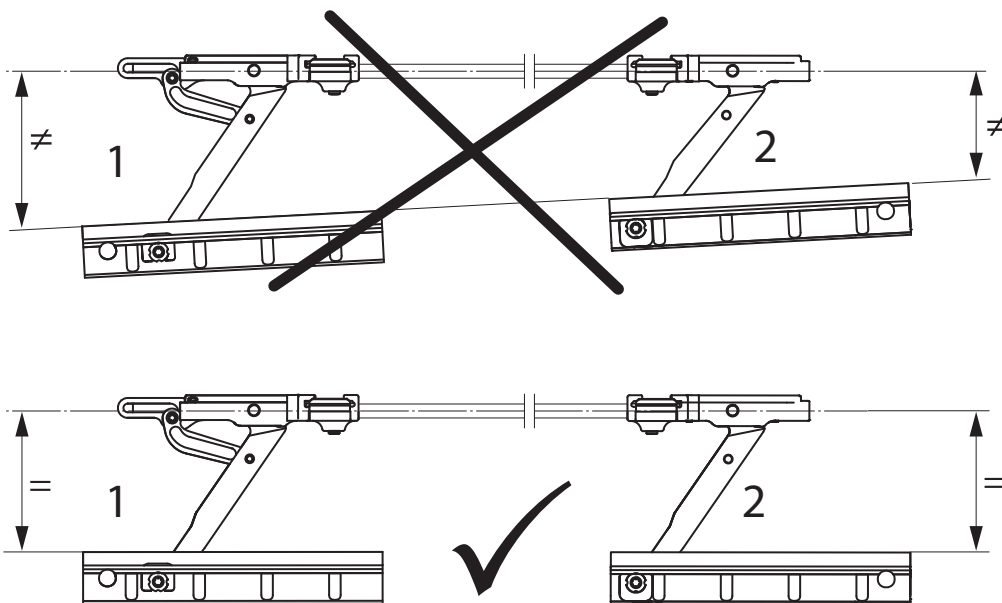
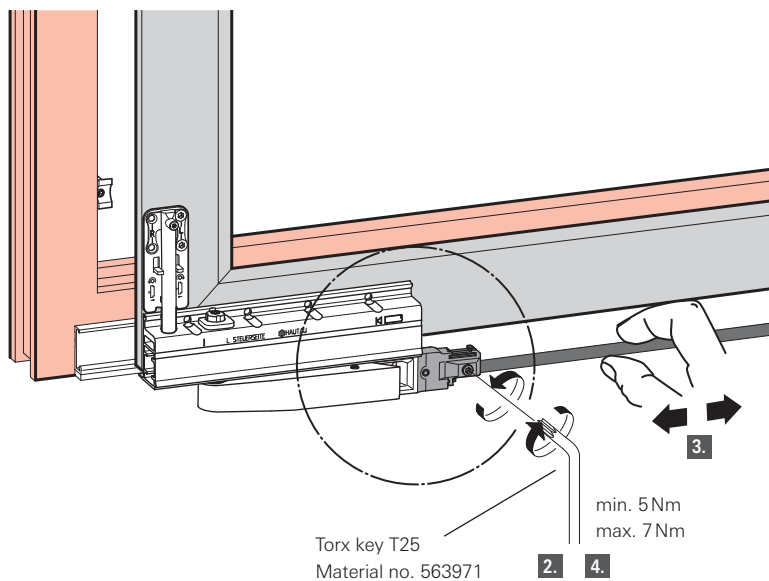
Installation

Connecting sash and frame

Aligning the bogies parallel

Align 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 (min. 5 Nm, max. 7 Nm).



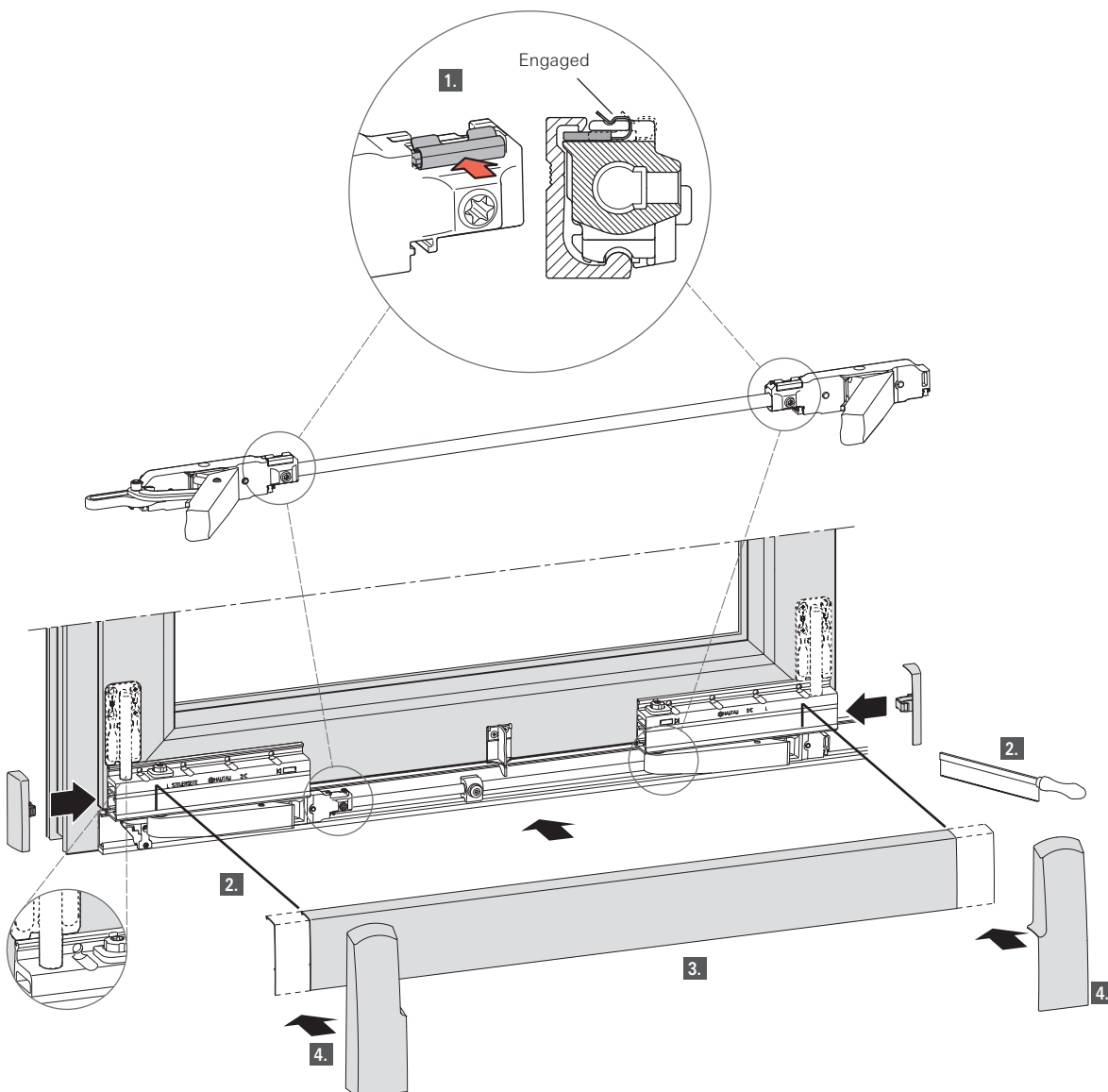


1. Slide back the bogie safety mechanism on both bogies, until they engage in the depicted position.

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



Installation

Connecting sash and frame

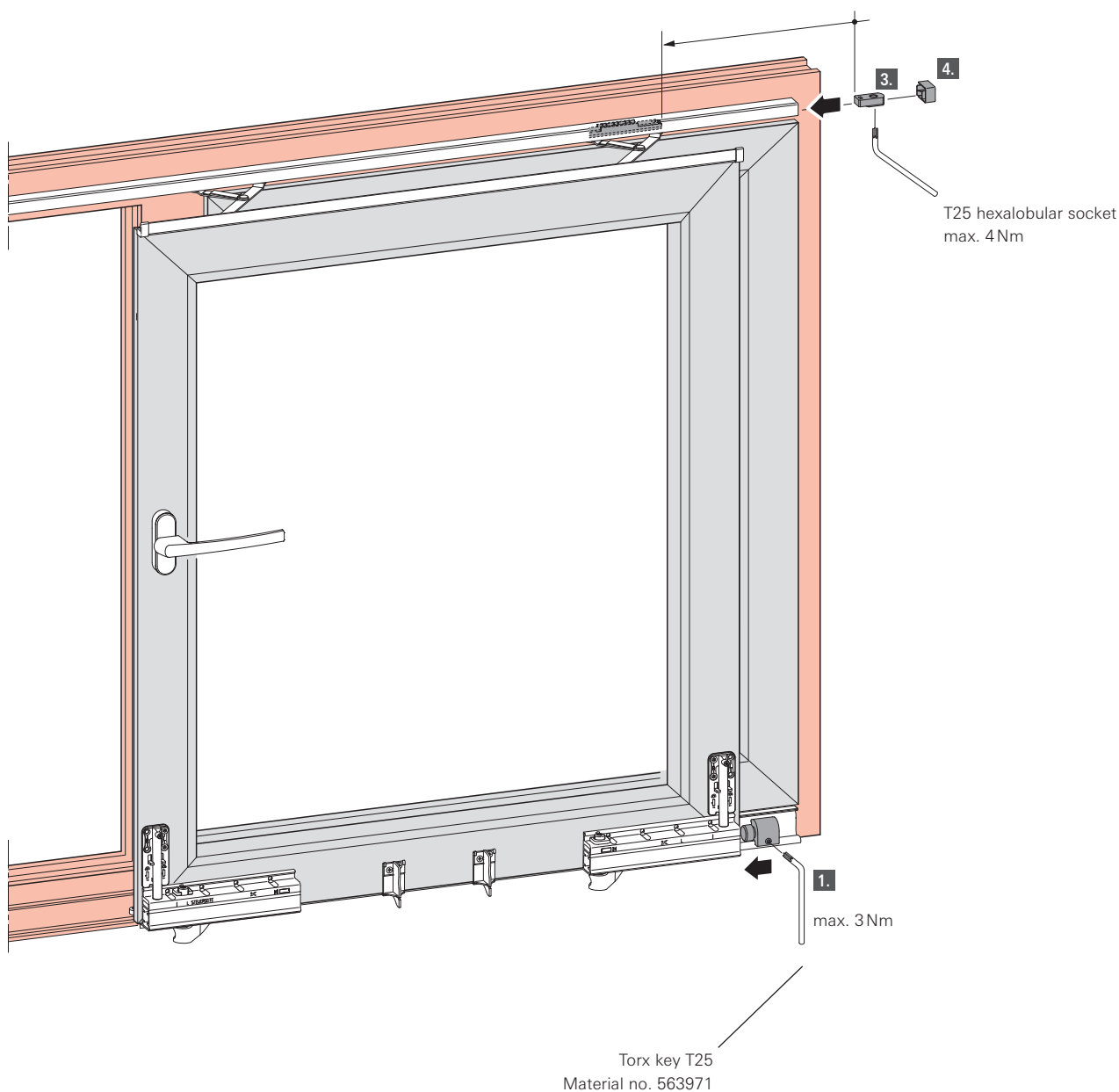
Installing the rubber buffer stop

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 cover cap.



IMPORTANT ADVICE!

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





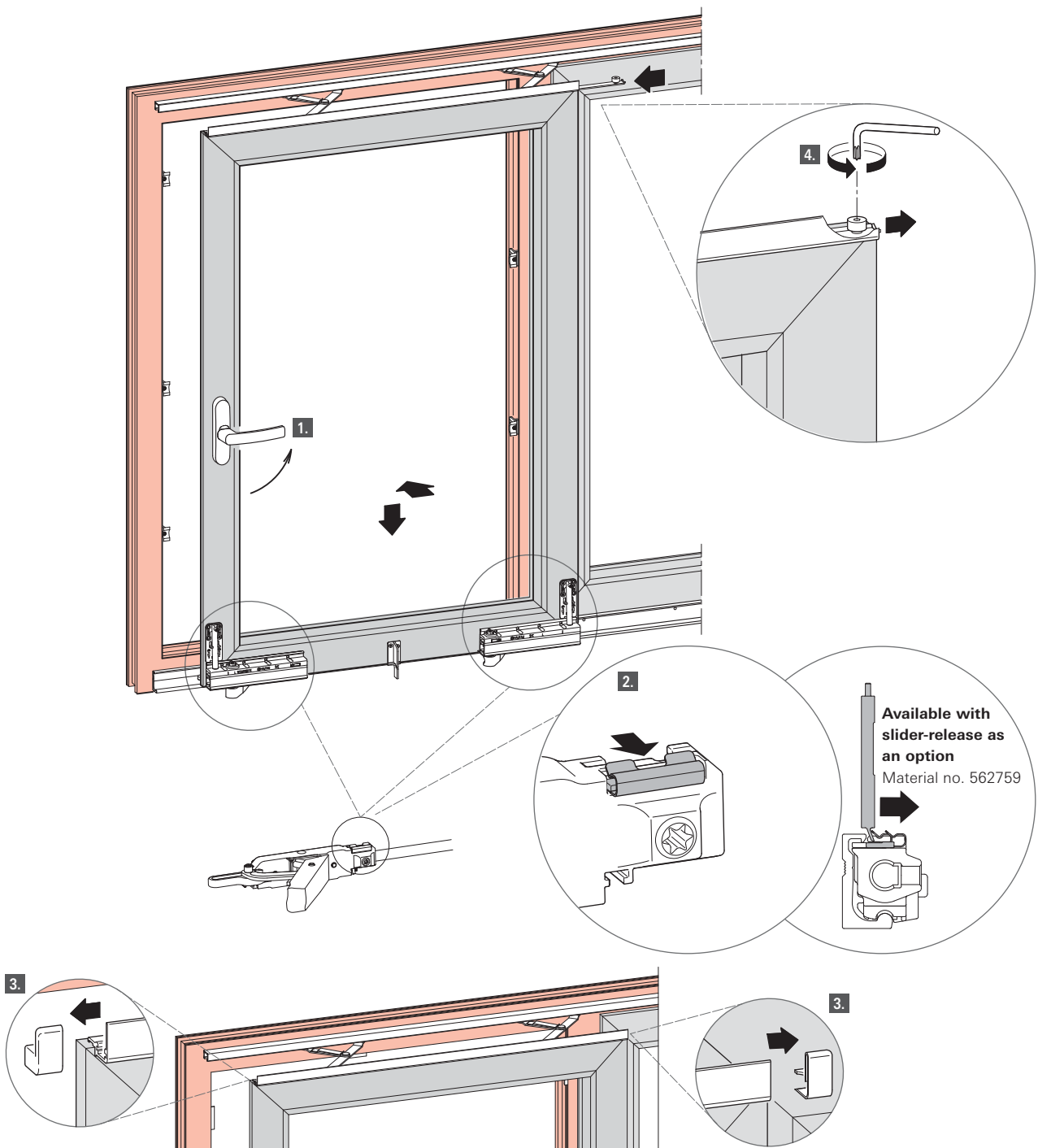
1. Open the sash
2. Bring each of the bogie safety mechanisms into the disengaged position



PLEASE NOTE:

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.)





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!

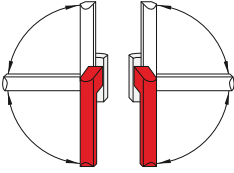


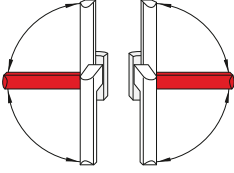


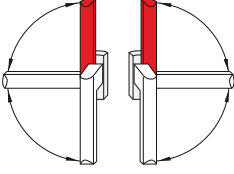
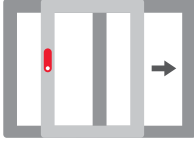

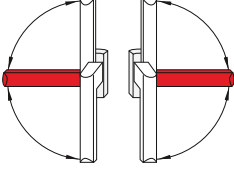
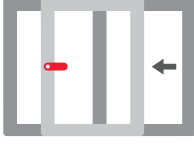

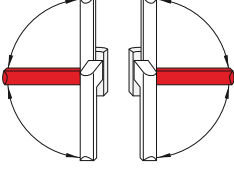
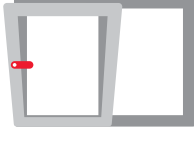

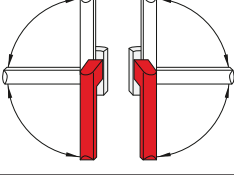


Claim any damage as soon as it is detected. Claims for damage can only be invoked within the statutory reclamation period.

Operation


Operating information

Tilt&Slide hardware handle position

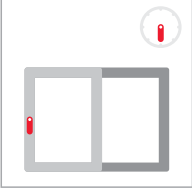
The following symbols show the different handle positions and the resulting sash positions of windows and balcony doors.

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

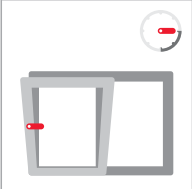



**Kippschiebe-
beschlag**
Tilt&Slide hardware

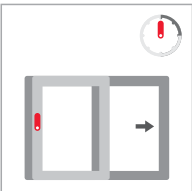
geschlossen
closed



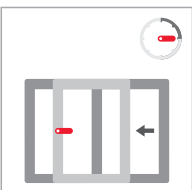
kippen
tilt



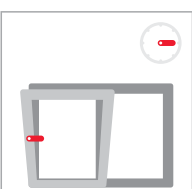
öffnen
open



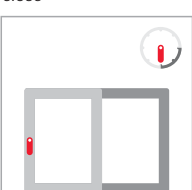
schieben
slide



einrasten
snap



schliessen
close



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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.	– Grease frame parts.	□	□
	– Faulty handle.	– Replace the handle.	■	–
	– Handle screws are screwed in too strong.	– Slightly loosen the screws.	■	–
	– Oblique screws in the sash.	– Straight screw-fixing of the sash parts.	■	–
	– Faulty sash parts.	– Replace the sash parts.	■	–
	– Faulty striker locations.	– 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 proceed 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.	– Rehing the sash.	■	–
	– Faulty striker locations.	– Adjust the striker locations.	■	–

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Adjustments

Adjustment instructions

Adjusting the reinforcement brackets

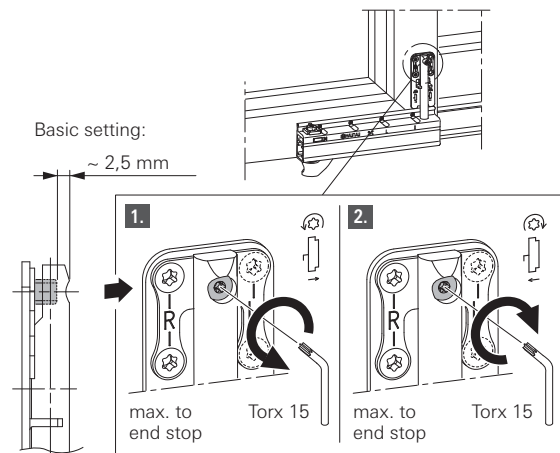
Adjust the reinforcement brackets to optimise the smooth running of the sash in the frame.

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.



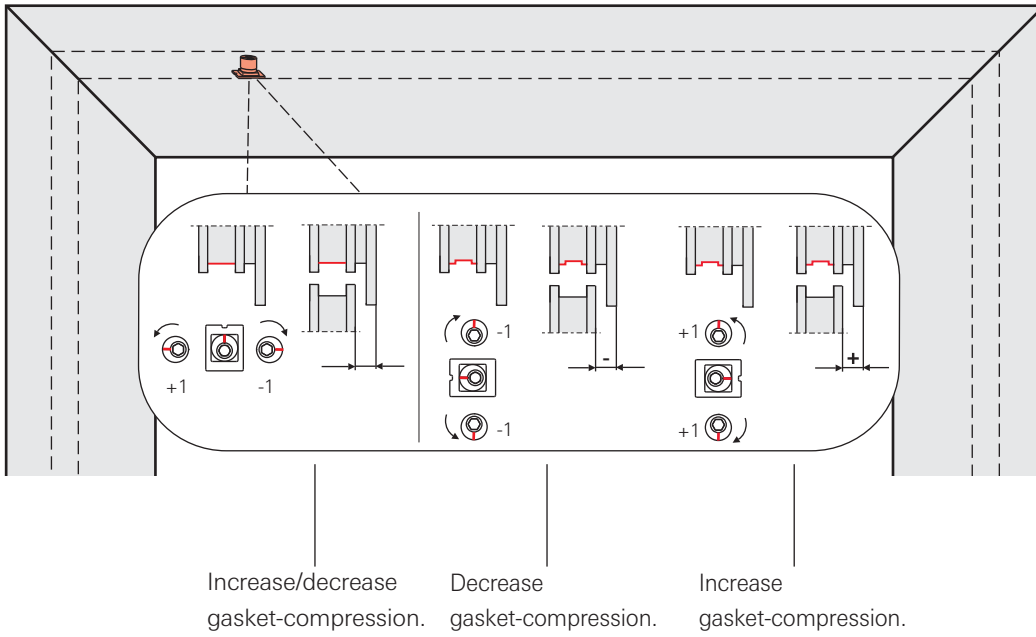
Adjustments

Adjustment instructions

Locking cam, insertable



Adjust the gasket-compression.



NOTE!

Use a Torx key T25 or an Allen key 4 mm to adjust the insertable locking cams.

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 un hinge 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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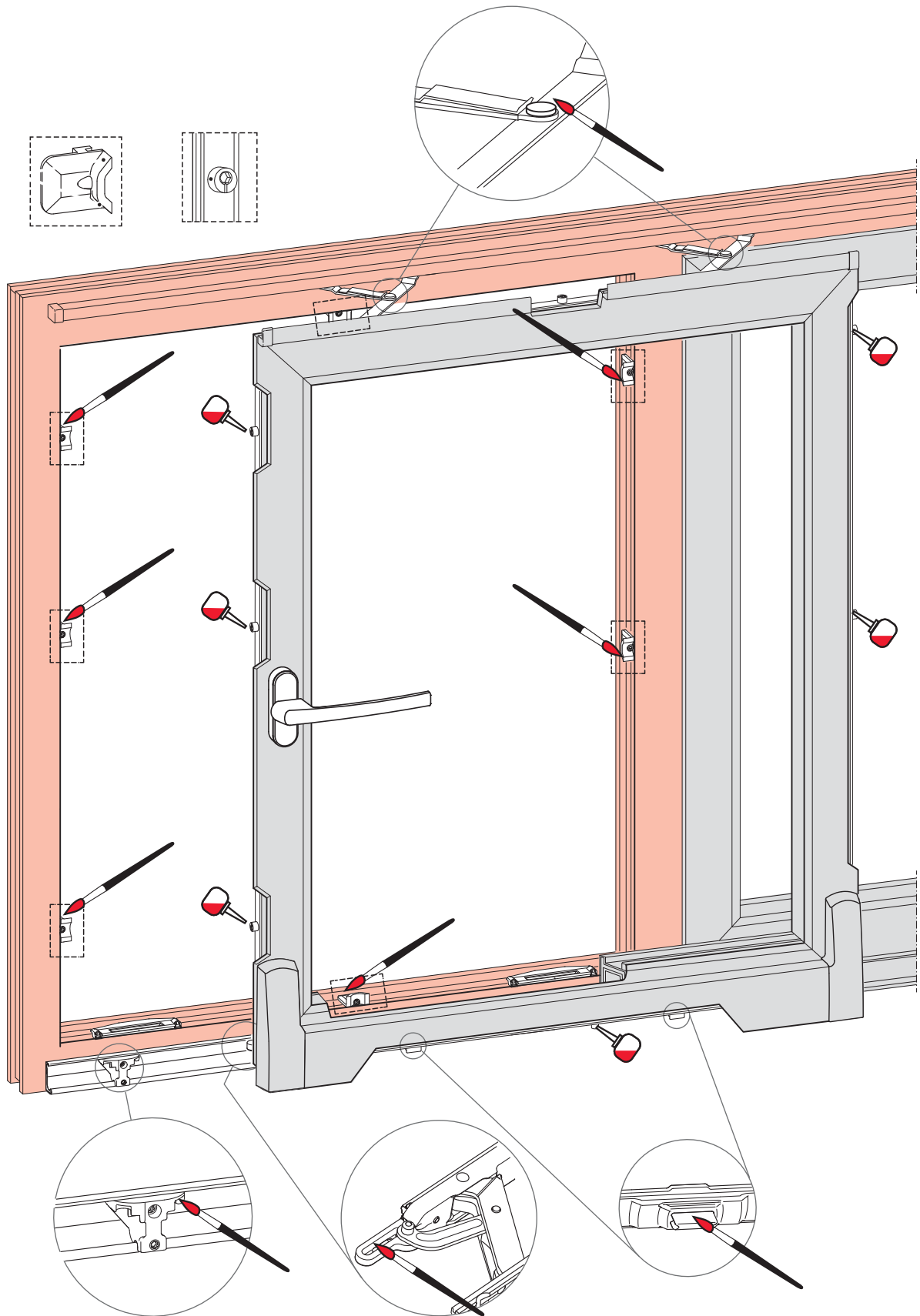


NOTE!

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.	<input type="checkbox"/>	<input type="checkbox"/>
Examine safety-relevant hardware components for wear and tear.	<input type="checkbox"/>	<input type="checkbox"/>
All movable parts are to be operation-tested.	<input type="checkbox"/>	<input type="checkbox"/>
All locking points are to be operation-tested.	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input type="checkbox"/>	<input type="checkbox"/>
Never use aggressive, acidiferous cleaners or abrasive cleaning agents.	<input type="checkbox"/>	<input type="checkbox"/>
Only use mild, pH-neutral cleaning agents in diluted form.	<input type="checkbox"/>	<input type="checkbox"/>
Only use a soft cloth for cleaning.	<input type="checkbox"/>	<input type="checkbox"/>

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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 vapourisation 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.	<input type="checkbox"/>	<input type="checkbox"/>
<p>Ensure that (permanently) damp spatial air cannot condense in the hinge and rebate areas:</p> <ul style="list-style-type: none"> – 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. <p>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.</p>	<input type="checkbox"/>	<input type="checkbox"/>

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

Roto Frank AG
Window and door technology

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Telefax +49 711 7598 253
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www.roto-frank.com



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