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Important Information

INFORMATION:
Handle position middle (1/2 SRH). With a handle position below 1/2 SRH, operational comfort may be affected.

Intended use
These instructions describe all assembly steps to set up standard version hardware. The hardware is to be greased / oiled before commissioning (see maintenance and adjustment instructions).
The ST upgrade tilt&slide hardware is only intended for use in fixed buildings. They are used for horizontally opening and closing windows and balcony doors. The parallel adjustment slide elements must be installed vertically, never slanted.

Pre-conditions
- These assembly instructions and the installation of the hardware require specialist expertise corresponding to a completed education in at least one of the following occupational profiles:
  • Construction Carpenter
  • Metal engineer in construction technology
  • Window and glass façade engineer
- The application areas mentioned on page 8 apply to the MACO SKB upgrade hardware. Information on screw-in speeds and torques are binding and must be observed.
- To fix the hardware use sufficiently long screws, which must extend into the steel reinforcement when using PVC profiles.
- Be sure to follow the profile manufacturer’s processing policy.
  - The hardware may not be used for woods with aggressive contents / surface treatments.
  - Parallel stop-slide hardware elements may only be surface treated before the hardware is installed. Any subsequent surface treatment may restrict the functionality of the hardware.
    In this case, no warranty claims can be made against the hardware manufacturer.
  - The hardware parts described in these assembly instructions are made of passivated steel and sealed in accordance with DIN EN 12329. They must not be used in environments with aggressive, corrosive air content.
  - Keep the roller track and all latches free from deposits and dirt to avoid damage to the hardware and ensure optimal function.
  - In particular, protect the hardware from cement or plaster residues.
    - Do not use acid-curing sealants, as these can lead to corrosion of the hardware parts. Avoid direct moisture on the hardware and contact of the hardware with acidic cleaning agents.
    - The hardware manufacturer shall not be liable for any malfunctions or damage to the hardware or to the windows or balcony doors equipped with them, if they are subject to co-use of third-party hardware, inadequate tendering, failure to comply with the installation rules or application diagrams.
    - The fabricator is responsible for complying with the functional dimensions specified in these assembly instructions as well as for proper hardware assembly and secure fixing of all components.
User information
- Hand over the relevant product maintenance and adjustment instructions for end users (Order Number 758540).
- Position the operating sticker (slide direction DIN left or DIN right) so it is clearly visible on the installed window sash. The operating sticker can be found in the “Corner Elements” pack.
- Observe the "Guidelines and Instructions for Product and Liability (GIPL)". Inform the end user about the contents of the "Guidelines and instructions for End Users (VHBE)".
- Retain these assembly instructions.

Handle positions

DIN EN 12519 left

DIN EN 12519 right
Important information on these instructions

Warnings

⚠️ **DANGER**

This indicates a situation that can lead to fatal injuries, if the instructions are not adhered to.

⚠️ **WARNING**

This indicates a situation that may result in fatal and/or serious injury, if the instructions are not adhered to.

⚠️ **ATTENTION**

This indicates a situation that may lead to minor injuries, if the instructions are not adhered to.

Informative note

👀 **ATTENTION**

This indicates important additional information that is important for the error-free assembly of the product.
Key and Abbreviations

<table>
<thead>
<tr>
<th>FB</th>
<th>Sash width</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAB</td>
<td>Frame outer width</td>
</tr>
<tr>
<td>RAH</td>
<td>Frame outer height</td>
</tr>
<tr>
<td>SRW</td>
<td>Sash rebate width</td>
</tr>
<tr>
<td>SRH</td>
<td>Sash rebate height</td>
</tr>
<tr>
<td>SRE</td>
<td>Sash rebate edge</td>
</tr>
<tr>
<td>FG</td>
<td>Sash weight</td>
</tr>
<tr>
<td>OKFF</td>
<td>Top edge finished floor</td>
</tr>
<tr>
<td>GM</td>
<td>Handle height</td>
</tr>
<tr>
<td>DM</td>
<td>Backset drive</td>
</tr>
</tbody>
</table>

Size  size

O  optional

All dimensions without a unit definition are given in mm
Version and Application Areas

The illustrations in this document show the version on the left. In order to install the version on the right, the applied information must be mirrored.

Area of application

The limits of the areas of application listed here are binding and must not be deviated from. Continue to observe the permissible application sizes, manufacturing specifications, and processing policies as set by the profile manufacturer.

<table>
<thead>
<tr>
<th>Item</th>
<th>unit</th>
<th>area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sash rebate width (SRW)</td>
<td>(mm)</td>
<td>620 - 1650</td>
</tr>
<tr>
<td>Sash rebate height (SRH)</td>
<td>(mm)</td>
<td>650 - 2450</td>
</tr>
<tr>
<td>Sash weight</td>
<td>(kg)</td>
<td>160 /max. 200</td>
</tr>
<tr>
<td>Burglary prevention</td>
<td></td>
<td>possible</td>
</tr>
</tbody>
</table>

1) TWIN rollers are used for a sash weight of 160 kg to 200 kg. The rollers shown in the assembly sequence are symbolic in this case. For specific instructions for TWIN rollers, please refer to the section at the end of the document.
Version and Application Areas

Application 160 kg

Application 200 kg

Fixing screws for the hardware

These are not included. The length must be chosen according to the profile used.

Countersunk screws  4,0 x ... mm

Countersunk screws  4,0 x ... mm, **Important**: head diameter d, 7 mm

Countersunk screws  4,8 x ... mm
Hardware overview

The transport protection device on the closing initiator cannot be removed until after assembly. This is required to ensure the position of the damper remains unchanged.
## Hardware overview

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Item name</th>
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<tbody>
<tr>
<td>1</td>
<td>Pack of profile set</td>
</tr>
<tr>
<td>1.1</td>
<td>Guide track</td>
</tr>
<tr>
<td>1.2</td>
<td>Roller track</td>
</tr>
<tr>
<td>1.3</td>
<td>Cover profile PVC</td>
</tr>
<tr>
<td>1.4</td>
<td>Connecting rod</td>
</tr>
<tr>
<td>1.5</td>
<td>Cover cap for guide rail</td>
</tr>
<tr>
<td>1.6</td>
<td>Bottom cover cap</td>
</tr>
<tr>
<td>1.7</td>
<td>Lower buffer stop</td>
</tr>
<tr>
<td>1.8</td>
<td>Rubber mushroom buffers</td>
</tr>
<tr>
<td>1.9</td>
<td>Guide block (lower)</td>
</tr>
<tr>
<td>1.10</td>
<td>Buffer stop upper</td>
</tr>
<tr>
<td>1.11</td>
<td>Support block</td>
</tr>
<tr>
<td>1.12</td>
<td>Support bracket</td>
</tr>
<tr>
<td>1.13</td>
<td>Cover profile</td>
</tr>
<tr>
<td>2</td>
<td>Pack of rollers SKB-S/SE with adjustable reinforcement part</td>
</tr>
<tr>
<td>2.1</td>
<td>Leading Rollers 160 kg</td>
</tr>
<tr>
<td>2.2</td>
<td>Trailing Rollers 160 kg</td>
</tr>
<tr>
<td>2.3</td>
<td>Leading Rollers 200 kg</td>
</tr>
<tr>
<td>2.4</td>
<td>Trailing Rollers 200 kg</td>
</tr>
<tr>
<td>2.5</td>
<td>Reinforcement part</td>
</tr>
<tr>
<td>3</td>
<td>Pack of adjustable scissor sliders SKB S/SE</td>
</tr>
<tr>
<td>3a</td>
<td>Adjustable cover caps for scissor slider SKB-S/SE</td>
</tr>
<tr>
<td>3b</td>
<td>Adjustable track cover for scissor slider SKB-S/SE</td>
</tr>
<tr>
<td>3c</td>
<td>Adjustable cover cap for track cover scissor slider SKB-S/SE</td>
</tr>
<tr>
<td>3d</td>
<td>Control module SKB-S/SE with tilt damper for scissor slider SKB-S/SE</td>
</tr>
<tr>
<td>4</td>
<td>Pack of tilt stays and track cover</td>
</tr>
<tr>
<td>4.1</td>
<td>tilt stay</td>
</tr>
<tr>
<td>4.2</td>
<td>stay-connecting profile</td>
</tr>
<tr>
<td>4.3</td>
<td>cover cap for stay-connecting profile</td>
</tr>
<tr>
<td>4a</td>
<td>Control module SKB-S/SE with tilt damper for tilt stay SKB-S/SE</td>
</tr>
<tr>
<td>5</td>
<td>Packs of corner elements</td>
</tr>
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<td>6</td>
<td>Drive gear</td>
</tr>
<tr>
<td>7</td>
<td>Height connectors</td>
</tr>
<tr>
<td>8</td>
<td>Width connectors</td>
</tr>
<tr>
<td>9</td>
<td>Handles</td>
</tr>
<tr>
<td>10</td>
<td>Pack of stop absorbers SKB-S/SE</td>
</tr>
<tr>
<td>11</td>
<td>Striker plate</td>
</tr>
<tr>
<td>12</td>
<td>Sash lifter</td>
</tr>
<tr>
<td>13</td>
<td>Striker plate i.S.</td>
</tr>
</tbody>
</table>
Preparation of sash frame
Drive gear fixed

Article number: 10523

Lockable drive gear

Article number: 29038
Cutting to length and Central Locking assembly

A Screw in the upper and lower corner elements ⑤.
B Cut to length the upper and lower width connector and screw in place ⑥.
C Shorten the height connector ⑦ and drive motor ⑧ and screw in place.

Hardware screw:

4,0 x ...(dk7)
Sash assembly
Assembly of stay-connecting profile for tilt stay

A.1 Cut to length the stay-connecting profile (2) on the handle side, sash width minus 8 mm.
A.2 Stay-connecting profiles without holes (storage lengths) must be drilled to the scissor slider on the non-handle side.
A.3 Screw in the stay-connecting profile in the centre of the sash.

Handle assembly

B.1 Set the handle (2) to 90° position on the sash, twist the cover and screw in the handle with 2 screws M5 x ... Check the function of the central locking for lightness.
B.2 Turn back the handle cover.
Sash assembly
Assembly of scissor-slider

A  Pre-drill the sash.
B  Screw on the scissor slider.
C  Assembly of scissor slider.

Variant track cover
Variant cover cap

10

Ø 3
180

180

4x...(dk 7)

= adhesive point
Sash assembly < 160 kg

Assembly of rollers

C Screw the rollers with 4 screws each for PVC 4.8 x ..., for timber 5 x 50 at a lateral distance of 10 mm to the sash outer edges and flush to the bottom edge (reference edge for profiles with edge radius (C1)).

The length of the screws in PVC systems is to be chosen in such a way that they can grip in the steel reinforcement (C2).

D Fix the cover support bracket with 2 screws 4.8 x ... in the middle of the rollers.

At SRW > 1450, screw both supports evenly between the rollers.

E Push the reinforcement parts into the profiles of the rollers, let them snap in and screw on as follows:

E.1: With PVC, use 2 screws 4.8 x ... so that the screws find grip in the steel reinforcement.

For timber, use 2 screws 5 x 50.

E.2: With PVC, use 2 screws 4.8 x ... so that the screws find grip in the steel reinforcement.

For timber, use 2 screws 5 x 16.

*) Definition of X is required for the later assembly of the guide block
Sash assembly < 160 kg

Assembly of connecting rod

A. Cut the connecting rod (1.4) to length according to the markings on the rollers (Fig. 1).
B. At SRW > 1450: Push the support block (1.11) to the middle and attach to the connecting rod (Torx 25, 2 ... 3 Nm).
C. Insert connecting rod into the roller clutches (2.1) and (2.2). Fix the roller (2.2) to the non-handle side with Torx 25 (5 ... 7 Nm).

Align rollers in parallel (to ensure an even run-in of the sash into the frame)

A. Grip the connecting rod in the middle and put it into the closed position.
B. In this position, tighten the connecting rod on the handle-side roller (2.1) (Torx 25, 5 ... 7 Nm) (B.1).
   Both rollers (2.1) and (2.2) must now also be parallel in the open position (B.2).
Frame assembly
Assembly of striker plates and stop absorber Diagram A

Position and fix striker plates 11/12 according to the Figure/Table as well as stop absorbers according to the illustration. Diagram C: see cross-section «Diagram C» (P. 40 - 41).

Must be used:
hardware screw 4.0 x ... d, 7 mm

All dimensions given are valid for a rebate gap of 12 mm.
Frame assembly

Assembly of striker plates and stop absorber Diagram A

Positioning of striker plates, sash lifters for fixed drive gear 12 mm rebate gap

<table>
<thead>
<tr>
<th>Drive gear size</th>
<th>SRH</th>
<th>Sash lifter</th>
<th>A</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>Handle set without rebate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1090</td>
<td>841-1090</td>
<td>264</td>
<td>586</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>400</td>
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<tr>
<td>1340</td>
<td>1091-1340</td>
<td>364</td>
<td>686</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>500</td>
</tr>
<tr>
<td>1590</td>
<td>1341-1590</td>
<td>464</td>
<td>-</td>
<td>921</td>
<td>-</td>
<td>-</td>
<td>600</td>
</tr>
<tr>
<td>1700</td>
<td>1591-1700</td>
<td>564</td>
<td>-</td>
<td>1021</td>
<td>-</td>
<td>-</td>
<td>700</td>
</tr>
<tr>
<td>1950</td>
<td>1701-1950</td>
<td>914</td>
<td>-</td>
<td>796</td>
<td>1466</td>
<td>-</td>
<td>1050</td>
</tr>
<tr>
<td>2200</td>
<td>1951-2200</td>
<td>914</td>
<td>-</td>
<td>796</td>
<td>1466</td>
<td>-</td>
<td>1050</td>
</tr>
<tr>
<td>2450</td>
<td>2201-2450</td>
<td>914</td>
<td>-</td>
<td>796</td>
<td>1466</td>
<td>1966</td>
<td>1050</td>
</tr>
</tbody>
</table>

Positioning of striker plates, sash lifters for width connector 12 mm rebate gap

<table>
<thead>
<tr>
<th>Width connector size</th>
<th>SRW</th>
<th>E1</th>
<th>E2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gr. 1</td>
<td>620 -900</td>
<td>330</td>
<td>-</td>
</tr>
<tr>
<td>Gr. 2</td>
<td>901 -1150</td>
<td>565</td>
<td>-</td>
</tr>
<tr>
<td>Gr. 3</td>
<td>1151-1400</td>
<td>800</td>
<td>-</td>
</tr>
<tr>
<td>Gr. 4</td>
<td>1401 -1650</td>
<td>565</td>
<td>1035</td>
</tr>
</tbody>
</table>

always to assemble

<table>
<thead>
<tr>
<th>II Recommended at FG ≥ 80 kg</th>
<th>III Recommended at FG &gt;120 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 30 kg/m² and SRW 1250 ... 1550 mm</td>
<td>≥ 30 kg/m² and SRW &gt; 1550 mm</td>
</tr>
<tr>
<td>≥ 40 kg/m² and SRW 900 ... 1450 mm</td>
<td>≥ 40 kg/m² and SRW &gt; 1450 mm</td>
</tr>
<tr>
<td>≥ 50 kg/m² and SRW 750 ... 1150 mm</td>
<td>≥ 50 kg/m² and SRW &gt; 1150 mm</td>
</tr>
<tr>
<td>≥ 60 kg/m² and SRW 620 ... 1000 mm</td>
<td>≥ 60 kg/m² and SRW &gt; 1000 mm</td>
</tr>
</tbody>
</table>
Frame assembly
Assembly of guide track and roller track

Assembly of guide track on frame installation
A  Cut to length the guide track (1). Distance between sash outer edges and the slide and fixed sashes minus 8 mm.
B  Assemble the guide track using screws 4.0 x ...(d, 7), as shown (B.1).

Important Information
The screw-heads must not protrude above the guide track!
If the screw-heads are protruded, this results in material damage (B.2)! Oil the sliding surface of the guide track over the entire length of the track (B.3).

C  Cut the cover profile (2) to the dimensions of the guide track and click onto the guide track.

Assembly of the roller track on the frame installation
D  Cut the roller track (3) flush to the sash outer edges of the slide and fixed sashes.
E  Fix the roller track with 35 + 1 mm distance from the bottom edge of the roller track to the bottom edge of the sash frame with screws 4.0 x ...(d, 7) on the frame installation (E.1).

Important Information
The screw-heads must not protrude above the roller track!
If the screw-heads are protruded, this results in material damage (E.2)!
In the case of visible deformations or unusual (clearly audible) noises in the area of the roller track, this must be continuously packed to ensure load transmission (E.3).
Frame assembly
Assembly of guide track and roller track

Screw heads must not protrude here!

Screw heads must not protrude here!
Sash and frame assembly tilt stay
Assembly of closing initiator for tilt stays

The transport protection device on the closing initiator cannot be removed until after assembly on the tilt stay. This is necessary to keep the position of the damper unchanged.

A  Check if the embossing of FG200 is present.

If the embossing is not present, the sash weight must not exceed 160 kg. Otherwise, it may result in serious bodily injury.

B  Set the control module / tilt damper (4a) as shown from below onto the nose of the tilt stay (B.1) and push upwards (B.2) until it snaps into the tilt stay (audible clicking noise!).

C  Remove transport protection device!
Sash and frame assembly tilt stay
Assembly of the tilt stay into the guide track

Open the tilt stay (A) and push as pictured into the guide track (B).

⚠️ ATTENTION ⚠️
When opening and closing the tilt stays, there is the risk of squeezing and clamping!
Sash and frame assembly tilt stay

Hinging sashes with tilt stay

Set the sash frame on the roller track
A Turn handle to slide position. Lift the sash slightly tilted inwards and use the rollers to lower onto the front edge of the roller track (12) (Fig. 1). Check the position of the rollers by pushing the sash and, if necessary, correct them.

Connect sash frames with guide track
B Push the tilt stay 4.1 into the stay-connecting profile 4.2.
C Position the tilt stay 4.1 flush to the sash edge, tighten the safety screw (Torx 25, 4...6 Nm).

WARNING

The safety screw must sit form-fitting in the hole of the stay-connecting profile 4.2. If the safety screw is not visible, the window sash is not adequately secured. Serious bodily injuries can occur!
Sash and frame assembly Tilt stay
Assembly of the cover caps, stay-connecting profile, tilt stay

A  Insert the cover caps left and right on the ends of the stay-connecting profile.
Sash and frame assembly scissor slider

Hinging sashes with scissor sliders

**Set the sash frame on the roller track**
A Turn handle to slide position. Lift the sash slightly tilted and use the rollers to lower onto the front edge of the roller track (1). Check the position of the rollers by pushing the sash and, if necessary, correct them.

**Connect sash frames with guide track**
B Slide the stay cams from below into the centre slider openings until they snap into the sliders (audible clicking noise!) (1). Correctly fixed position of the rotary cams in the sliders (2).
C If properly assembled, the side safety sliders are aligned flush to the edges of the slider housing.
D If the stay cams are not securely positioned in the sliders, the window sash is not secured against falling out. Serious bodily injuries can occur! Be sure to check carefully the secure connections by pushing/pulling the scissor stay catch down!
Sash and frame assembly scissor slider

Hinging sashes with scissor sliders

Note on unhinging the sash

Open the sash. Put the roller safety device in the released position (P. 33, A). Push the release pin from below flush into the roller opening next to the safety roller (1).
Pull out the safety roller with the release pin sideways from the roller (2).
Push out the stay cam downwards from the roller (3).
Repeat the process on the second roller. Tilt the released sash and lift it off the roller track (without Fig.).

* Contained in basic package.
Sash and frame assembly

Assembly of the guide block

A Position the guide block (3) on the handle side approx. 116 mm + X* from the outside edge of the roller track. Then, tighten only slightly with the top screw (Torx 25, < 1 Nm).

B Put the sash in the tilt position and check the rebate gap on both sides (12 mm). If necessary, reposition the guide block.

C Tighten the top screw on the guide block tightly (Torx 25, 4 ... 5 Nm) (C.1). Then, tighten the bottom screw (Torx 25, 2 ... 3 Nm) (C.2).

* Definition of X: see Page 16 “Assembly of rollers”
Sash and frame assembly

Horizontal orientation of the sash

A  Check the rebate gap at the top and bottom on both sides (without Fig.).
B  Remove twist protection devices.
C  Lift the rollers using adjustment screws (Torx 40) to align the sash.

**ATTENTION**

The adjustment screws must only be screwed out max. 11 mm. If the adjustment screws are screwed out more than 11 mm, this destroys the rollers!

D  Replace the twist protection devices on the adjustment screws, and slightly correct the alignment of the adjustment screws beforehand if necessary. The twist protection devices must sit parallel to the outside edge of the rollers.

Set reinforcement parts

(to optimise easy insertion of the sash into the frame)

E  Making insertion easier.
F  Making removal easier.

Important Information

From the default setting, both reinforcement parts should be adjusted evenly only in the direction of E. If the adjustment towards E is too much, the rollers may be ground down depending on the profile and sash weight. In this case, turn the adjustment screw until it runs freely, back towards F.
Sash and frame assembly

Assembly of rebate for control module / tilt damper (upper) – tilt stay

A  Push the sash down onto the guide block until the guide cam of the leading roller (handle side) touches the inlet curve but does NOT enter it.

B  Important: The stay-connecting profile must be positioned correctly (4 mm of rebate width).

C  Align the marking on the control module / tilt damper on the frame installation.

D  Open the sash.

E  With drill jig: Position the drill jig, for rebate closing initiator in the closing direction, behind the marking (!) and clip-into the guide track. Drill with Ø 3.2 mm hole.

F  Fix the rebate for control module / tilt damper underneath the guide track with screw 4.0 x ...(d₇) on the frame installation.

Alternatively, you can also measure the position of the rebate locking initiator. See dimensions in graphic. The dimensions refer to 12 mm rebate gap, 20 mm rebate width and correctly positioned stay-connecting profile (4 mm of rebate width).
Sash and frame assembly

Assembly of rebate for control module / tilt damper – scissor slider

A  Push the sash down onto the guide block 1 until the guide cam of the leading roller 2 (handle side) touches the inlet curve but does **NOT** enter it.

B  Push the control module / tilt damper 3d into the guide block right up to the slider scissor arm and fix in place.
Sash and frame assembly

Adjusting the sash pressure (rebate height)

Check closing behaviour of the sash. Adjust the sash pressure by setting the rebate height (X) with Torx 15.

Assembly of buffer stops

A  Screw in the lower buffer stop with rubber mushroom buffer in the desired position on the roller track (Torx 25, 4 ... 5 Nm).
B  Push the sash frame right up to the buffer stop.
C  Insert the upper buffer stop right up to scissor slider in the guide track and screw in tightly (Torx 25, 3 ... 4 Nm).
D  Insert the cover caps on the ends of the guide track.

If the sash does not evenly move against the upper and lower buffer stops, material damage may occur.
Sash and frame assembly

Assembly of covers

Activate the roller safety devices

A Push the roller safety device (1) backwards on both rollers until it snaps in at the position shown (2).

⚠️ WARNING If the roller safety device is not correctly positioned or missing from the position shown (2), the window sash is not adequately secured (3). Serious bodily injuries can occur!

Assemble roller covers

B Cut the cover profile 1.13 to length according to the markings on the rollers.
C Align the cover profile to the roller markings and clip onto the roller profiles as well as the cover support bracket(s) 1.12.
D Clip on the cover caps at the bottom left 1.6 and at the bottom right on the reinforcement parts 2.5.
Cross-sections

Opening width 125

Horizontal cross-section handle EG
Cross-sections

Vertical cross-section above tilt stay

Scale 1:1
Cross-sections

Vertical cross-section above scissor slider

Scale 1:1
Cross-sections

Vertical cross-section below

Scale 1:1
Diagram C

Assembly of guide track

If insufficient space:
A Push both tilt stays ④ sideways into the guide tracks ③.
B Insert the cover caps ⑤ on the ends of the guide tracks.
C Assemble the guide tracks using screws 4.0 x ... (d₇) onto the frame installation.

See also “Assembly of guide track” section.
Diagram C
Assembly of guide track
Frame assembly
Assembly of striker plates and stop absorber Diagram C

Must be used:
hardware screw
4.0 x... d 7 mm.

All dimensions given are valid for a rebate gap of 12 mm.

Position and fix striker plates 1/3 according to the Figure/Table as well as stop absorbers in accordance with the diagram.
Frame assembly

Assembly of striker plates and stop absorber Diagram C

Positioning of striker plates, sash lifters for fixed drive gear 4 mm rebate gap

<table>
<thead>
<tr>
<th>Drive gear size</th>
<th>SRH</th>
<th>A</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>Handle position without rebate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1090</td>
<td>841</td>
<td>544</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>400</td>
</tr>
<tr>
<td>1340</td>
<td>1091</td>
<td>644</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>500</td>
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<td>1341</td>
<td>-</td>
<td>879</td>
<td>-</td>
<td>-</td>
<td>600</td>
</tr>
<tr>
<td>1700</td>
<td>1591</td>
<td>-</td>
<td>979</td>
<td>-</td>
<td>-</td>
<td>700</td>
</tr>
<tr>
<td>1950</td>
<td>1701</td>
<td>-</td>
<td>754</td>
<td>1424</td>
<td>-</td>
<td>1050</td>
</tr>
<tr>
<td>2200</td>
<td>1951</td>
<td>-</td>
<td>754</td>
<td>1424</td>
<td>-</td>
<td>1050</td>
</tr>
<tr>
<td>2450</td>
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<td>-</td>
<td>754</td>
<td>1424</td>
<td>1924</td>
<td>1050</td>
</tr>
</tbody>
</table>

Positioning of striker plate for width connector 12 mm rebate gap

<table>
<thead>
<tr>
<th>Width connector</th>
<th>SRW</th>
<th>F 1</th>
<th>F 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size 1</td>
<td>620</td>
<td>324</td>
<td>-</td>
</tr>
<tr>
<td>Size 2</td>
<td>901</td>
<td>559</td>
<td>-</td>
</tr>
<tr>
<td>Size 3</td>
<td>1151</td>
<td>794</td>
<td>-</td>
</tr>
<tr>
<td>Size 4</td>
<td>1401</td>
<td>559</td>
<td>1029</td>
</tr>
</tbody>
</table>
Variant 1: PVC – with loose posts EG 15/15
(special striker plate required)

Variant 2: PVC – with loose posts EG 15/15 PVC

Variant 3: with loose posts EG 30/15, sash 2 cut

Variant 4: Timber – without posts with open groove EG 30/30

*) Definition of X: see Page 16

“Assembly of rollers”
Notes on sash assembly 200 kg

Assembly of TWIN rollers

A Screw in rollers ② and ③ with 8 screws each for PVC 4.8 x ..., for timber, use 5 x 50 at a side distance of 10 mm to the sash edges and flush to the bottom edge on the sash frame (reference edge for profiles with edge radius (A.1). The length of the screws in PVC systems must be chosen in such a way that they can grip into the steel reinforcement (A.2).

B Distribute the cover support brackets ① evenly between the rollers and fix each with two 4.8 x ... screws.

C Cut the connecting rod ⑤ to length according to the markings on the rollers.

D At SRW > 1450: Insert the support block in the clutches of the rollers.

E Insert the connecting rod in the clutches of the rollers ② and ③. Fix with Torx (5 ... 7 Nm: First, tighten the roller ③ on the non-handle side).

F Insert the reinforcement parts ④ in the profiles of the rollers, snap in and screw on as follows:

   F1: With PVC, use 2 screws 4.8 x ... so that the screws find grip in the steel reinforcement.
   For timber, use 2 screws 5 x 50.
   F2: With PVC, use 2 screws 4.8 x ... so that the screws find grip in the steel reinforcement.
   For timber, use 2 screws 5 x 16.

*) Definition of X is required for the later assembly of the guide block

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**Definitions:**
- **A.1** PVC x 4.8x ...
- **A.2** PVC x 8.4x ...
- **F.1** PVC x 4.8x...
- **F.2** PVC x 4.8x...
- **Torx 25** 2 ... 3 Nm
Notes on sash assembly 200 kg

Align rollers parallel

A  Grip the connecting rod in the middle and put it into the closed position.
B  In this position, tighten the connecting rod on the handle-side roller (Torx 25, 5...7 Nm) (B1).
    Both rollers + must now also be parallel in the open position (B2).
Notes on sash assembly 200 kg

Horizontal orientation of the sash

A Check the rebate gap at the top and bottom on both sides (without Fig.).
B Remove twist protection devices.
C Lift the rollers using adjustment screws (Torx 40) to align the sash. The adjustment screws must only be screwed out max. 11 mm.

⚠️ ATTENTION

If the adjustment screws are screwed out more than 11 mm, the rollers will be destroyed.
The rollers are evenly pre-set at the factory. For the correct alignment of the sash, the rollers must be equally adjusted on their two adjustment screws so that they do not tilt.

D Set the twist protection devices on the adjustment screws and correct the alignment of the adjustment screws beforehand if necessary.
Notes on sash assembly 200 kg

Activation of roller safety device

A Push the roller safety device (1) backwards on both rollers 2 / 2 until it snaps in at the position shown (2).

**WARNING**

If the roller safety device is not correctly positioned or missing from the position shown, the window sash is not adequately secured (3). Serious bodily injuries can occur!

Assembly of roller covers

B Cut the cover profile 13 to length according to the markings on the rollers.

C Align the cover profile to the roller markings and clip onto the roller profiles as well as the cover support bracket(s) 12.

D Clip on the cover caps at the bottom left and at the bottom right 16 on the reinforcement parts 15.