

Product  
catalogue

**SIEGENIA®**

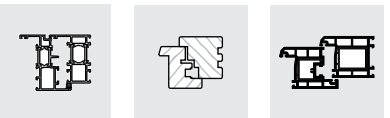


A bright future with  
**A**uminium.

Product catalogue.

WINDOW HARDWARE  
DOOR HARDWARE BESCHLÄGE  
SLIDING DOOR HARDWARE  
VENTILATION TECHNOLOGY  
BUILDING TECHNOLOGY

**ALU**



## Function

Application diagrams show the maximum sash dimensions at a specific element weight for which a piece of hardware may be used. Application diagrams focus exclusively on the property of **durability** and may also provide information on the load-bearing capacity of the hardware when subjected to an additional load according to EN 14608 (Figure A.1).

## Basic principles

Application diagrams are produced on the basis of the ift guideline "Preparation of application diagrams for turn and tilt-turn hardware". The guideline provides more information on using application diagrams and can be downloaded at [www.anwendungsdiagramme.de](http://www.anwendungsdiagramme.de).

## Abbreviations and icons

The following abbreviations and icons are used in this document and in all other application diagrams.

### Abbreviations

<b>CG</b>	Reduction in glass size [mm]	<b>GG</b>	Specific element weight [kg/m <sup>2</sup> ]
<b>FB</b>	Sash width [mm]	<b>FFB</b>	Sash rebate width [mm]
<b>FFH</b>	Sash rebate height [mm]	<b>FFH AB</b>	Sash rebate height up to the start of the arched head [mm]
<b>FFH BS</b>	Sash rebate height on the hinge side [mm]	<b>FH</b>	Sash height [mm]
<b>FH AB</b>	Sash height up to the start of the arched head [mm]	<b>FH BS</b>	Sash height on the hinge side [mm]
<b>PG</b>	Profile weight [kg/m]	<b>Q<sub>B/H</sub></b>	Max. width-to-height ratio (= FFB/FFH)

### Icons

	Tilt-turn window element		Turn window element
	Tilt window element		Arched head window element
	Rounded head window element		Angled window element
	Triangular window element		Maximum permissible sash weight
	Frame material: timber		Frame material: PVC
	Frame material: light metal		



## Intended use

Valid for all application diagrams

**TITAN**

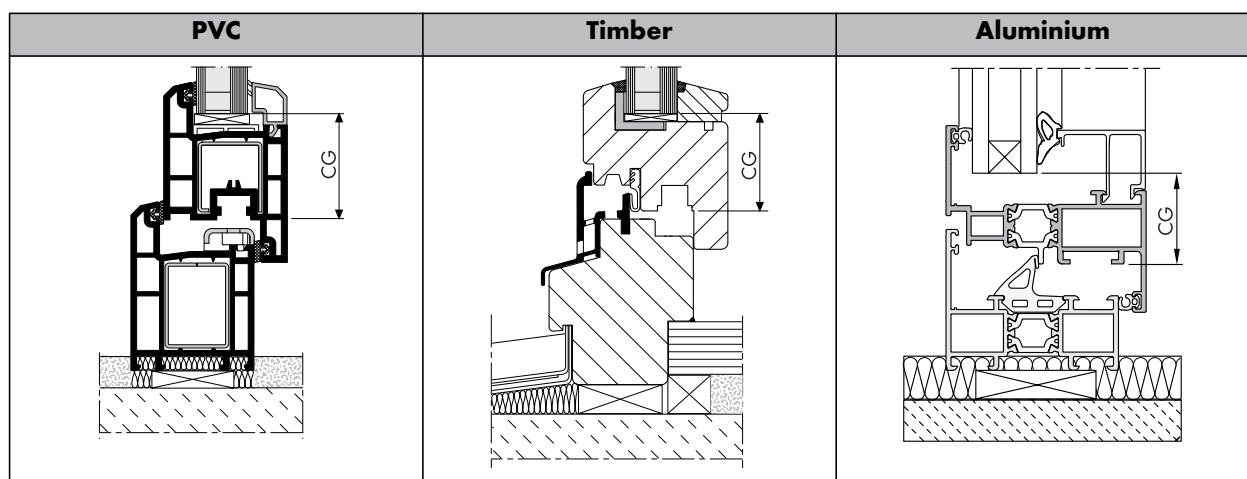
### Requirements for use

Please note and comply with the following points at all times when using application diagrams and hardware:

- The application ranges for the hardware are derived from the size specifications in the assembly instructions/component catalogue **and** from those in the relevant application diagram. If the values differ, the data in the assembly instructions always applies, with the data in the component catalogue providing an alternative.
- If a combination of components with different load-bearing capacities is being used, the application diagram for the component with the lowest load-bearing capacity is always the one that applies.
- Guidelines/notes on the product and on liability (VHBH directive as well as the other applicable documents listed here in - directive can be downloaded at [www.beschlagindustrie.de/ggsb/richtlinien.asp](http://www.beschlagindustrie.de/ggsb/richtlinien.asp)).
- Specifications from the profile manufacturers/system owners (e.g. for window systems with frames made of timber, PVC, light metal or combinations of materials) or DIN 68121 "Timber profiles for windows and French windows" - with particular regard to potential restrictions for the sash dimensions and sash weight.
- Guidelines and, where applicable, application diagrams in the product documentation supplied by the relevant glass or infill panel manufacturer.
- In accordance with the application diagrams, the hardware is to be used exclusively for window elements which are installed vertically in walls in permanent structures, unless otherwise indicated.
- The application diagrams apply exclusively to hardware used in window elements which open inwards, unless otherwise indicated.
- In accordance with the relevant application diagrams, the hardware is to be used exclusively for window elements in which the reduction in glass size (**CG**) is greater than or equal to the specified value, and the profile weight (**PG**) is less than or equal to the specified value.
- If the application range approved in the application diagrams is exceeded, there is a risk of damage to persons or property. If the application ranges are exceeded, our liability ceases to the extent permissible under law.

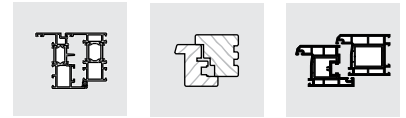
### Reduction in glass size

The reduction in glass size (**CG**) is to be determined for each material (timber, PVC, light metal or combinations of materials) as shown in the following drawings.



### Profile weight

The profile weight is the specific weight per running metre of the sash profile (complete sash profile including all reinforcements, glazing beads, etc.).

**Element weight**

When calculating application diagrams, various values are taken into account for the specific element weight (**GG**) and illustrated in graphs in the application diagram.

The specific element weight (**GG**) covers all filling materials (which are suitable for window construction) – glazing with all kinds of structural parts as well as infill panels made of different materials and material combinations.

**Determining the element weight**

For glazing, the specific element weight (**GG**) for a glass mass of 2.5 kg/m<sup>2</sup> mm, for example, is calculated as follows:

$$GG \approx 2.5 \text{ kg/m}^2 \text{ mm} \times \text{total glass thickness}$$

**Example**

Glazing made of 2 glass panes, each with a thickness of 4 mm, total glass thickness = 8 mm

$$GG \approx 2.5 \text{ kg/m}^2 \text{ mm} \times 8 \text{ mm}$$

$$GG \approx 20 \text{ kg/m}^2$$

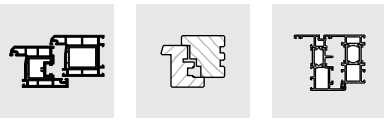
Additional examples of specific element weights for different glass thicknesses are shown in the following table.

Mass of glass per mm glass thickness [kg/m <sup>2</sup> mm]	Glass thickness	Element weight (GG) [kg/m <sup>2</sup> ]
2,5	1	2,5
2,5	8	20
2,5	12	30
2,5	16	40
2,5	20	50
2,5	24	60
2,5	28	70



# APPLICATION DIAGRAMS

Intended use.



## Intended use

Valid for all application diagrams

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### Reading the data

In the subsequent examples, the following has been assumed:

- The reduction in glass size (**CG**) for the window element is greater than or equal to the value specified in the application diagram.
- The profile weight (**PG**) of the window element is less than or equal to the value specified in the application diagram.
- The bases of testing and calculation specified in the application diagram relate to the application of the hardware.
- The additional load taken into account in the application diagram relates to the application of the hardware.
- The window manufacturer has provided evidence that the load-bearing components have been fixed in accordance with TBDK using the values specified in the application diagram.

### Determining the valid application range for a specific element weight

The permissible application range for use of the hardware is highlighted in grey in the application diagrams. However, the entire grey area is not valid; in each case, it is only the part to the **left** of the curve for the relevant element weight (**GG**) which applies.

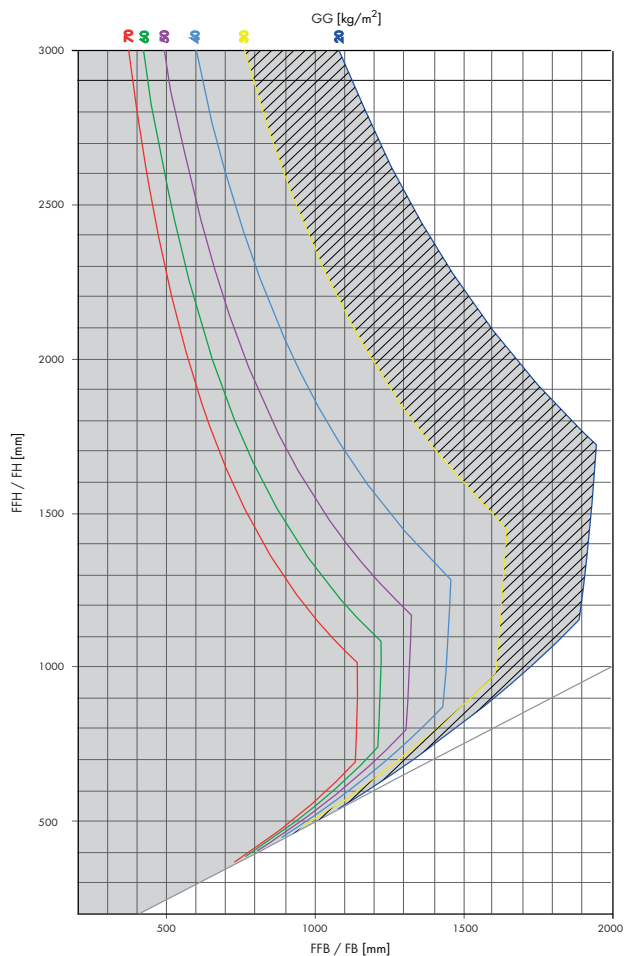
*Note: This example, and all subsequent examples, use the reference values **FFH** and **FFB**. All descriptions and results for each of the examples also apply correspondingly for the reference values **FH** and **FB**.*

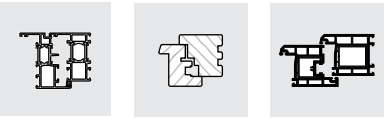
#### Example 1

The permissible FFH and FFB are to be determined from the accompanying application diagram for window elements with the specific element weight **GG = 30 kg/m<sup>2</sup>**. To do this, we must consider the graph for this element weight.

The area to the **left** of the curve shows the permissible range for a specific element weight of **GG = 30 kg/m<sup>2</sup>**.

The area to the **right** of the curve (shaded here for the purposes of clarification) shows the impermissible range for a specific element weight of **GG = 30 kg/m<sup>2</sup>**.





### Determining the valid application range for the maximum specific element weight

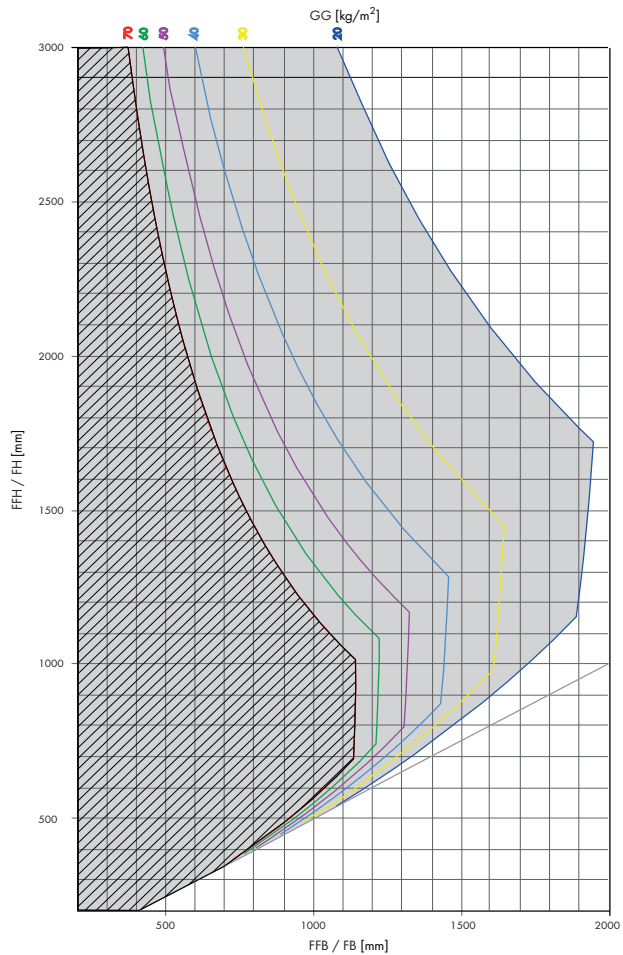
The hardware may only be used in sashes which use glazing or infill panels whose specific element weight is less than or equal to the maximum specific element weight shown in the relevant application diagram.

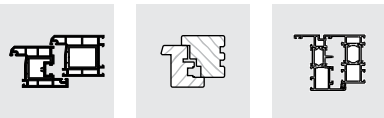
#### Example 2

In the following example, **70 kg/m<sup>2</sup>** is specified as the maximum specific element weight. Element weights over **70 kg/m<sup>2</sup>** are, therefore, generally not permitted in this example.

The permissible FFH and FFB are to be determined from the accompanying application diagram for window elements with the specific element weight **GG = 70 kg/m<sup>2</sup>**. To do this, we must consider the graph for this element weight.

The area to the left of the curve (shaded here for the purposes of clarification) shows the permissible range for the maximum specific element weight of **GG = 70 kg/m<sup>2</sup>**.





## Intended use

Valid for all application diagrams

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### Example 3

The following sash is to be fitted with hardware according to the associated application diagram:

- Intended sash rebate width (**FFB**) = **1.300 mm**
- Intended sash rebate height (**FFH**) = **1.800 mm**
- Intended glazing 3 x 4 mm float glass - **GG = 30 kg/m<sup>2</sup>**

### Basis of testing and calculation:

Tilt-turn test according to QM 328 Appendix 2-Figure A

- 15.000 tilt & turn cycles
- 10.000 turn cycle

Additional loads taken into account in accordance with EN 14608 (Figure A.1)/Class 4 in accordance with EN 13115 (800 N)

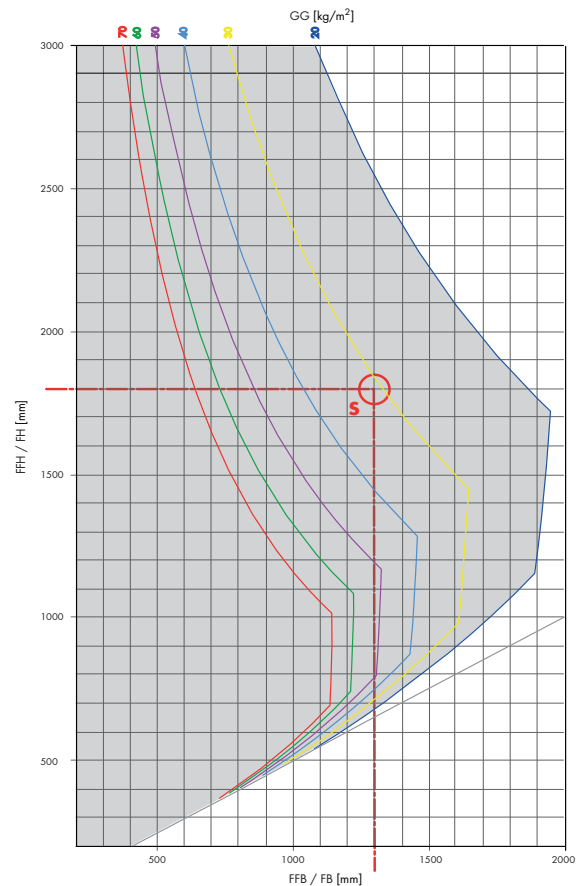
### Requirements for the use of the application diagram:

Proof that the load bearing components have been fixed to the window system by the window manufacturer in accordance with TBDK using the following forces:

- To the top hinge with 2.710 N
- To the bottom hinge with 2.890 N

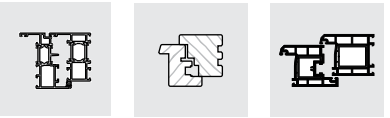
Comply with the following values for all window systems:

- Max. width-to-height ratio  **$Q_{B/H} \leq 2,0$**
- Reduction in glass size  **$CG \geq 28$  mm**
- Profile weight  **$PG \leq 3,25$  kg/m<sup>2</sup>**



Result after reading the data in the application diagram:

- The point of intersection (**S**) for  **$FFB \times FFH = 1.300 \times 1.800$  mm** is to the left of the curve in the permissible range for the specific element weight  **$GG = 30$  kg/m<sup>2</sup>**.
- The hardware **can be used** as indicated in the associated application diagram.

**Example 4**

The following sash is to be fitted with hardware according to the associated application diagram:

- Intended sash rebate width (**FFB**) = **1.400 mm**
- Intended sash rebate height (**FFH**) = **1.900 mm**
- Intended glazing 3 x 4 mm float glass - **GG = 30 kg/m<sup>2</sup>**

**Basis of testing and calculation:**

Tilt-turn test according to QM 328 Appendix 2-Figure A

- 15.000 tilt & turn cycles
- 10.000 turn cycle

Additional loads taken into account in accordance with EN 14608 (Figure A.1)/Class 4 in accordance with EN 13115 (800 N)

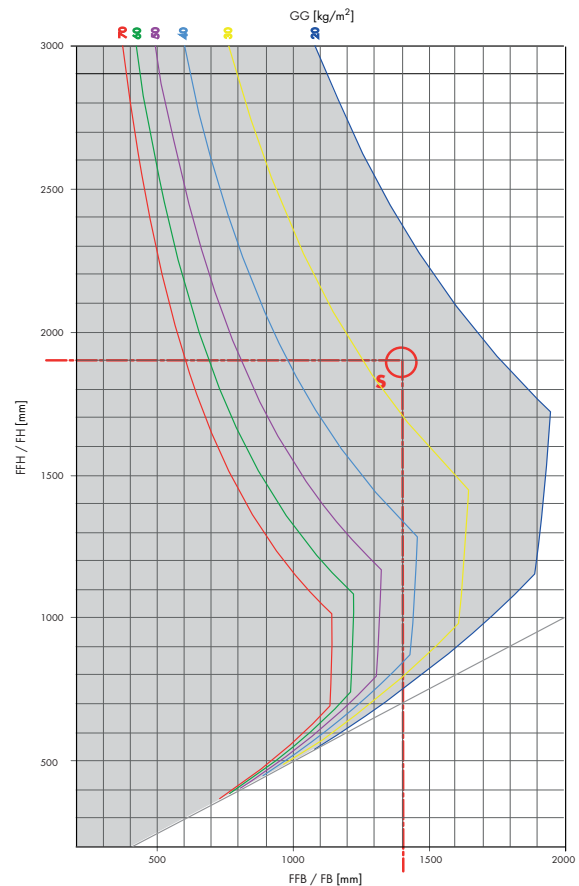
**Requirements for the use of the application diagram:**

Proof that the load bearing components have been fixed to the window system by the window manufacturer in accordance with TBDK using the following forces:

- To the top hinge with 2.710 N
- To the bottom hinge with 2.890 N

Comply with the following values for all window systems:

- Max. width-to-height ratio  **$Q_{B/H} \leq 2,0$**
- Reduction in glass size  **$CG \geq 28$  mm**
- Profile weight  **$PG \leq 3,25$  kg/m<sup>2</sup>**



Result after reading the data in the application diagram:

- The point of intersection (**S**) for  **$FFB \times FFH = 1.400 \times 1.900$  mm** is to the right of the curve in the impermissible range for the specific element weight  **$GG = 30$  kg/m<sup>2</sup>**.
- The hardware **cannot be used** as indicated in the associated application diagram.



## Intended use

Valid for all application diagrams

**TITAN**

### Example 5

The following sash is to be fitted with hardware according to the associated application diagram:

- Intended sash rebate width (**FFB**) = **1.600 mm**
- Intended sash rebate height (**FFH**) = **2.200 mm**
- Intended glazing 2 x 4 mm float glass - **GG = 20 kg/m<sup>2</sup>**

### Basis of testing and calculation:

Tilt-turn test according to QM 328 Appendix 2-Figure A

- 15.000 tilt & turn cycles
- 10.000 turn cycle

Additional loads taken into account in accordance with EN 14608 (Figure A.1)/Class 4 in accordance with EN 13115 (800 N)

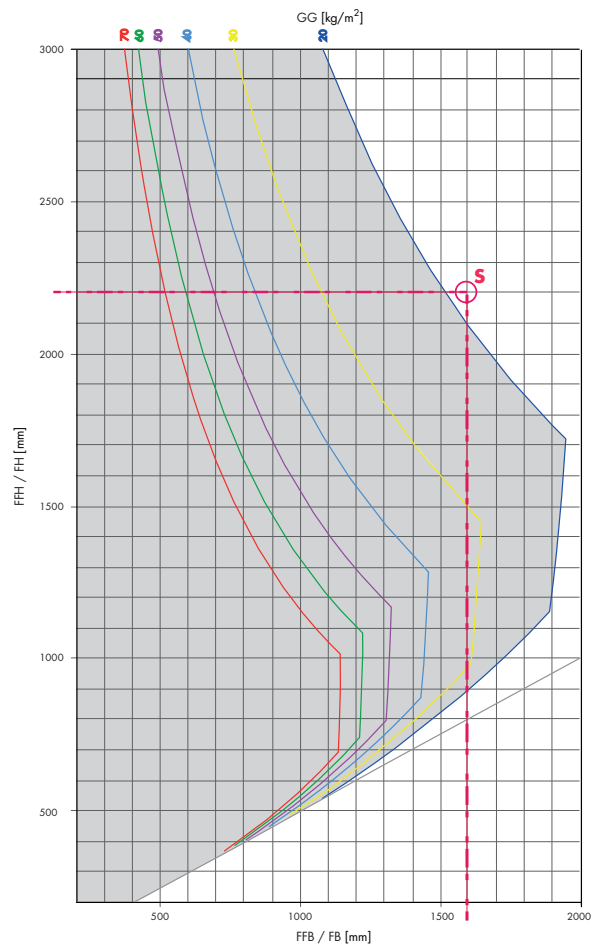
### Requirements for the use of the application diagram:

Proof that the load bearing components have been fixed to the window system by the window manufacturer in accordance with TBDK using the following forces:

- To the top hinge with 2.710 N
- To the bottom hinge with 2.890 N

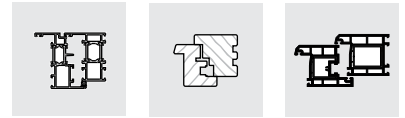
Comply with the following values for all window systems:

- Max. width-to-height ratio  **$Q_{B/H} \leq 2,0$**
- Reduction in glass size  **$CG \geq 28$  mm**
- Profile weight  **$PG \leq 3,25$  kg/m<sup>2</sup>**



Result after reading the data in the application diagram:

- The point of intersection (**S**) for **FFB x FFH = 1.600 x 2.200 mm** is to the right of the curve in the impermissible range for the specific element weight **GG = 20 kg/m<sup>2</sup>**.
- The hardware **cannot be used** as indicated in the associated application diagram.

**Example 6 (specific element weight between the curves)**

The following sash is to be fitted with hardware according to the associated application diagram:

- Intended sash rebate width (**FFB**) = **1.000 mm**
- Intended sash rebate height (**FFH**) = **2.100 mm**
- Intended glazing - **GG** = **35 kg/m<sup>2</sup>**
- For a specific element weight of 35 kg/m<sup>2</sup>, an additional curve is plotted in the application diagram whose position and progression are determined by means of linear interpolation.

**Please note and comply with the following points at all times for interpolation:**

- For specific element weights (GG) less than 50 kg/m<sup>2</sup>, linear interpolation is only permissible if there is a maximum difference of 10 kg/m<sup>2</sup> between the two curves in the application diagram.
- For specific element weights (GG) greater than 50 kg/m<sup>2</sup>, linear interpolation is only permissible if there is a maximum difference of 20 kg/m<sup>2</sup> between the two curves in the application diagram.

**Basis of testing and calculation:**

Tilt-turn test according to QM 328 Appendix 2 - Figure A

- 15.000 tilt & turn cycles
- 10.000 turn cycle

Additional loads taken into account in accordance with EN 14608 (Figure A.1)/Class 4 in accordance with EN 13115 (800 N)

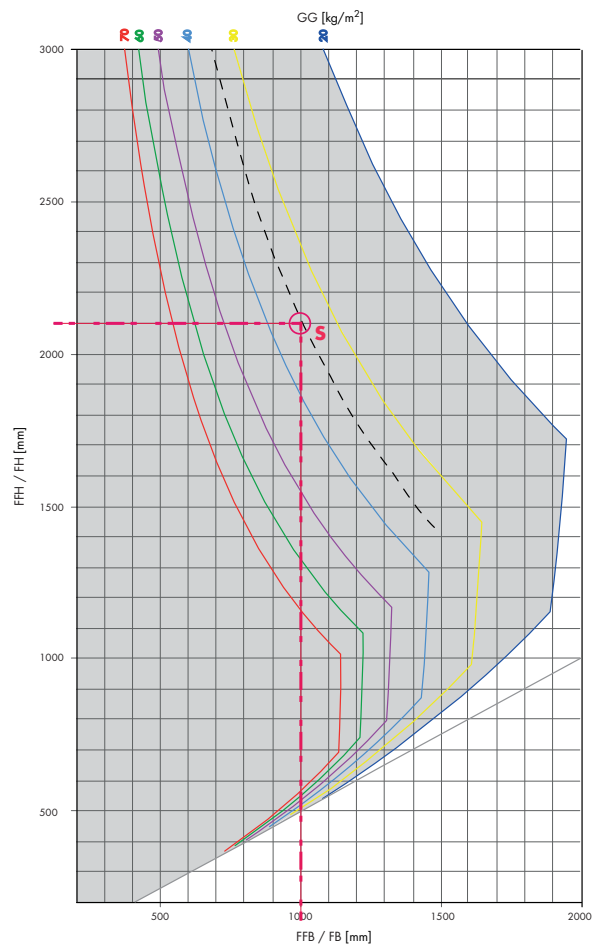
**Requirements for the use of the application diagram:**

Proof that the load bearing components have been fixed to the window system by the window manufacturer in accordance with TBDK using the following forces:

- To the top hinge with 2.710 N
- To the bottom hinge with 2.890 N

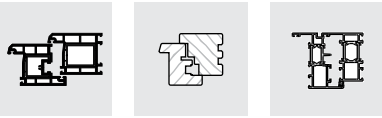
Comply with the following values for all window systems:

- Max. width-to-height ratio  **$Q_{B/H} \leq 2,0$**
- Reduction in glass size  **$CG \geq 28$  mm**
- Profile weight  **$PG \leq 3,25$  kg/m<sup>2</sup>**



Result after reading the data in the application diagram:

- The point of intersection (**S**) for  **$FFB \times FFH = 1.000 \times 2.100$  mm** is located exactly on the curve determined by linear interpolation for the specific element weight  **$GG = 35$  kg/m<sup>2</sup>**, and is therefore within the permissible range for this element weight.
- The hardware **can be used** as indicated in the associated application diagram.



## Intended use

Valid for all application diagrams

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### Example 7 (Special areas during interpolation)

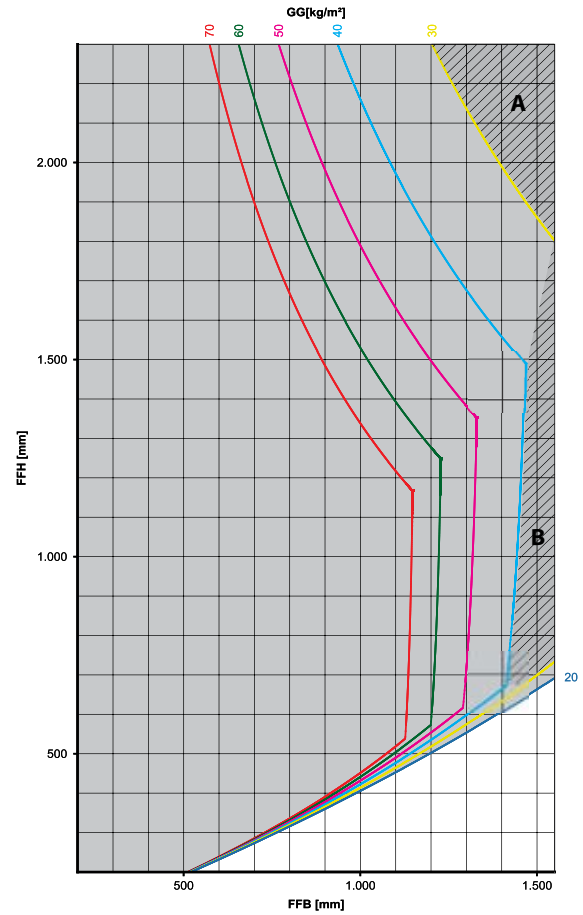
The procedure shown in example 6 (diagram) for specific element weights between the curves only applies if two curves are displayed in the diagram, between which linear interpolation is possible.

#### Example A

In the area to the right next to the curve for the specific element weight **GG = 30 kg/m<sup>2</sup>** (also cross-hatched here for illustration purposes), no additional curve is displayed here for linear interpolation and only elements with a specific weight of **GG = 20 kg/m<sup>2</sup> maximum** may be used in this area (the next lowest level of specific element weight).

#### Example B

In the area to the right next to the curve for the specific element weight **GG = 40 kg/m<sup>2</sup>** (also cross-hatched here for illustration purposes), no additional curve is displayed here for linear interpolation and only elements with a specific weight of **GG = 30 kg/m<sup>2</sup> maximum** may be used in this area (the next lowest level of specific element weight).





**SIEGENIA**<sup>®</sup>  
SOLUTIONS INSIDE

Head Office:  
Industriestraße 1-3  
57234 Wilnsdorf  
GERMANY

Phone: +49 271 3931-0  
Telefax: +49 271 3931-333  
info@siegenia.com  
www.siegenia.com



You can find address details for our  
international sites at: [www.siegenia.com](http://www.siegenia.com)

SIEGENIA worldwide:

**Austria** Phone: +43 6225 8301  
**Belarus** Phone: +375 17 3121168  
**Benelux** Phone: +32 9 2811312  
**China** Phone: +86 316 5998198  
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**Switzerland** Phone: +41 33 3461010  
**Turkey** Phone: +90 216 5934151  
**Ukraine** Phone: +380 44 4637979

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Contact your dealer:



### **Directives of the Trade Organisation for Locks and Fittings (Gütegemeinschaft Schlösser und Beschläge e. V.)**

The directives of the Trade Organisation for Locks and Fittings provide comprehensive information on the correct operation and maintenance of hardware for windows and portal doors. Compliance with these guidelines is mandatory.

You can find the latest versions of the directives, in a range of languages, at:  
<http://www.beschlagindustrie.de/ggsb/richtlinien.asp>



**TBDK – Attachment of supporting fitting components for turn-only and tilt&turn fittings**  
with definitions for turn-only and tilt&turn fittings and their possible installation positions

**VHBH – Hardware for windows and balcony doors**  
Guidelines/advice on the product and on liability

**VHBE – Hardware for windows and balcony doors**  
Guidelines/advice for end-users

**FPKF – Restrictor and cleaning stays for Tilt-Only sashes and Tilt-Only fanlights**  
Use of restrictor and cleaning stays

**FBDF – Casement stoppers for variable rotational position of window leafs**  
Casement stoppers that are controlled via the central locking system - definitions and tests

### **Further relevant documents**

You can find further relevant documents, for example structural design charts, assembly instructions, profile spec sheets, individual component sheets, and maintenance, operating and care instructions, on our documentation pages:  
<http://downloads.siegenia.com/>



### **Feedback on documentation**

We welcome your comments and suggestions on how to improve our documentation. Please e-mail your comments to:  
[dokumentation@siegenia.com](mailto:dokumentation@siegenia.com).



## Basic safety notes

### Intended use

The hardware described in this document is intended for installation in aluminium window frames by a specialist window fabricator in accordance with these instructions. The windows must only be installed vertically.

The specialist window fabricator must determine the suitability of the hardware for its intended use by means of the information in these instructions and additional listed documents.

### Overloading

Bearing components can break as a result of overloading. This can lead to the window sash falling out and causing serious injuries. If overloading of the bearing components is anticipated due to particular circumstances

(ie: use in schools, nurseries etc), this should be prevented by taking appropriate measures, eg: by using turning locks, or by opting for the Tilt before Turn (TBT) opening type.

- In case of doubt, always contact your nearest SIEGENIA Sales Consultant.

### Do not mix hardware components

The hardware components are compatible with each other technically. The function of the hardware components is not guaranteed if hardware components from different systems or manufacturers are mixed and used on a window.

Hardware components can break and cause accidents.

- Only use the hardware components listed in these instructions together on a window.

### Only treat window surfaces before fitting the hardware

- Any surface treatment applied to the window surfaces after the assembly of the hardware components may limit their functionality.

### Avoid damage caused by corrosion and debris

Corrosive materials, dirt and moisture may damage hardware components and cause hazards.

- Do **not** use acetic or acid-releasing sealants.
- Do **not** use the hardware components in environments where the air contains aggressive or corrosive components.
- Keep all rebates free of debris and dirt, especially cement and plaster residue.
- Keep the hardware dry.

### Clean hardware gently

- Only clean the hardware with a soft cloth and mild, diluted pH-neutral cleaning agents.
- The hardware must not be exposed to abrasive cleaners or aggressive, acidic cleaning agents.
- Leave the hardware to dry after the cleaning process.

### Pass on information to the user of the window

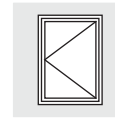
- Attach the user information order no. 05083 to the installed window or door element so that it can be seen easily.
- Provide the user with the following documents:
  - Maintenance and cleaning instructions, order no. 15750/19748
  - Operating Instructions, order no. 05766

### Exclusion of liability

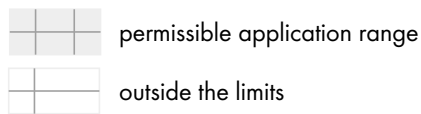
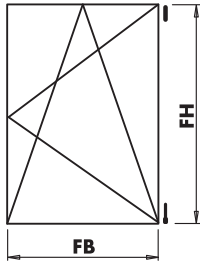
- We assume no liability for loss of function and damage to the fittings (as well as the windows and French windows that are equipped with them) resulting from inadequate tendering, failure to follow these installation instructions or from force being applied to the fittings (e.g. through improper use).

# Application diagram

H58.AWDLS003DE



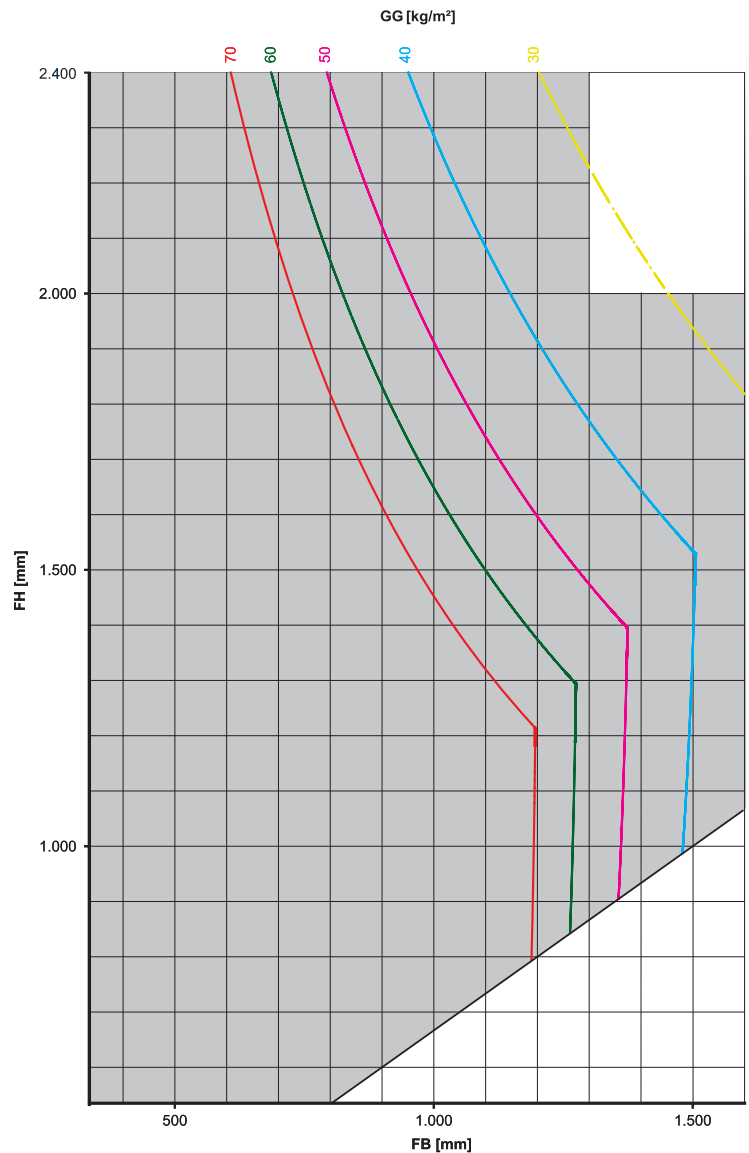
## Restrictions on sash formats for tilt and turn/turn elements



FH = sash rebate height  
FB = sash rebate width

### Testing and calculation specifications:

- Tilt & turn testing in accordance with QM 328 Appendix 2 - Figure A:
  - 15,000 tilt & turn cycles
  - 10,000 turn cycles
- Additional loads in accordance with EN 14608 (Figure A.1) / Class 4 in accordance with EN 13115 (800 N) taken into account

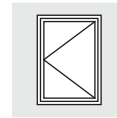


### Requirements for the use of the size range chart:

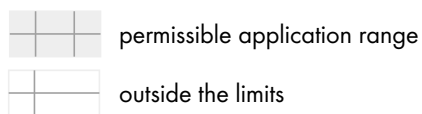
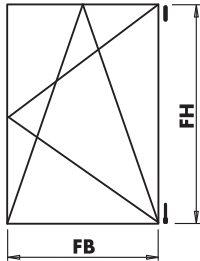
- Proof that the load-bearing components have been attached to the window system by the window manufacturer in accordance with TBDK using the following forces:
  - To the top hinge with 2,710 N
  - To the bottom hinge with 2,890 N
- Comply with the following values for all window systems:
  - Max. width-to-height ratio  $Q_{w/H} \leq 1.5$
  - Reduction in glass size  $CG \geq 40$  mm
  - Profile weight  $PW \leq 3.6$  kg/m
- Observe the notes on proper use - basics and use of the application diagrams (see document H58.AWD\_BG\_EN)!

# Application diagram

H58.AWDL004EN



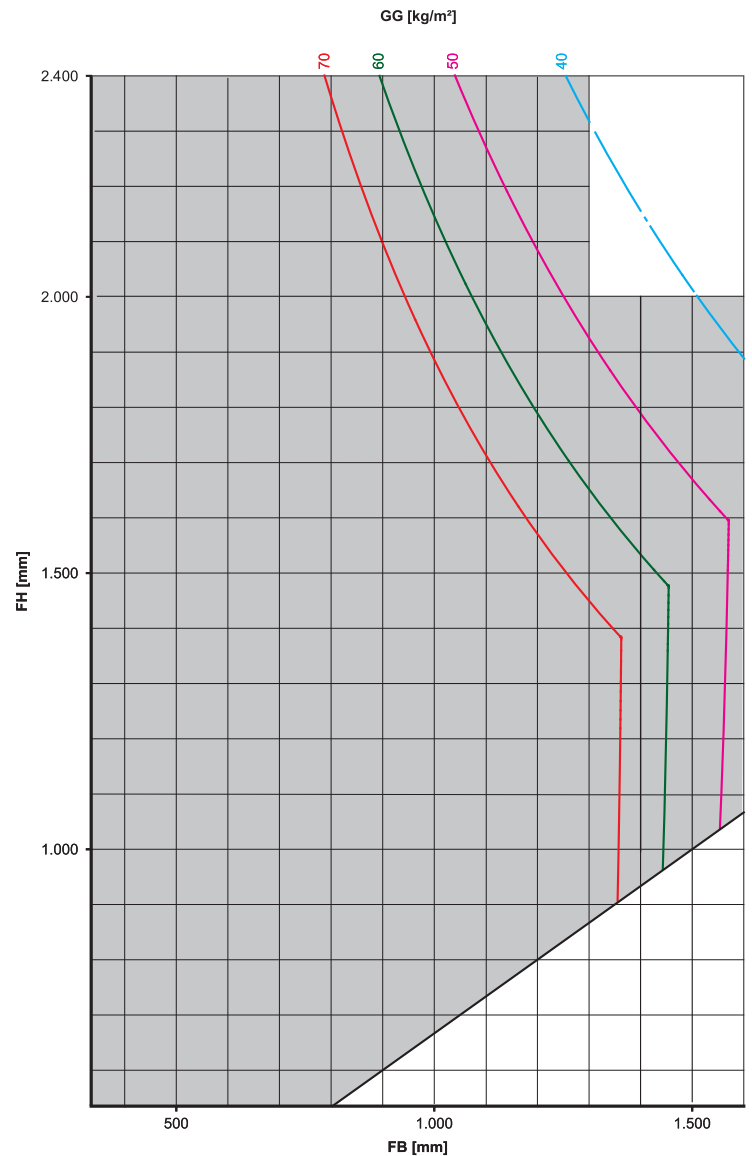
## Restrictions on sash formats for tilt and turn/turn elements



FH = sash rebate height  
FB = sash rebate width

### Testing and calculation specifications:

- Tilt & turn testing in accordance with QM 328 Appendix 2 - Figure A:
  - 15,000 tilt & turn cycles
  - 10,000 turn cycles
- Additional loads in accordance with EN 14608 (Figure A.1) / Class 4 in accordance with EN 13115 (800 N) taken into account



### Requirements for the use of the size range chart:

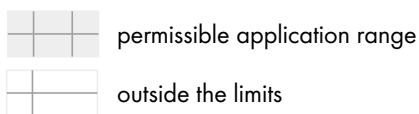
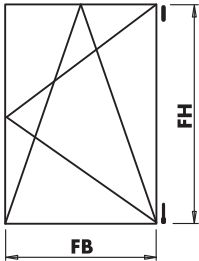
- Proof that the load-bearing components have been attached to the window system by the window manufacturer in accordance with TBDK using the following forces:
  - To the top hinge with 3,525 N
  - To the bottom hinge with 3,760 N
- Comply with the following values for all window systems:
  - Max. width-to-height ratio  $Q_{w/h} \leq 1.5$
  - Reduction in glass size CG  $\geq 40$  mm
  - Profile weight PW  $\leq 3.6$  kg/m
- Observe the notes on proper use - basics and use of the application diagrams (see document H58.AWD\_BG\_EN)!

# Application diagram

H58.AWDL005EN



## Restrictions on sash formats for tilt and turn/turn elements



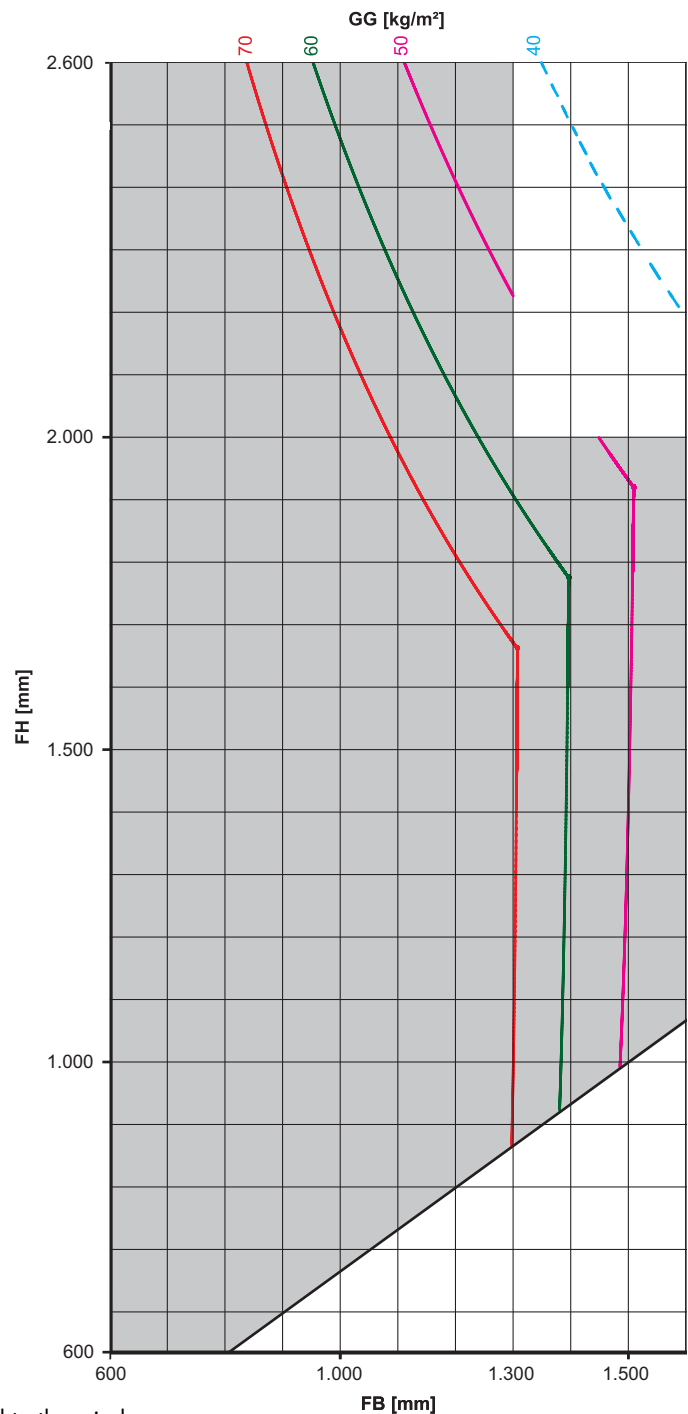
FH = sash rebate height  
FB = sash rebate width

### Testing and calculation specifications:

- Tilt & turn testing in accordance with QM 328 Appendix 2 – Figure A:
  - 15,000 tilt & turn cycles
  - 10,000 turn cycles
- Additional loads in accordance with EN 14608 (Figure A.1) / Class 4 in accordance with EN 13115 (800 N) taken into account

### Requirements for the use of the size range chart:

- Proof that the load-bearing components have been attached to the window system by the window manufacturer in accordance with TBDK using the following forces:
  - To the top hinge with 4,200 N
  - To the bottom hinge with 4,340 N
- Comply with the following values for all window systems:
  - Max. width-to-height ratio  $Q_{w/H} \leq 1.5$
  - Reduction in glass size  $CG \geq 40$  mm
  - Profile weight  $PW \leq 3.6$  kg/m



- Observe the notes on proper use - basics and use of the application diagrams (see document H58.AWD\_BG\_EN)!



**Öffnungsarten und Bauformen**  
**Opening and design variants**

	Dreh-Kipp-Fensterelement/ <i>Turn-and-tilt/tilt-and-turn window element</i>		Dreh-Fensterelement, 2-flügelig <i>Turn-only window element, double sash</i>
	Dreh-Fensterelement <i>Turn-only window element</i>		Dreh-/Dreh-Kipp-Fensterelement, 2-flügelig <i>Turn/turn-and-tilt element, double sash</i>
	Kipp-Fensterelement <i>Tilt window element</i>		Stulp-Fensterelement <i>Secondary sash window element</i>
	Rundbogen-Fensterelement <i>Round-arch window element</i>		Rundbogen-Fensterelement, 2-flügelig <i>Round-arch window element, double sash</i>
	Stichbogen-Fensterelement <i>Segmental-arch window element</i>		Stichbogen-Fensterelement, 2-flügelig <i>Segmental-arch window element, double sash</i>
	Schräg-Fensterelement <i>Pitched window element</i>		Schräg-Fensterelement, 2-flügelig <i>Pitched window element, double sash</i>
	Klapp-Fensterelement <i>Folding window element</i>		Dreh-Fensterelement, nach außen öffnend <i>Turn-only window element, outward opening</i>

**Symbole und Abkürzungen**  
**Symbols and abbreviations**  
H45.5200LS002de/en



## Verzeichnis der verwendeten Abkürzungen

### List of abbreviations used

<b>DE</b>	<b>Deutsch</b>	<b>EN</b>	<b>English</b>
<b>Kürzel</b>	<b>Beschreibung</b>	<b>Abbrev.</b>	<b>Description</b>
<b>ALU</b>	Aluminium	<b>ALU</b>	Aluminum
<b>AV</b>	Andruckeinstellung	<b>AV</b>	Pressure setting
<b>AWD</b>	Anwendungsdiagramm	<b>AWD</b>	Application diagram
<b>BF</b>	Ausführung „Barrierefrei“	<b>BF</b>	Version „barrier-free“
<b>BD</b>	Banddurchgang	<b>BD</b>	Hinge clearance
<b>BS</b>	Bandseite	<b>BS</b>	Hinge side
<b>BSO</b>	Bandseite oben	<b>BSO</b>	Hinge side, top
<b>BSU</b>	Bandseite unten	<b>BSU</b>	Hinge side, bottom
<b>CG</b>	Glas-Abzugsmaß	<b>CG</b>	Glass deduction dimension
<b>D</b>	Ausführung „Dreh“	<b>D</b>	Version „turn only“
<b>DG</b>	Dreh - gegenläufig	<b>DG</b>	Turn - counter-rotating
<b>DK</b>	Ausführung „Dreh-Kipp“	<b>DK</b>	Version „turn-tilt“
<b>DF</b>	Drehflügel	<b>DF</b>	Turn only sash
<b>DS</b>	Ausführung „Dreh-Stulp“	<b>DS</b>	Version „turn secondary sash“
<b>DS/A</b>	Dreh-Stulp aufliegendes Getriebe	<b>DS/A</b>	Secondary sash slip-on gear
<b>DS/K</b>	Dreh-Stulp Kantenriegelschieber	<b>DS/K</b>	Secondary sash shoot bolt
<b>E</b>	Einbruchhemmung	<b>E</b>	Burglar resistance
<b>ESG</b>	Einsteckgetriebe	<b>ESG</b>	Routed-in drive gear
<b>EUL</b>	Eckumlenkung	<b>EUL</b>	Corner drive
<b>FB (a)</b>	Flügelbreite	<b>FB (a)</b>	Sash width
<b>FB1</b>	Flügelbreite Erstflügel	<b>FB1</b>	Sash width primary sash
<b>FB2</b>	Flügelbreite Zweitflügel	<b>FB2</b>	Sash width secondary sash
<b>FBS</b>	Fehlbedienungssperre	<b>FBS</b>	Mishandling device
<b>FBS-EUL</b>	Fehlbedienungssperre an der Eckumlenkung	<b>FBS-EUL</b>	Mishandling device on corner drive
<b>FBS-G</b>	Fehlbedienungssperre am Griff	<b>FBS-G</b>	Mishandling device on gear
<b>FH BS</b>	Flügelhöhe Bandseite	<b>FH BS</b>	Sash height hinge side
<b>FH (b)</b>	Flügelhöhe	<b>FH (b)</b>	Sash height
<b>FH VS</b>	Flügelhöhe Verschlussseite	<b>FH VS</b>	Sash height locking side
<b>FP</b>	Fang-Putz-Schere	<b>FP</b>	Tilt-only safety stay
<b>GG</b>	Glasgewicht	<b>GG</b>	Glass weight
<b>G1...2</b>	Griffsitz 1 - 2	<b>G1...2</b>	Handle position 1 - 2
<b>Gr.</b>	Größe	<b>Gr.</b>	Size
<b>H1...H4</b>	Hebel Ausführung 1 - 4	<b>H1...H4</b>	Handle version 1 - 4





## Verzeichnis der verwendeten Abkürzungen

### List of abbreviations used

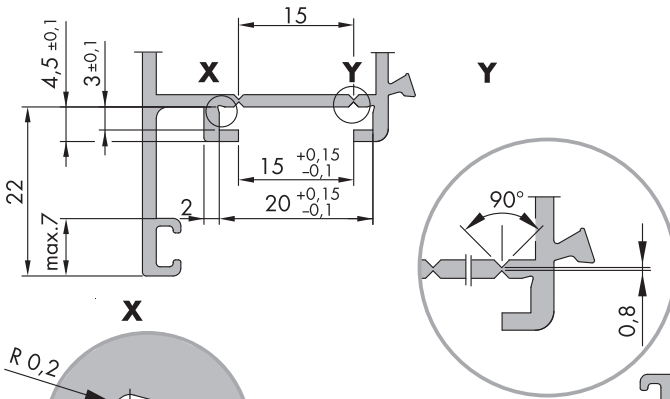
<b>DE</b>	<b>Deutsch</b>	<b>EN</b>	<b>English</b>
<b>Kürzel</b>	<b>Beschreibung</b>	<b>Abbrev.</b>	<b>Description</b>
<b>iP</b>	Industrieverpackung	<b>iP</b>	Industrial packaging
<b>K</b>	Ausführung „Kipp“	<b>K</b>	Version „tilt“
<b>KM</b>	Kammermaß	<b>KM</b>	Chamber dimension
<b>KPS</b>	Kipp-Punkt Senkrecht	<b>KPS</b>	Vertical tilt point
<b>KPW</b>	Kipp-Punkt Waagrecht	<b>KPW</b>	Horizontal tilt point
<b>LM</b>	Leichtmetall	<b>LM</b>	Aluminum
<b>LS</b>	Länge der Schräge	<b>LS</b>	Length of incline
<b>MV</b>	Mittverschluss	<b>MV</b>	Center lock
<b>Nm</b>	Newton-Meter (Drehmoment)	<b>Nm</b>	Newton-meter (Torque)
<b>PG</b>	Profilgewicht	<b>PG</b>	Profile weight
<b>RC1...3</b>	Widerstandsklasse	<b>RC1...3</b>	Resistance class
<b>RR</b>	Rundrosette	<b>RR</b>	Round rose
<b>RB</b>	Rundbogen	<b>RB</b>	Round arch
<b>S</b>	Scherenposition	<b>S</b>	Stay position
<b>S1...9</b>	Schubstangen 1 - 9	<b>S1...9</b>	Operating rods 1 - 9
<b>SDF</b>	Schere Drehflügel	<b>SDF</b>	Stay turn sash
<b>SF</b>	Schrägfenster	<b>SF</b>	Pitched window
<b>SV</b>	Seiteneinstellung	<b>SV</b>	Side adjustment
<b>SW</b>	Schlüsselweite	<b>SW</b>	Wrench size
<b>TBT</b>	Ausführung „Kipp-Vor-Dreh“	<b>TBT</b>	Version „tilt-before-turn“
<b>USH</b>	Überschlaghöhe	<b>USH</b>	Rebate height
<b>VE</b>	Verpackungseinheit	<b>VE</b>	Packaging unit
<b>VS</b>	Verschlussseite	<b>VS</b>	Locking side
<b>VS/A</b>	Verschlussseite aufliegendes Getriebe	<b>VS/A</b>	Locking side slip-on gear
<b>VS/K</b>	Verschlussseite Kantenriegel	<b>VS/K</b>	Locking side shoot bolt
<b>VSO</b>	Verschlussseite oben	<b>VSO</b>	Locking side, top
<b>VSU</b>	Verschlussseite unten	<b>VSU</b>	Locking side, bottom
<b>WK1...3</b>	Widerstandsklasse nach DIN EN 1627-1630	<b>WK1...3</b>	Resistance class according to DIN EN 1627-1630
<b>WRB</b>	Winkelband Rundbogen	<b>WRB</b>	Stay hinge, arched-head
<b>X</b>	Anfang Rundbogen	<b>X</b>	Begin of arch
<b>ZS</b>	Position Zusatzschere	<b>ZS</b>	Position of additional stay
<b>ZV</b>	Zentralverschluss	<b>ZV</b>	Central locking gear

# ALU Profile suggestion

Profile details, operating rod dimensions and pivot points for aluminium windows and patio doors

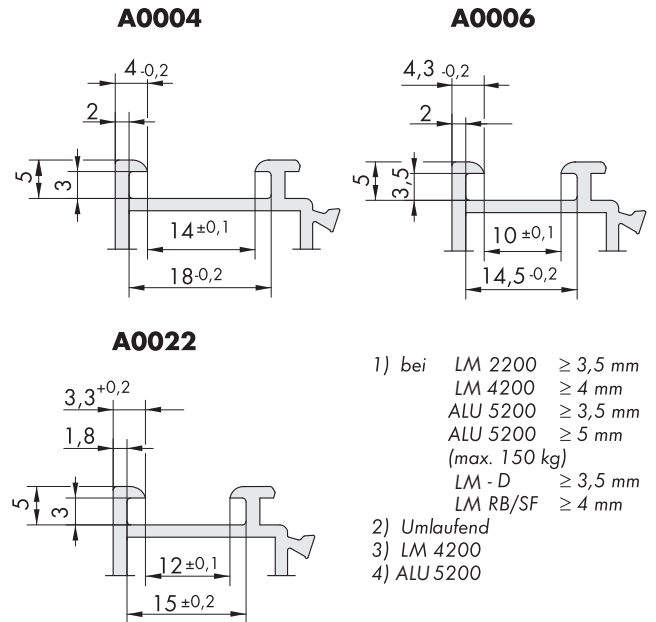


## Sash dimensions



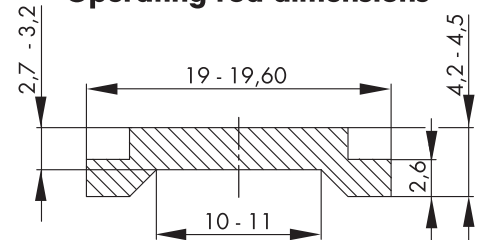
The dimensions given are finished dimensions after surface treatment of the profiles e.g. painting, powder coating etc.!

## Frame groove dimensions



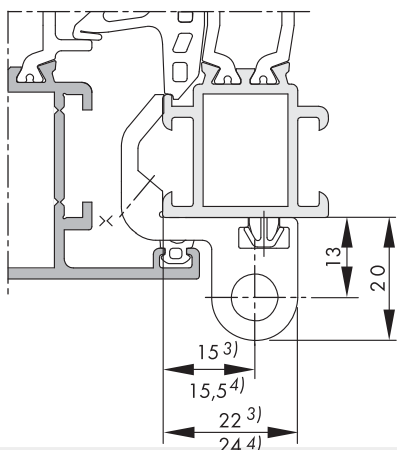
- 1) bei LM 2200  $\geq 3,5$  mm  
LM 4200  $\geq 4$  mm  
ALU 5200  $\geq 3,5$  mm  
ALU 5200  $\geq 5$  mm  
(max. 150 kg)  
LM - D  $\geq 3,5$  mm  
LM RB/SF  $\geq 4$  mm
- 2) Umlaufend
- 3) LM 4200
- 4) ALU 5200

## Operating rod dimensions



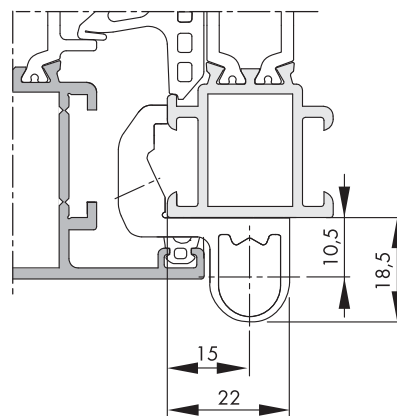
## Pivot point

LM 4200/ALU 5200



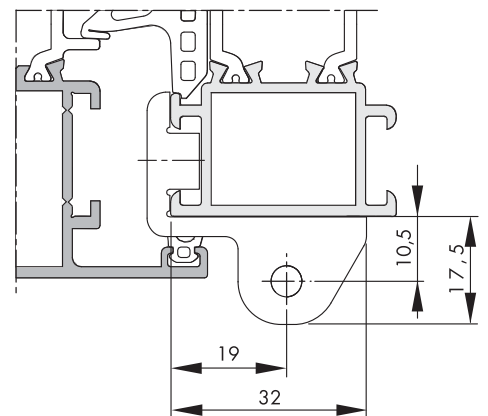
## Pivot point

LM 2200



## Pivot point

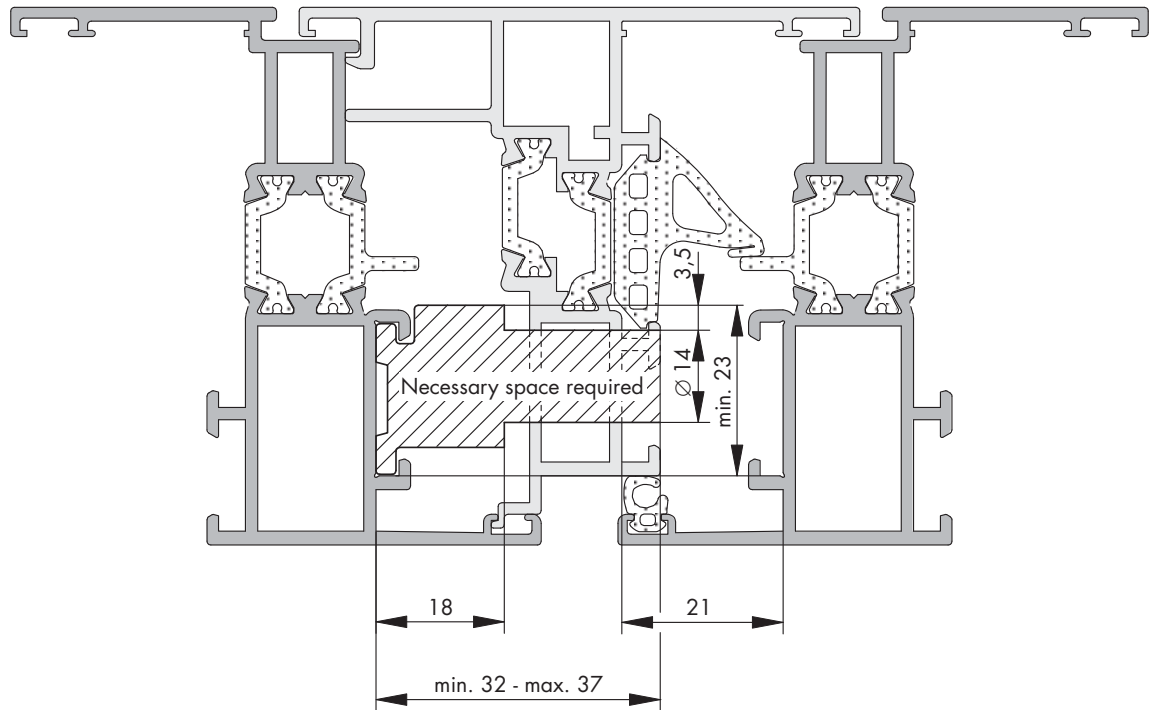
LM RB/SF



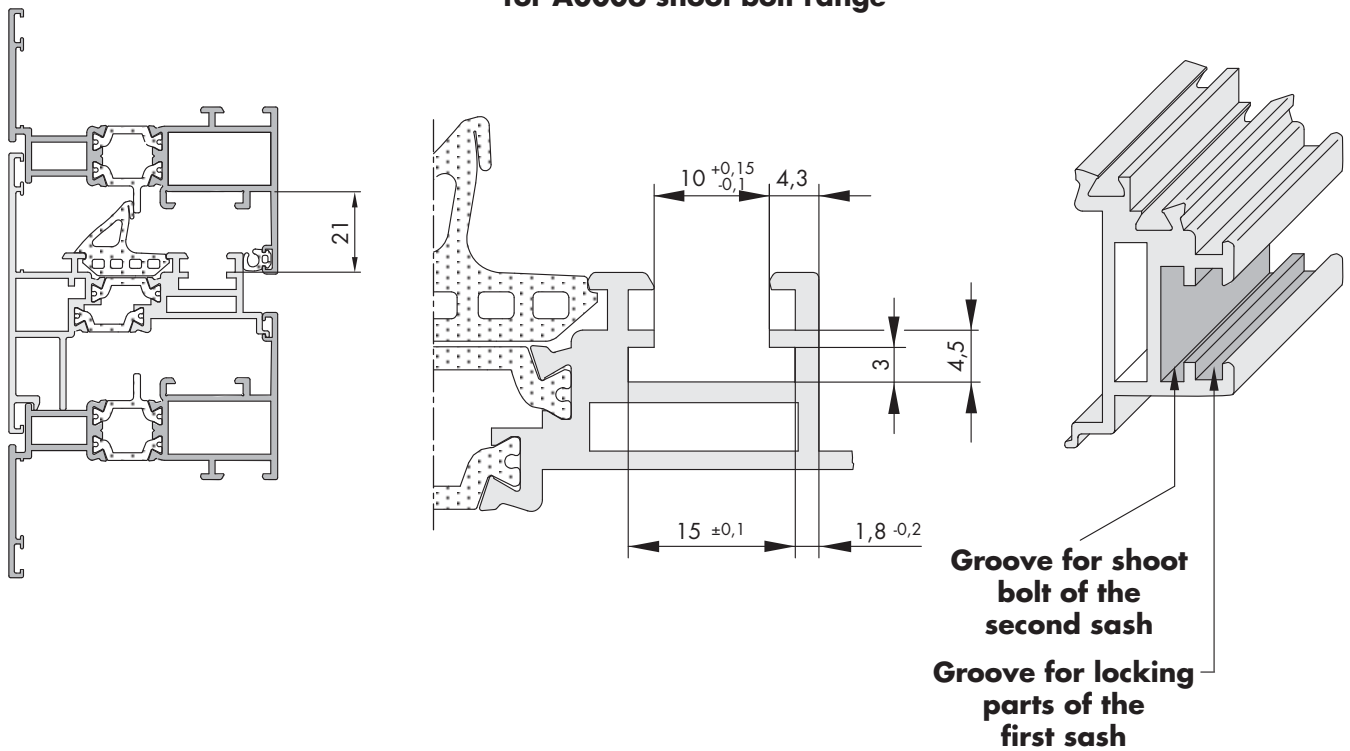
Technical specifications and colours are subject to change

H48.ZUBHLS008en/1

**Slave sash profile suggestion  
for slave sash gear**



**Slave sash profile suggestion  
for A0006 shoot bolt range**



# Maintenance Instructions

LM 4200

Lubricate all eccentric locking cams and strikers with oil!

Use **only** clean and non-resinous grease or oil.



= lubricate here

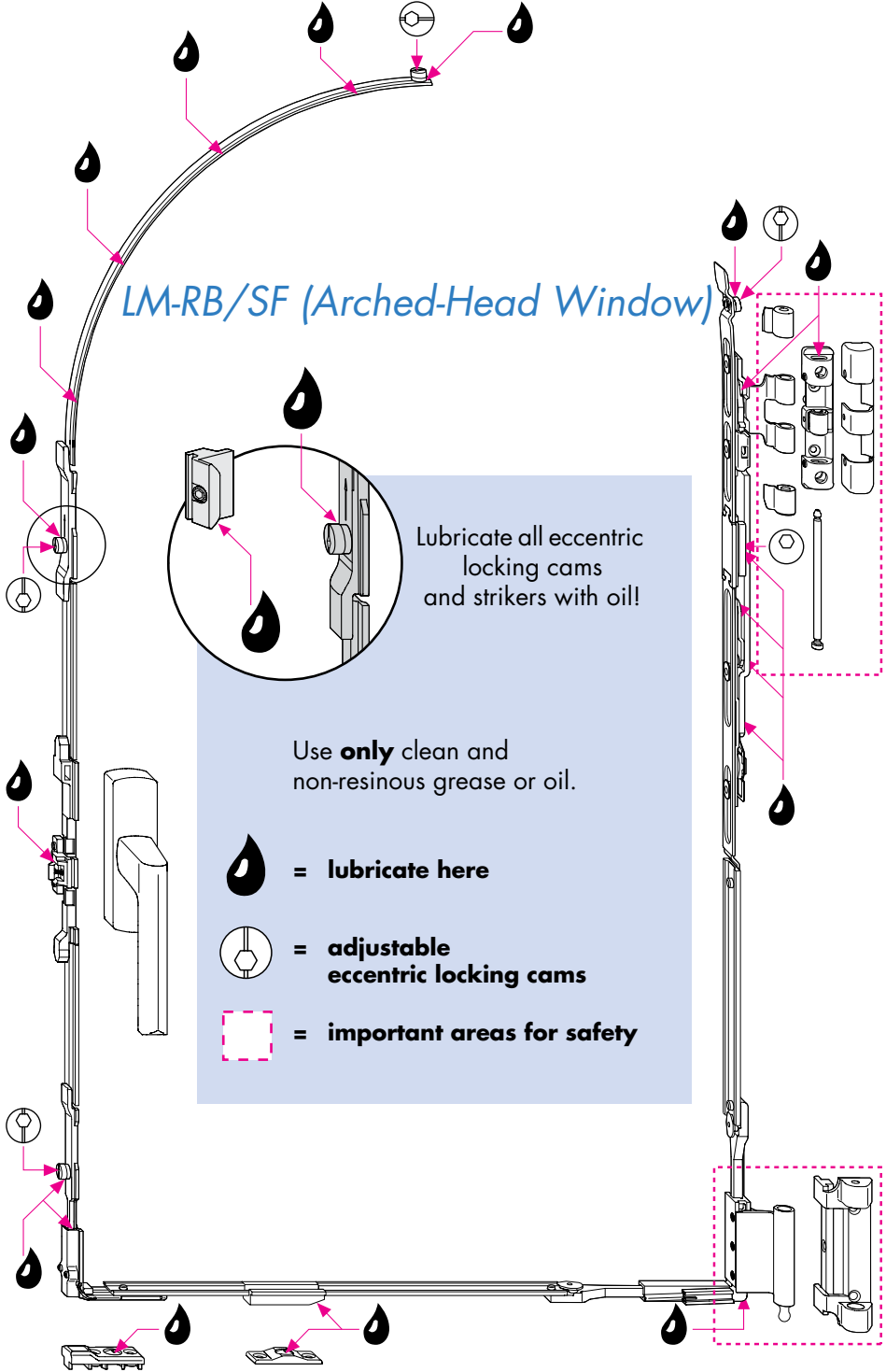


= adjustable eccentric locking cams






= important areas for safety

## LM-RB/SF (Arched-Head Window)

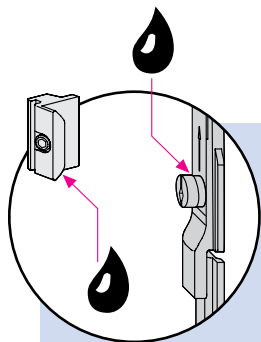


Lubricate all eccentric locking cams and strikers with oil!

Use **only** clean and non-resinous grease or oil.

-  = lubricate here
-  = adjustable eccentric locking cams
-  = important areas for safety

## LM-RB/SF (Angle-Head Window)



Lubricate all eccentric locking cams and strikers with oil!

Use **only** clean and non-resinous grease or oil.



= lubricate here



= adjustable eccentric locking cams



= important areas for safety

## Special Notes:

Your windows are fitted with high quality components from SIEGENIA-AUBI. To ensure their smooth and trouble free operation you must carry out the following maintenance on them at least **once a year**:

1. Lubricate or oil all moving parts and locking points (🔧).
2. Use **only** clean and non-resinous grease or oil.
3. Check all important security components (🔒) for looseness and wear. If necessary tighten fixing screws and replace defective parts.
4. **Only** clean your windows with a mild, neutral pH, diluted detergent. Never use aggressive, acid based detergents or scouring powder because they can damage the protective surface of your hardware.

To maintain the surface quality we recommend the following preventative measures:

5. After cleaning the hardware surface treat with a silicon and corrosion free (ie non-acidic) oil, eg: sewing machine oil.

### **Warning, N.B. Malfunctions carry a risk of injury!**

Do not continue to operate the window, but make it safe and have it repaired immediately; the following jobs should only be carried out by a specialist window company:

- the replacement of fittings
- the removal and replacement of sashes
- all adjustments of fittings - especially of hinges and stays

No sealants which are hardened by the effect of vinegar or acid, or those containing these substances, must be used on the window or in its immediate vicinity. Direct contact with the sealant or with its vapours could attack the surface of the hardware fittings.

If treating the surface of windows or doors - e.g. by painting or varnishing - all hardware components are to be excluded from this treatment and should also be protected against contamination.

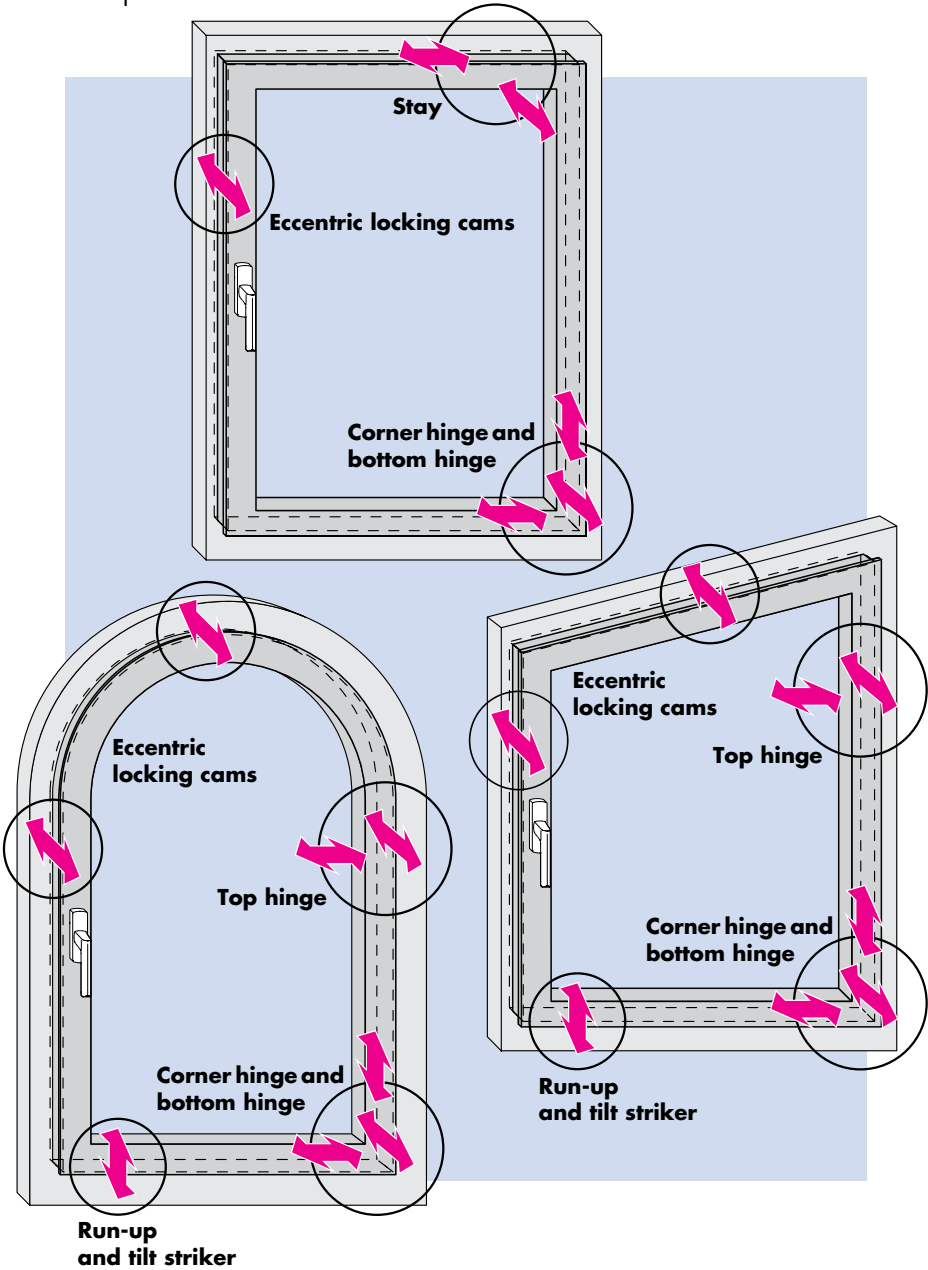
These maintenance instructions are also valid for other fittings and window types that are not mentioned here.

Your Window specialist:



# Adjustments

The following adjustments should **only** be performed by an experienced window tradesman:

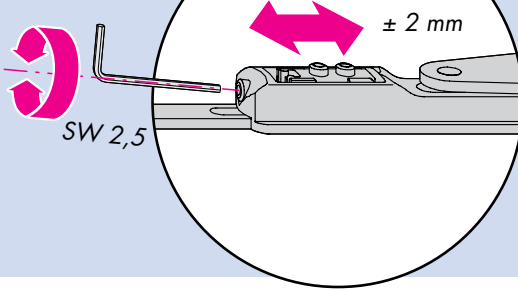




# Adjustable Parts

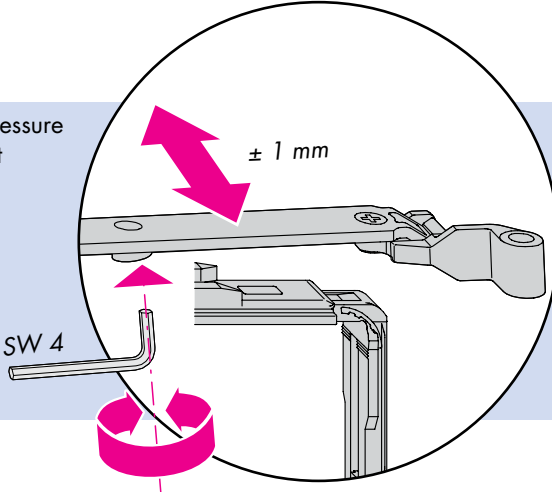
## Stay

Side to side adjustment



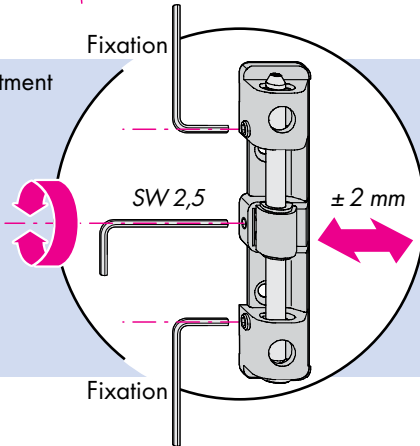
## Stay

Closing pressure adjustment



## Top hinge

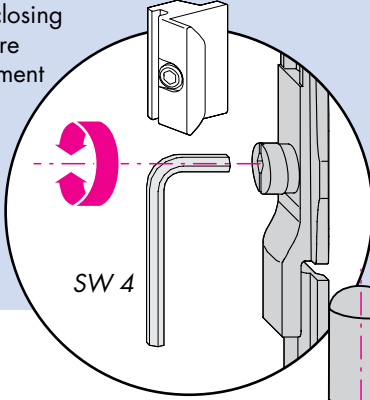
Side to side adjustment



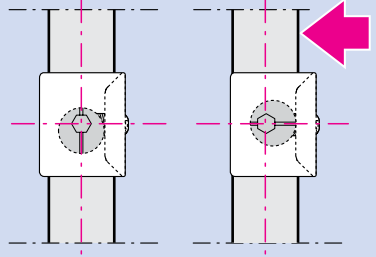
# Adjustable Parts

## Eccentric locking cams

Sash closing  
pressure  
adjustment

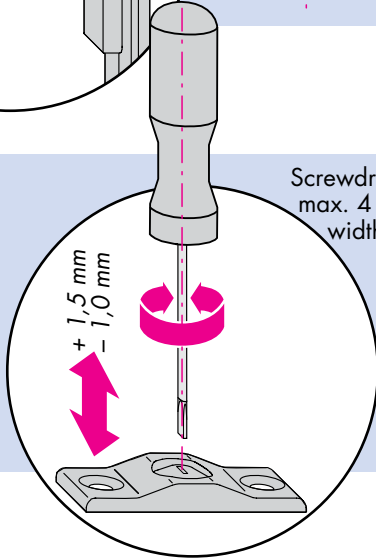


$\pm 1$  mm adjustment



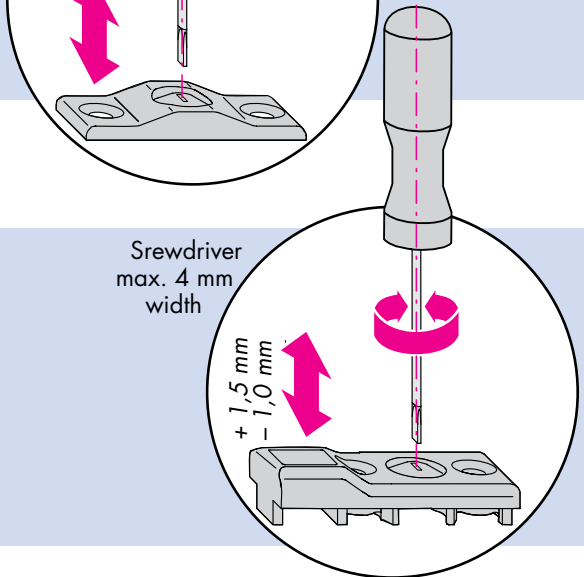
## Run-up

Height adjustment



## Tilt striker

Height adjustment

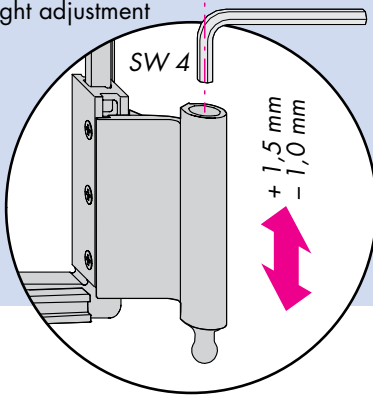


# Adjustable Parts

## Corner hinge

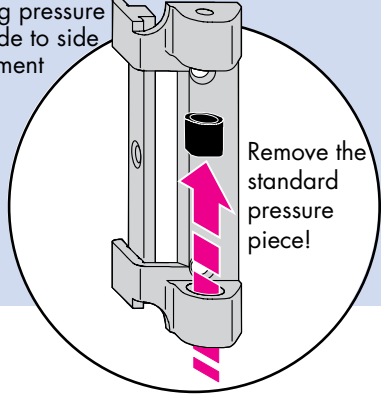


Height adjustment



## Bottom hinge

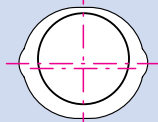
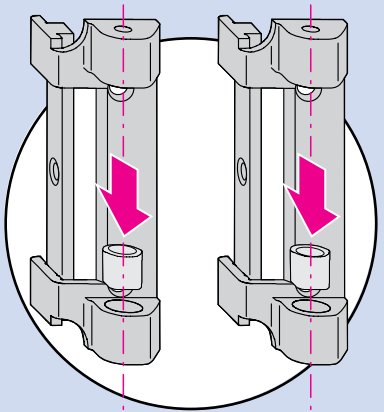
Closing pressure and side to side adjustment



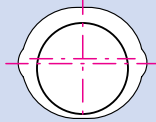
Remove the standard pressure piece!

## Bottom hinge

Closing pressure adjustment:  
use pressure piece AV

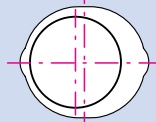
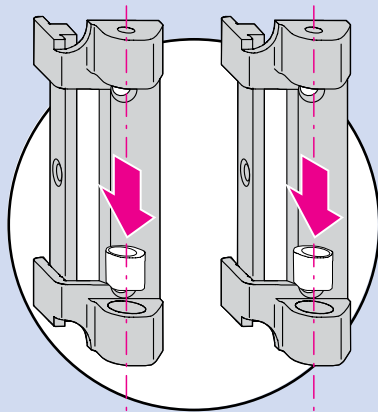


+ 0,5 mm

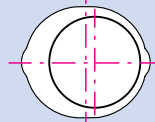


- 0,5 mm

Side to side adjustment:  
use pressure piece SV

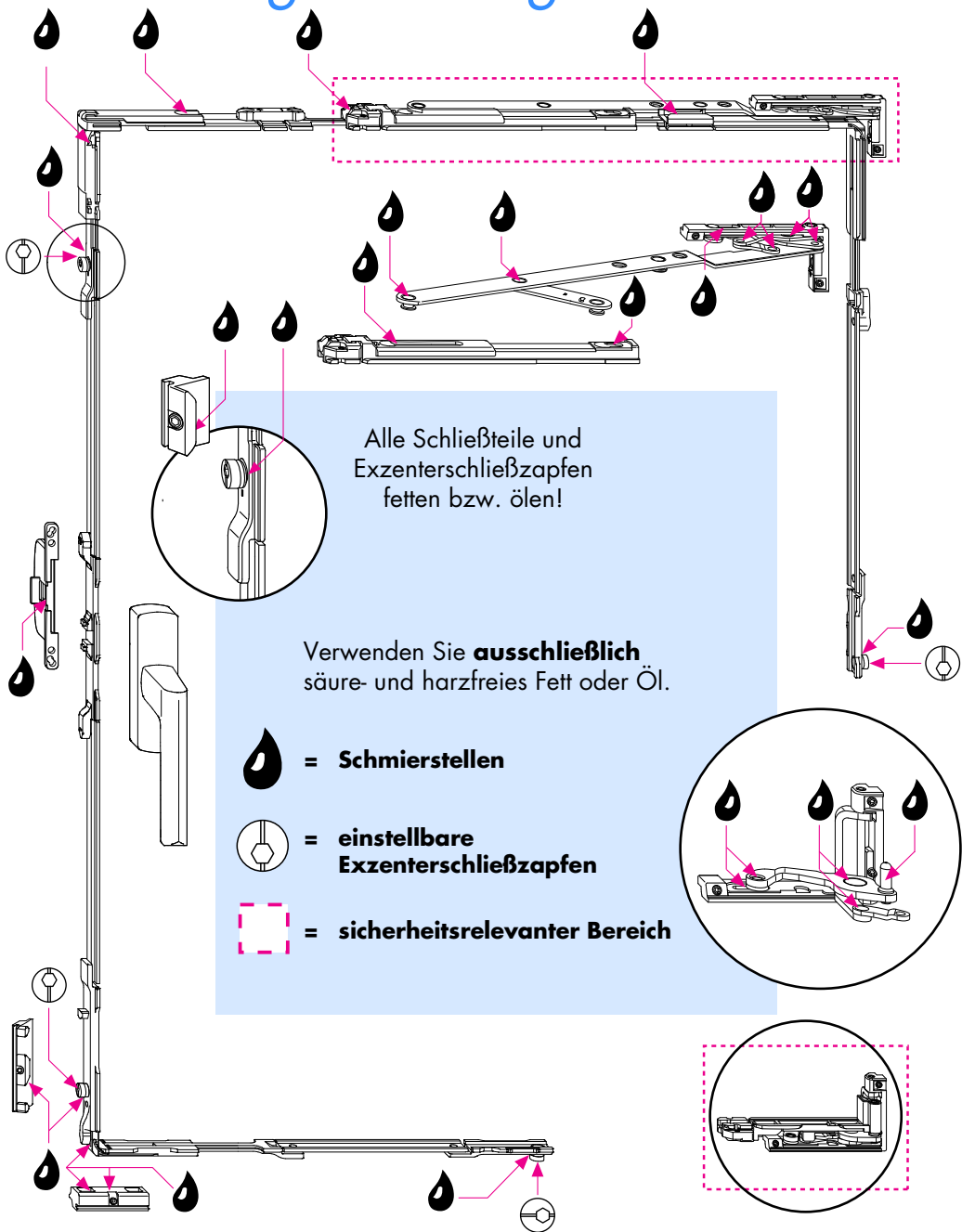


+ 0,8 mm



- 0,8 mm

# Wartungsanleitung axxent



# Wichtige Hinweise für Endgebraucher:

Ihre Fenster/Fenstertüren sind mit einem hochwertigen SIEGENIA-AUBI-Beschlag ausgestattet. Damit seine Leichtgängigkeit und einwandfreie Funktion erhalten bleibt, müssen Sie folgende Wartungsarbeiten mindestens **einmal jährlich** durchführen (lassen):

- Fetten oder ölen Sie alle beweglichen Teile und Verschlussstellen (🔧), siehe dazu Seite 1. Verwenden Sie dazu **ausschließlich** säure- und harzfreies Fett oder Öl.
- Prüfen Sie alle sicherheitsrelevanten Beschlagteile (🔩) auf festen Sitz und auf Verschleiß. Lassen Sie gegebenenfalls die Befestigungsschrauben von einem Fensterfachbetrieb nachziehen und defekte Teile austauschen.

Reinigen Sie Ihr Fensterelement **nur** mit milden, pH-neutralen Reinigungsmitteln in verdünnter Form. Verwenden Sie niemals aggressive, säurehaltige Reinigungsmittel oder Scheuermittel, da diese den Korrosionsschutz der Beschlagteile angreifen können.

Darüber hinaus empfehlen wir zur Erhaltung der Oberflächengüte, die Beschlagoberfläche nach der Reinigung mit einem silikon- und säurefreien Öl, z.B. Nähmaschinenöl zu behandeln.



## **Achtung, bei einer Funktionsstörung des Fensterelements besteht Verletzungsgefahr!**

Wenn das Fensterelement nicht einwandfrei funktioniert, dürfen Sie es nicht weiter betätigen. Sichern Sie es und lassen es umgehend von einem Fensterfachbetrieb instand setzen.

## **Folgende Arbeiten dürfen nur von einem Fensterfachbetrieb ausgeführt werden:**

- der Austausch von Beschlagteilen
- das Ein- und Aushängen von Fensterflügeln
- alle Arbeiten an den Fenster-Einstellungen – insbesondere an Flügelbändern, Ecklagern und Scheren, siehe Seiten 4 bis 6.

## Bitte beachten Sie:

Es dürfen keine essig- oder säurevernetzenden Dichtstoffe oder solche mit den zuvor genannten Inhaltsstoffen am Fenster oder dessen unmittelbarer Umgebung verwendet werden. Der direkte Kontakt mit dem Dichtstoff sowie dessen Ausdünstungen können die Oberfläche der Beschläge angreifen.

Bei einer Oberflächenbehandlung - z.B. beim Lackieren oder Lasieren - der Fenster und Fenstertüren sind alle Beschlagteile von dieser Behandlung auszuschließen und auch gegen Verunreinigung hierdurch zu schützen.

Bestimmte Klimaverhältnisse verursachen ein „Schwitzen“ von Glas, Rahmen und anderen Bauteilen am Fenster. Regelmäßiges und ausgiebiges Lüften vermeidet das Auftreten von Schwitzwasser. Dazu je nach Nutzung der Räume 3 - 4 mal täglich alle Fenster für ca. 5 Minuten öffnen.

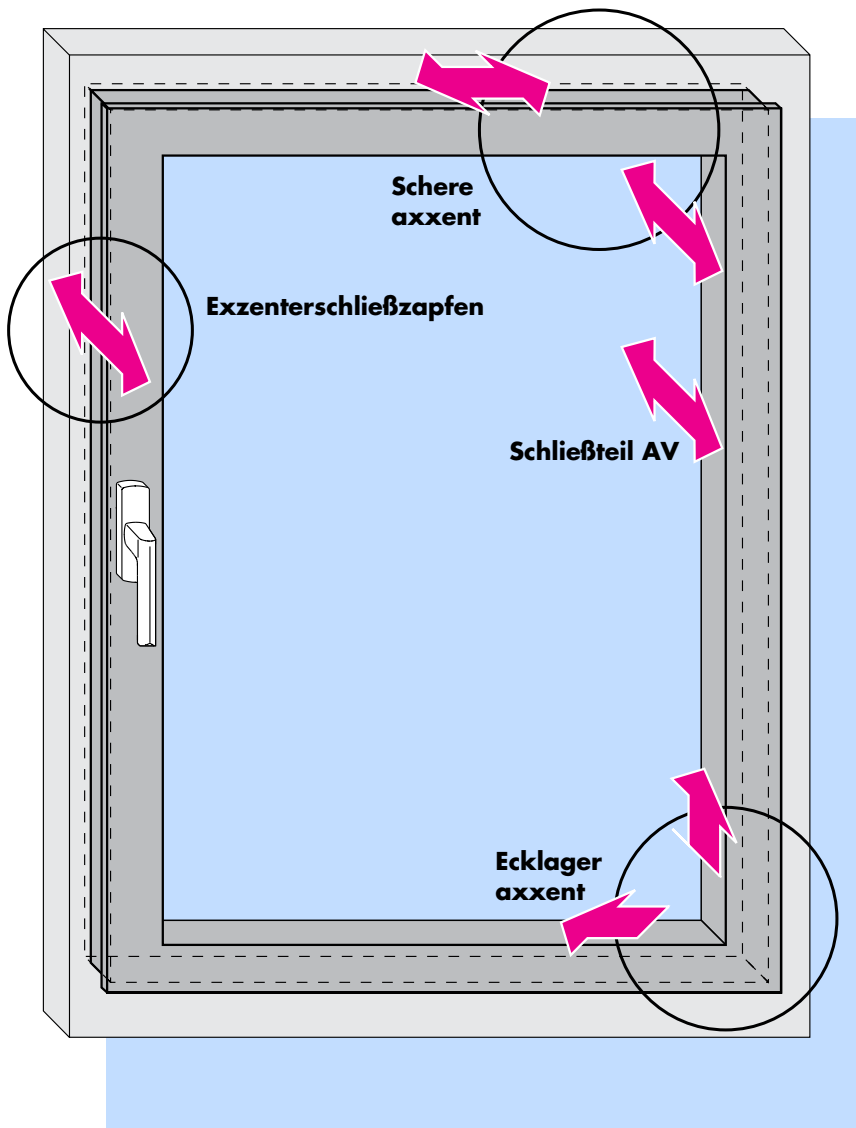
In der Bauphase müssen bestimmte Maßnahmen getroffen werden, um die Beschlagteile zu schützen. Fordern Sie hierzu unser Merkblatt „Maßnahmen zum Schutz der Beschläge von Fenstern in der Bauphase“ bei Ihrem Fensterfachbetrieb an.

**Diese Wartungsanleitung gilt sinngemäß auch für Beschläge und Fenstertypen, die hier nicht speziell beschrieben sind.**

Ihr Fensterfachbetrieb:

# Einstellmöglichkeiten

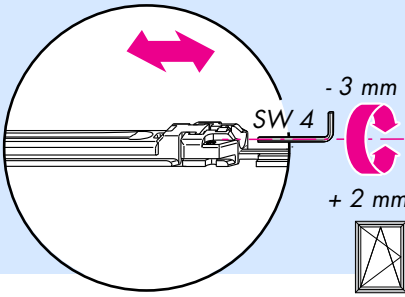
Folgende Einstellungen dürfen **nur** durch einen Fenster-Fachbetrieb vorgenommen werden:



# Einstellbare Beschlagteile

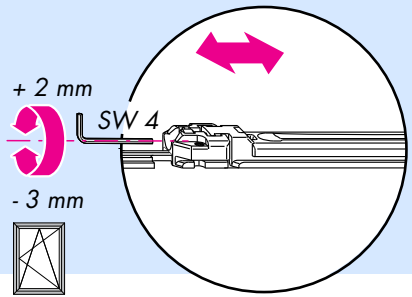
## Führungsteil Schere axxent li.

Seiteneinstellung



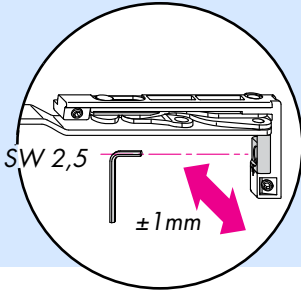
## Führungsteil Schere axxent re.

Seiteneinstellung



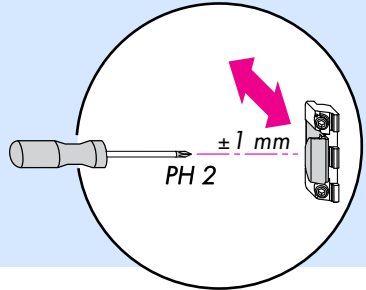
## Schere axxent re. / li.

Andruckeinstellung



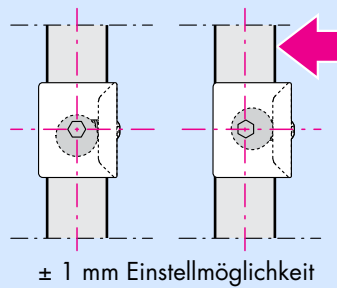
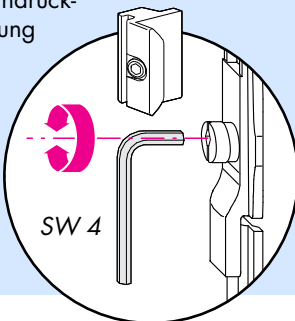
## Schließteil AV

Andruckeinstellung



## Exzentrerschließzapfen

Flügelandruck-  
einstellung

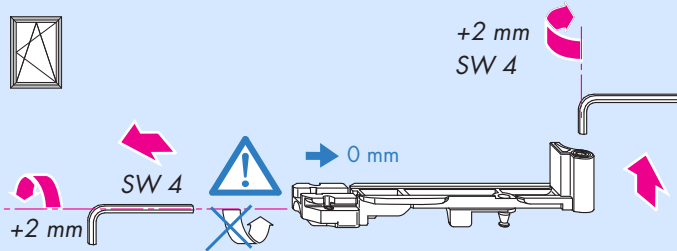




# Einstellbare Beschlagteile

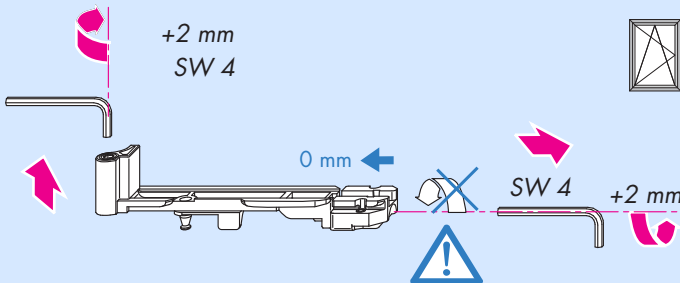
## Flügelband axxent re.

Höhen- und Seiteneinstellung



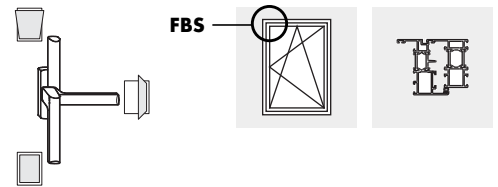
## Flügelband axxent li.

Höhen- und Seiteneinstellung



# ALU 5200-DK

Tilt & turn hardware for  
hinge clearance (BD) 3.5 mm  
with mishandling device (FBS)  
on the corner drive (EUL)



## Size range (depends on hardware)

		Windows		French doors
		min.	max.	max.
Sash width	(mm)	365 to 1600		1300
Sash height	(mm)	550 to 2000		2400
Sash weight	(kg)	<b>max. 100/130</b>		<b>max. 100/130</b>

## The following information from the aluminium planning manual must be observed:

Guidelines of the „Gütegemeinschaft Schlösser und Beschläge e.V.“  
(German quality association for locks and hardware).

- Document no. H45.4200LS001EN

Application diagrams:

- Sash weight up to max. 100 kg: Document no. H58.AWDLMS003EN

- Sash weight up to max. 130 kg: Document no. H58.AWDLMS004EN

Basic safety notes:

- Document no. H45.5200LS001EN

Abbreviations:

- Document no. H45.5200LS002EN

Adjustment options:

- Document no. H45.5200LS004EN

Profile recommendation:

- Document no. H48.ZubhLS008EN

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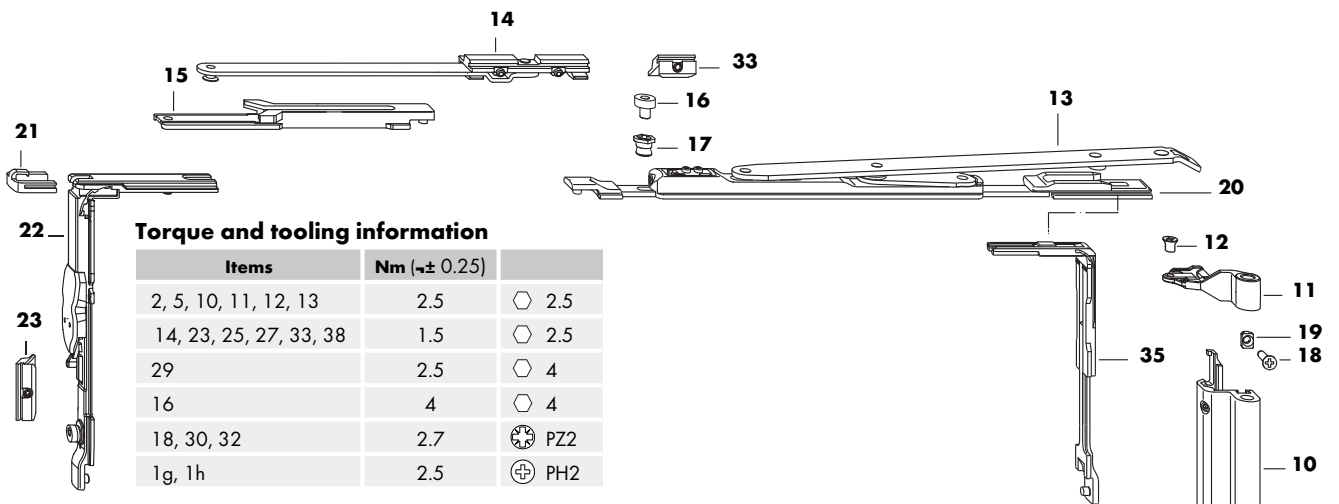
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Assembly instructions  
H48.5200LS001en

Technical specifications and colours are subject to change

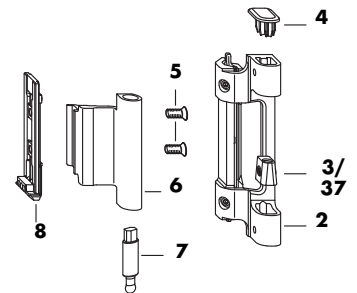
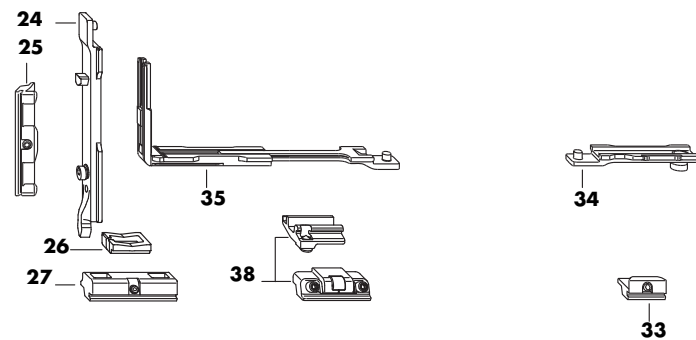
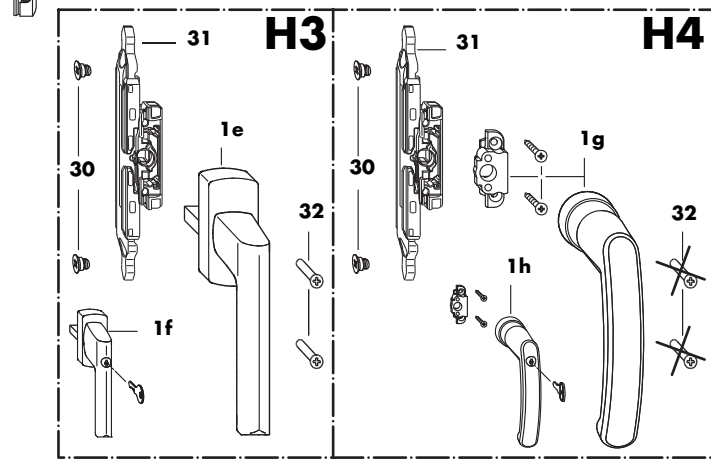
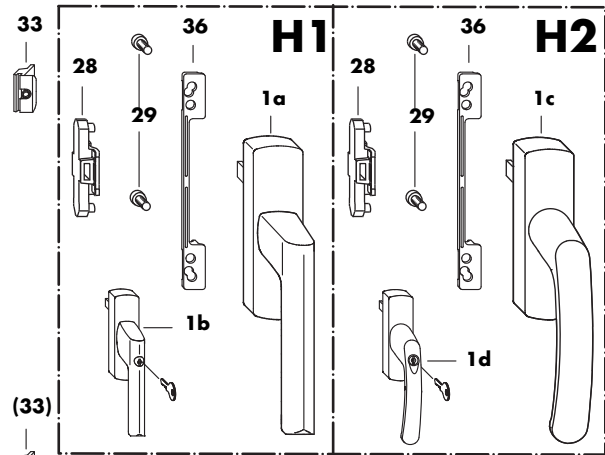
H48.5200LS001en/0

# ALU 5200-DK BD 3.5 (FBS-EUL) Hardware overview



## Torque and tooling information

Items	Nm ( $\pm 0.25$ )	
2, 5, 10, 11, 12, 13	2.5	○ 2.5
14, 23, 25, 27, 33, 38	1.5	○ 2.5
29	2.5	○ 4
16	4	○ 4
18, 30, 32	2.7	⊗ PZ2
lg, lh	2.5	⊕ PH2

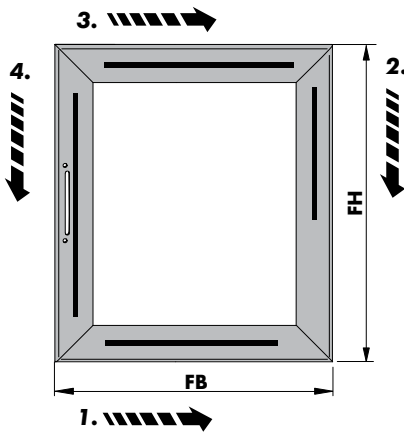


# ALU 5200-DK BD 3.5 (FBS-EUL) Hardware list

	Item	Quantity	Description		VE		VE				
H1	1a	1	Handle LM Si-line	Only use in combination with coupling set	See ALU handle overview, document no.: H48.ZubhLS007en in ALU planning manual						
	1b		Handle LM Si-line lockable								
H2	1c		Handle LM Globe								
	1d		Handle LM Globe lockable								
H3	1e		Handle TITAN					Only use in combination with gear set	(□ 7 mm x 25, cam dia.10 mm)		
	1f		Handle TITAN lockable								
H4	1g		Handle LM round rose					See Handle Globe RR, document no.: H48.ZubhLS006en in ALU planning manual			
	1h		Handle LM round rose lockable								
	1	Hinge side LM 5200 BD 3.5	Silver	MMBS0220-525010	1	MMBS0220-525020	10				
			White RAL 9016	MMBS0220-504010	1	MMBS0220-504020	10				
			Black RAL 9005	MMBS0220-523010	1	MMBS0220-523020	10				
			EV1	MMBS0220-524010	1	MMBS0220-524020	10				
			Mill finish	-	-	MMBS0220-500120	5				
	2	1	Bottom hinge								
	3	1	Adjusting piece								
	4	1	Cover cap								
	5	2	M5 x 8.5 countersunk screw								
	6	1	Corner hinge								
	7	1	Bottom hinge pin								
	8	1	Clamping piece E								
9	1	Top hinge pin									
10	1	Top hinge									
11	1	Stay hinge bearing									
12	1	M5 x 7.5 countersunk screw									
	13	1	Stay LM	Size 20      FB (mm) 365 to 600      Weight < 100 kg	884805	1	273 098	20			
				35      601 to 1600	884782	1	314 203	20			
According to FB/kg	0...1	0...1	Additional stay LM	At and above FB 1251 with stay size 35<100 kg At and above FB 1020 with stay size 35>100 kg to 130 kg	857076	1	247006	10			
	14	1	Additional stay								
	15	1	Striker								
	16	1	Locking cam								
	17	1	Eccentric rivet								
According to kg	0...1	0...1	Accessories set LM for 130 kg	> 100 kg to 130 kg	-	-	247037	20			
	18	1	M5 x 13 countersunk screw								
	19	1	Support bracket								
	1	1	Locking side LM DK (with FBS on corner drive) KPS		MMVS0310-100010	1	MMVS0310-100030	20			
	20	1	Locking bolt DK								
	21	1	Clamping piece EUL								
	22	1	VSO corner drive								
	23	1	Striker EUL								
	24	1	Tilt lock cam 10								
	25	1	Striker E cam 10								
	26	1	Run-up block								
	27	1	Tilt locking part								
H1 H2	0...1 28 29	0...1 1 2	Coupling set LM (without FBS on gear)	Only use in combination with H1/H2	MMKL0060-100010	1	MMKL0060-100030	20			
			ALU coupling bracket								
			M5 x 12 cheese head screw								
H3 H4	0...1 30 31 32	0...1 2 1 2	Gear set LM (without FBS on gear)	Only use in combination with H3/H4 (see drawing no. H48.ZubhLS005en)	MMGI0090-100010	1	MMGI0090-100030	20			
			M6 coupling screw								
			M6 ESG								
			M5 x 35 countersunk screw								
According to FB/FH	0...2 33 34 35	0...2 2 1 1	MV LM-DK/TBT	(FB/FH > 1251 mm)	857045	1	246979	20			
			Striker								
			Slider								
			VSU/BSO corner drive								
Accessories	0...1 37 38	0...1 0...1 0...1	Handle support LM	Only use in combination with H1/H2	-	-	(see table on page 4)	200			
			Adjusting piece AV	For compression + 0.5 mm	MXBS0100-100010	1	MXBS0100-100030	20			
			Sash lift LM	(see drawing no. H48.ZubhLS014en)	MMFH0010-100010	1	MMFH0010-100030	20			

# ALU 5200-DK BD 3.5 (FBS-EUL) Assembly and handle support

## Observe installation sequence

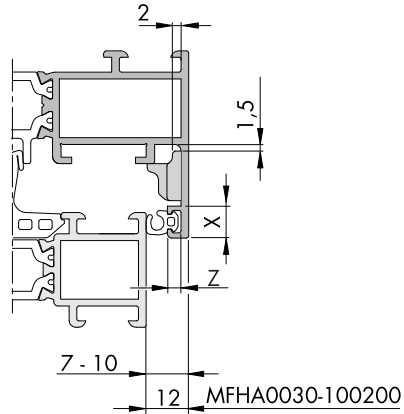


Sequence of installation in sash

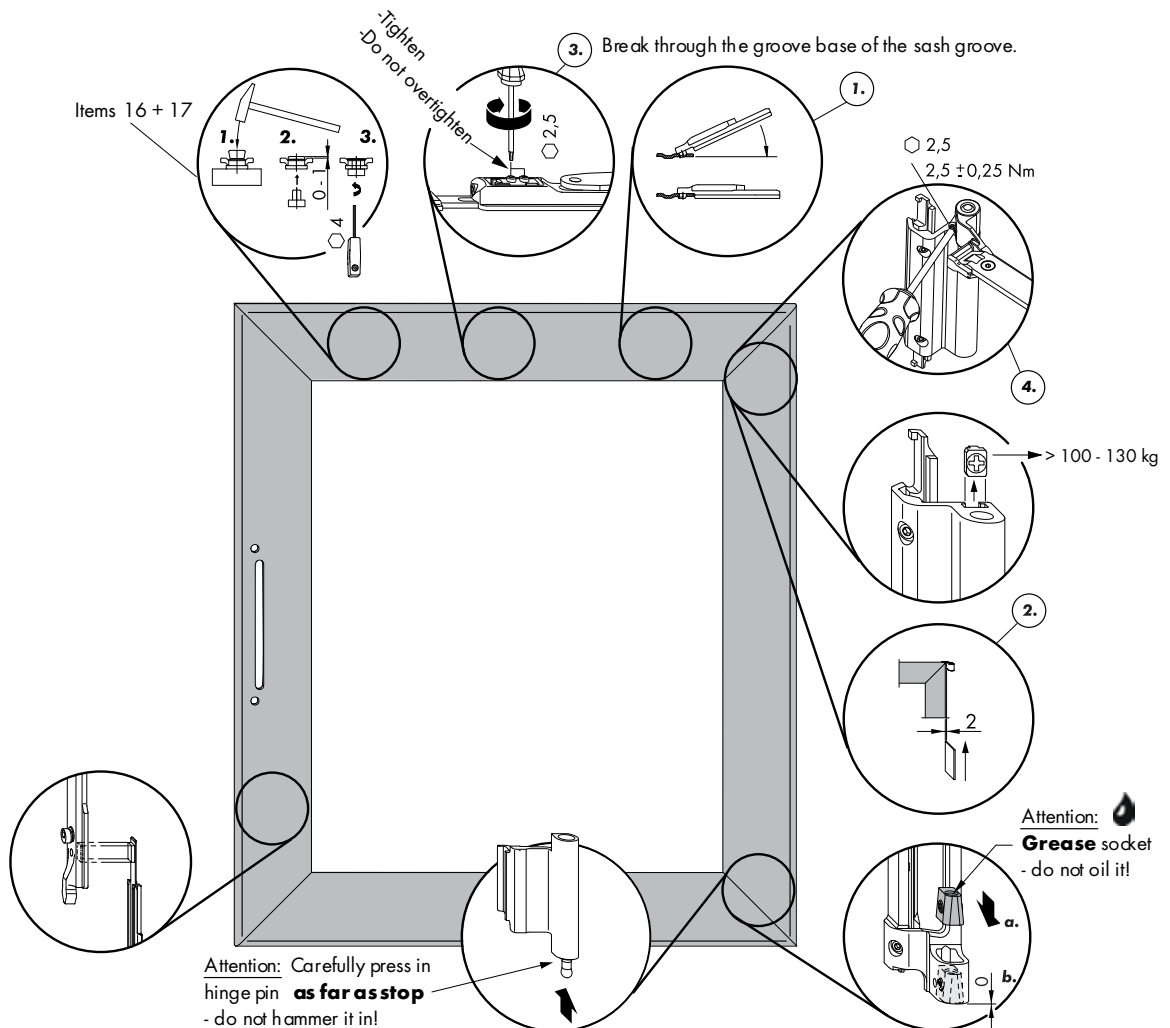
- without centre lock (3. - 4.)
- with centre lock (1. - 2. - 3. - 4.)

## Design variants for the handle support (item 36) (H1/H2)

USH	Z	X < 7 mm	X 7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-

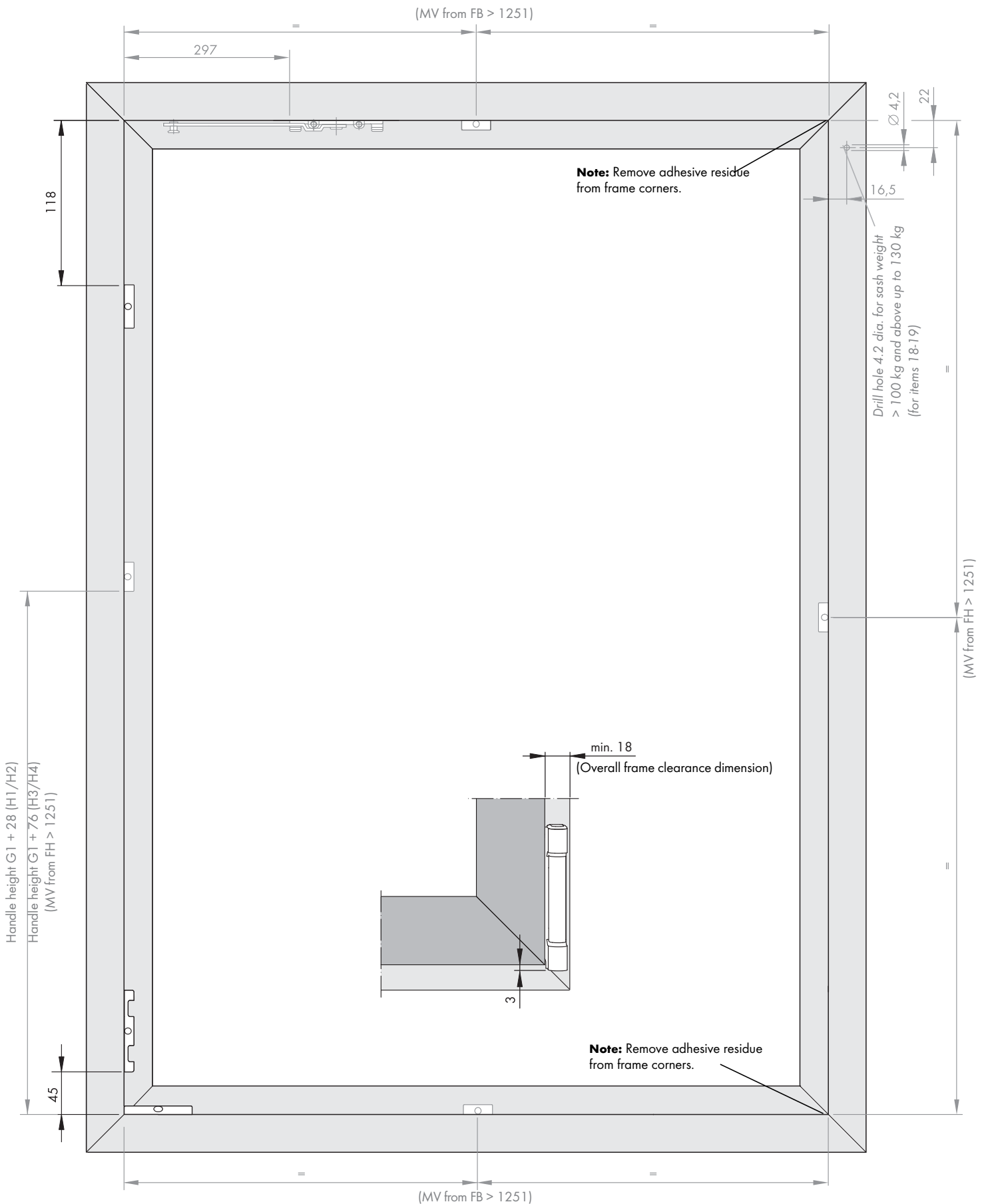


## Assembly settings and installation sequence (1.) to (4.)



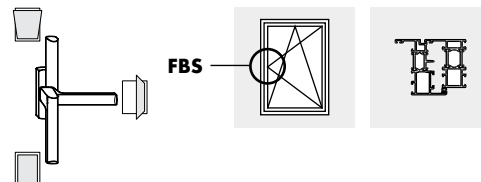


# ALU 5200-DK BD 3.5 (FBS-EUL) Frame dimensions



# ALU 5200-DK

Tilt & turn hardware for  
hinge clearance (BD) 3.5 mm  
with mishandling device (FBS)  
on the gear (G)



## Size range (depends on hardware)

		Windows		French doors
		min.	max.	max.
Sash width	(mm)	365 to 1600		1300
Sash height	(mm)	550 to 2000		2400
Sash weight	(kg)	<b>max. 100/130</b>		<b>max. 100/130</b>

## The following information from the aluminium planning manual must be observed:

Guidelines of the Gütegemeinschaft Schlösser und Beschläge e. V.  
(German quality association for locks and hardware).

- Document no. H45.4200LS001EN

Application diagrams:

- Sash weight up to max. 100 kg: Document no. H58.AWDLMS003EN

- Sash weight up to max. 130 kg: Document no. H58.AWDLMS004EN

Basic safety notes:

- Document no. H45.5200LS001EN

Abbreviations:

- Document no. H45.5200LS002EN

Adjustment options:

- Document no. H45.5200LS004EN

Profile recommendation:

- Document no. H48.ZubhLS008EN

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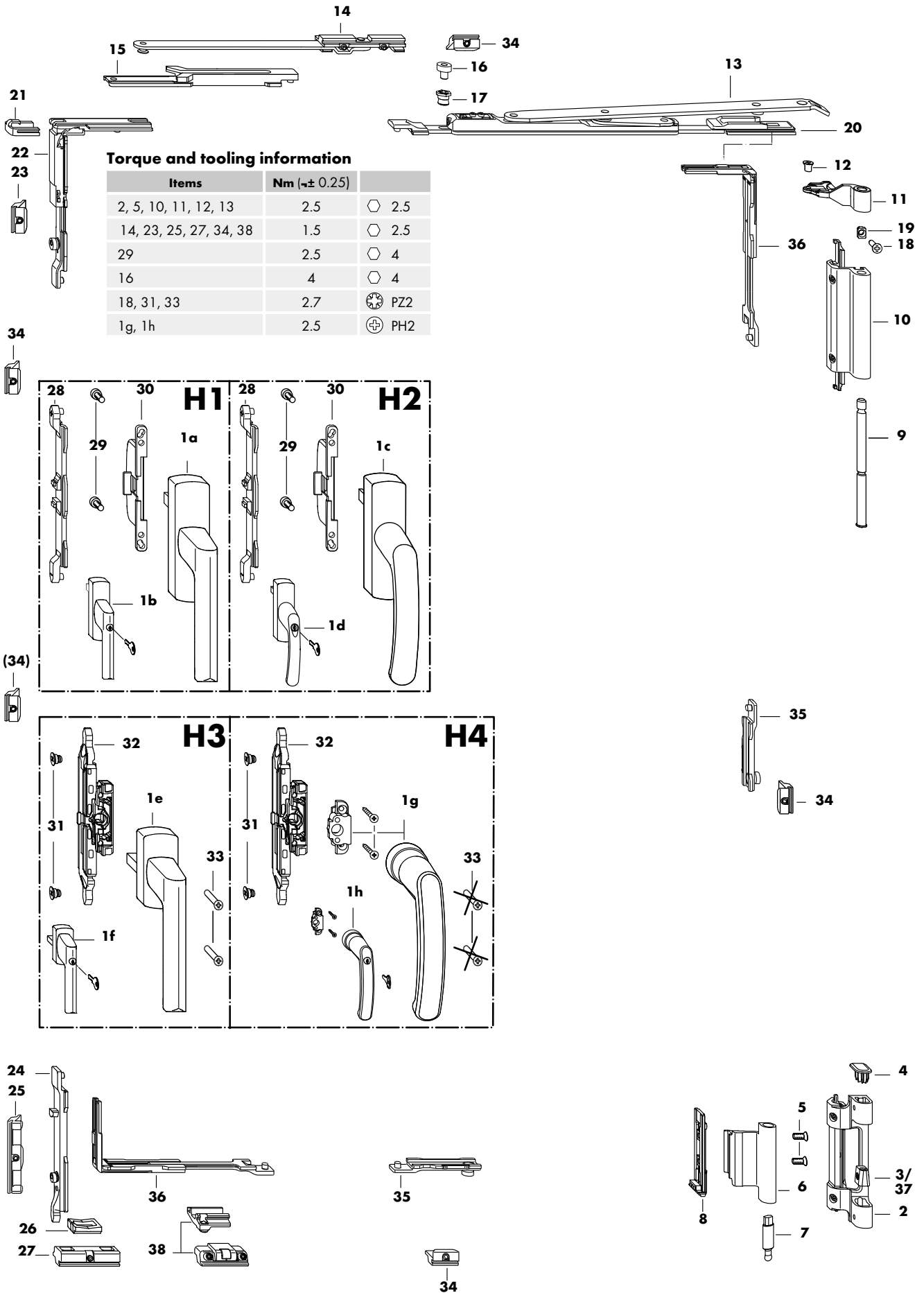
Assembly instructions  
H48.5200LS002en

Technical specifications and colours are subject to change

H48.5200LS002en/0



# ALU 5200-DK BD 3.5 (FBS-G) Hardware overview

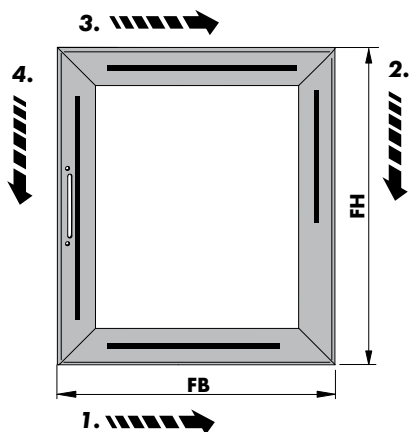


## ALU 5200-DK BD 3.5 (FBS-G) Hardware list

	Item	Quantity	Description		VE		VE	
H1	1a	1	<b>Handle LM Si-line</b>	Only use in combination with coupling set	See ALU handle overview, document no.: H48.ZubhLS007en in ALU planning manual			
	1b		<b>Handle LM Si-line lockable</b>					
H2	1c		<b>Handle LM Globe</b>					
	1d		<b>Handle LM Globe lockable</b>					
H3	1e		<b>Handle TITAN</b>	Only use in combination with gear set				(□ 7 mm x 25, cam dia. 10 mm)
	1f		<b>Handle TITAN lockable</b>					
H4	1g		<b>Handle LM round rose</b>	See Handle Globe RR, document no.: H48.ZubhLS006en in ALU planning manual				
	1h		<b>Handle LM round rose lockable</b>					
	1	<b>Hinge side LM 5200 BD 3.5</b>	<b>Silver</b>	<b>MMBS0220-525010</b>	<b>1</b>	<b>MMBS0220-525020</b>	<b>10</b>	
			<b>White</b> RAL 9016	<b>MMBS0220-504010</b>	<b>1</b>	<b>MMBS0220-504020</b>	<b>10</b>	
			<b>Black</b> RAL 9005	<b>MMBS0220-523010</b>	<b>1</b>	<b>MMBS0220-523020</b>	<b>10</b>	
			<b>EV1</b>	<b>MMBS0220-524010</b>	<b>1</b>	<b>MMBS0220-524020</b>	<b>10</b>	
			<b>Mill finish</b>	-	-	<b>MMBS0220-500120</b>	<b>5</b>	
	2	1	Bottom hinge					
	3	1	Adjusting piece					
	4	1	Cover cap					
	5	2	M5 x 8,5 countersunk screw					
	6	1	Corner hinge					
	7	1	Bottom hinge pin					
	8	1	Clamping piece E					
9	1	Top hinge pin						
10	1	Top hinge						
11	1	Stay hinge bearing						
12	1	M5 x 7,5 countersunk screw						
	13	1	<b>Stay LM</b>	Size 20      FB (mm) 365 to 600      Weight < 100 kg	<b>884805</b>	<b>1</b>	<b>273 098</b>	<b>20</b>
				35      601 to 1600	<b>884782</b>	<b>1</b>	<b>314 203</b>	<b>20</b>
According to FB/kg	14	0...1	<b>Additional stay LM</b>	At and above FB 1251 with stay size 35<100 kg	<b>857076</b>	<b>1</b>	<b>247006</b>	<b>10</b>
				At and above FB 1020 with stay size 35>100 kg to 130 kg				
				Additional stay				
				Striker				
				Locking cam				
17	1	Eccentric rivet						
Dependent on kg	18	0...1	<b>Accessories set LM for 130 kg</b>	> 100 kg to 130 kg	-	-	<b>247037</b>	<b>20</b>
				M5 x 13 countersunk screw				
				Support bracket				
	20	1	<b>Locking side LM-DK (for FBS on gear) KPS</b>		<b>MMVS0250-100010</b>	<b>1</b>	<b>MMVS0250-100030</b>	<b>20</b>
				Locking bolt DK				
				Clamping piece EUL				
				VSO corner drive				
				Striker				
				Tilt lock cam 10				
				Striker E cam 10				
				Run-up block				
				Tilt locking part				
				H1 H2	0...1	<b>Coupling set LM (with FBS on gear)</b>	(9 mm)	<b>MMKL0030-100010</b>
(10 mm)	Only use in combination with H1/H2 (For notes on overlaps (USH) see page 4)	<b>MMKL0010-100010</b>	<b>1</b>				<b>MMKL0010-100030</b>	<b>20</b>
(USH 12 mm)	<b>MMKL0040-100010</b>	<b>1</b>	<b>MMKL0040-100030</b>				<b>20</b>	
28	1	Coupling bracket						
29	2	M5 x 12 cheese head screw						
30	1	Mishandling device						
H3 H4	0...1	<b>Gear set LM FBS (with FBS on gear)</b>	Only use in combination with H3/H4 (see drawing no. H48.ZubhLS005en)	<b>MMGI0080-100010</b>	<b>1</b>	<b>MMGI0080-100030</b>	<b>20</b>	
			M6 coupling screw					
			M6 ESG FBS					
			M5 x 35 countersunk screw					
According to FB/FH	0...2	<b>MV LM-DK/TBT</b>	(FB/FH  _⊥  1251 mm)	<b>857045</b>	<b>1</b>	<b>246979</b>	<b>20</b>	
			Striker					
			Slider					
			VSU/BSO corner drive					
Accessories	0...1	<b>Adjusting piece AV</b>	For compression + 0.5 mm	<b>MXBS0100-100010</b>	<b>1</b>	<b>MXBS0100-100030</b>	<b>20</b>	
			<b>Sash lift LM</b>	(see drawing no. H48.ZubhLS014en)	<b>MMFH0010-100010</b>	<b>1</b>	<b>MMFH0010-100030</b>	<b>20</b>

# ALU 5200-DK BD 3.5 (FBS-G) Assembly and design variants for coupling set

## Observe installation sequence

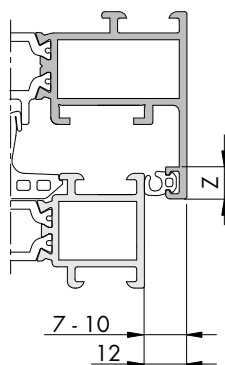


Sequence of installation in sash

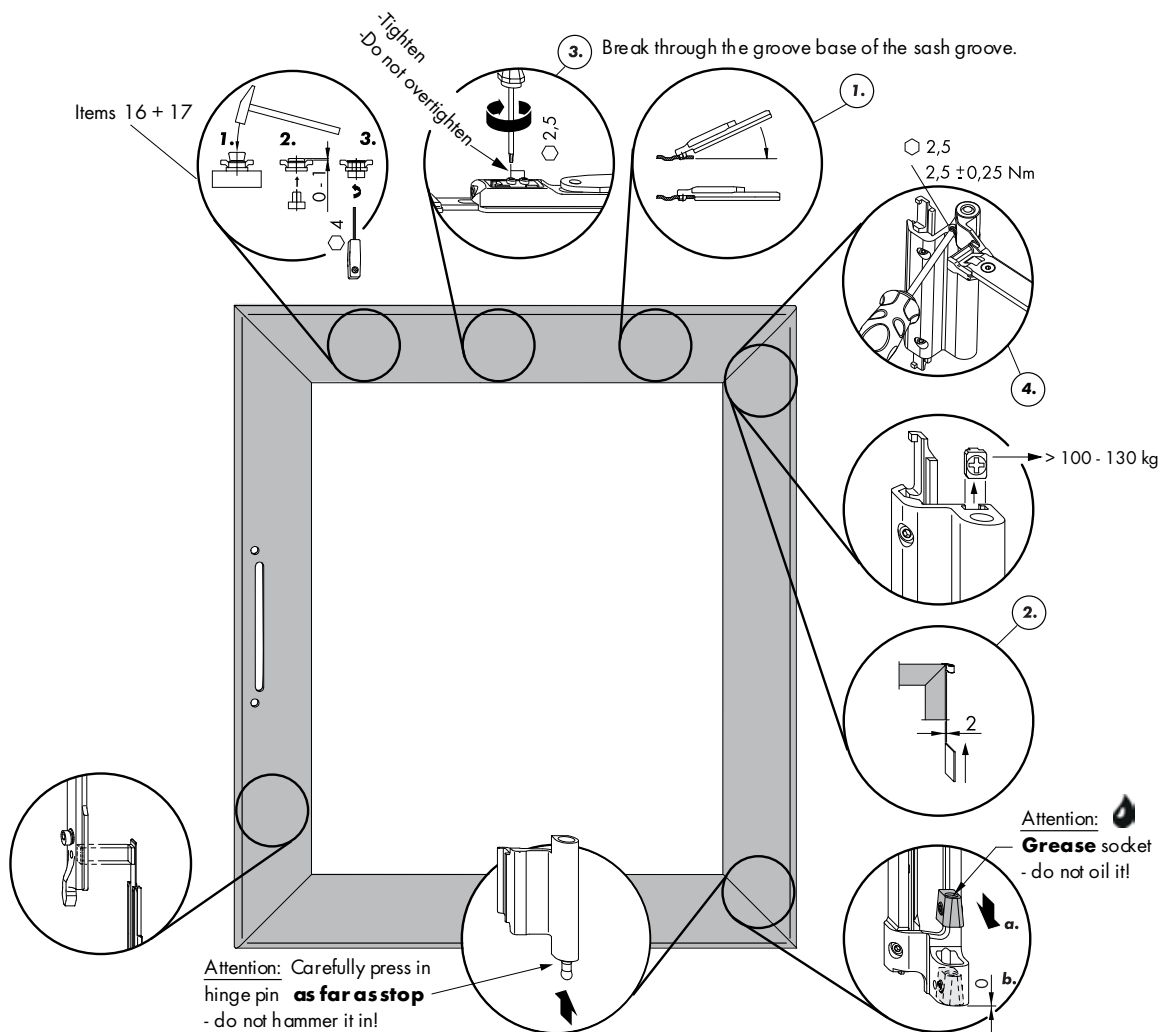
- without centre lock (3. - 4.)
- with centre lock (1. - 2. - 3. - 4.)

## Design variants for coupling set (items 28-30) (H1/H2)

USH	X	Material no.
7 - 10 mm	≤ 8.5 mm	MMKL0030-100030
7 - 10 mm	≤ 7.5 mm	MMKL0010-100030
12 mm	≤ 7 mm	MMKL0040-100030

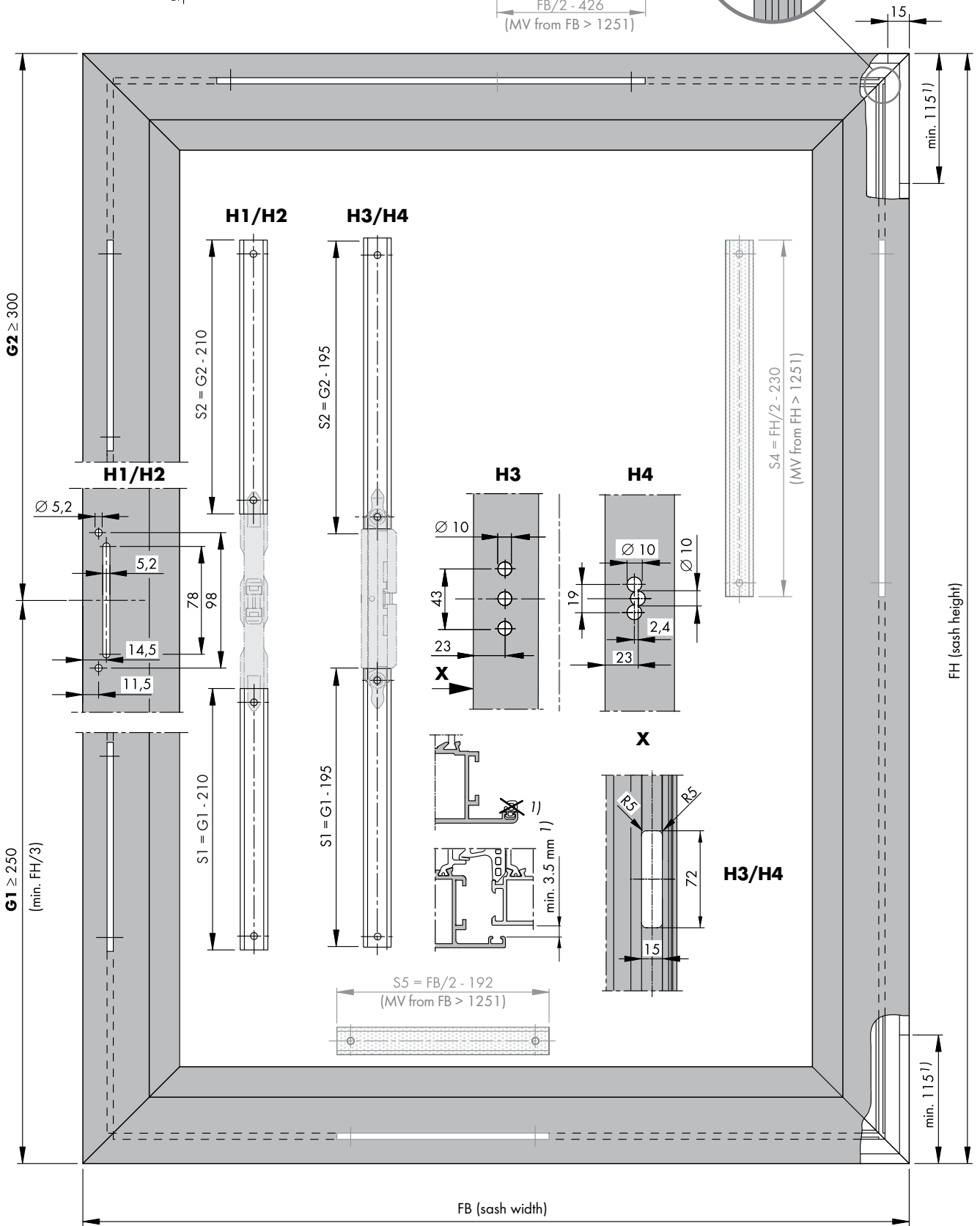
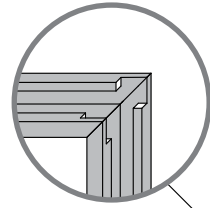
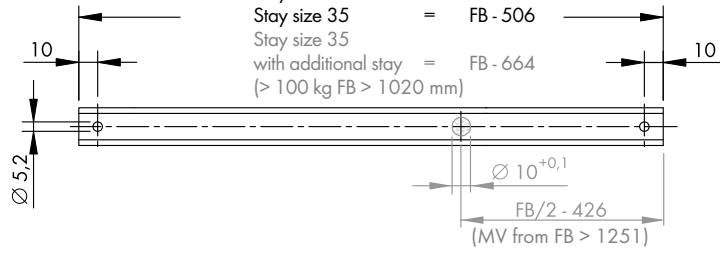


## Assembly settings and installation sequence (1. to 4.)



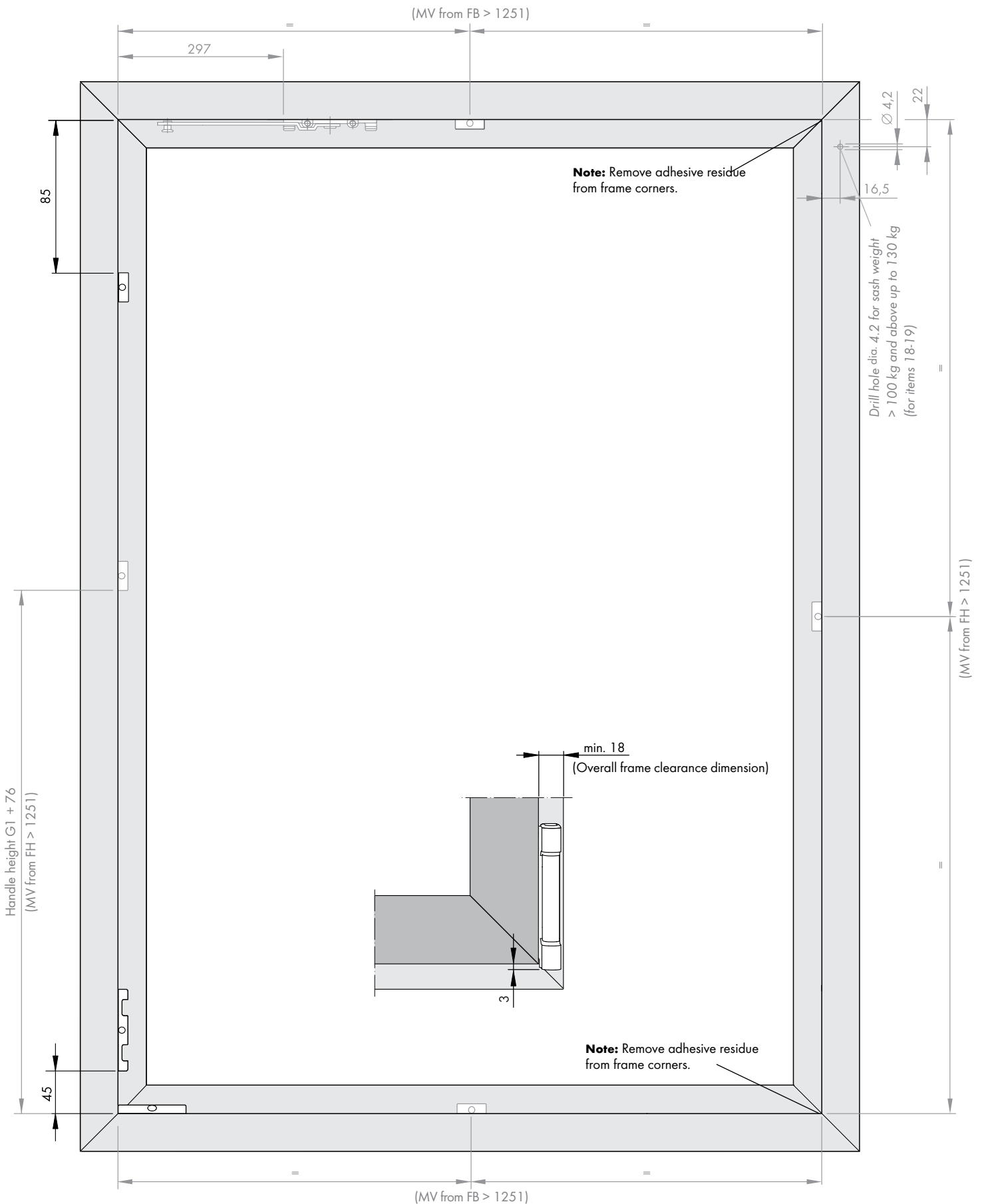
# ALU 5200-DK BD 3.5 (FBS-G) Sash dimensions

S3 Stay size 20 = FB - 338  
 Stay size 35 = FB - 506  
 Stay size 35 with additional stay = FB - 664  
 (> 100 kg FB > 1020 mm)



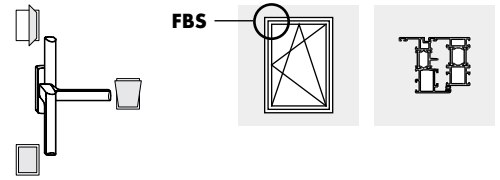
1) Remove the rebate seal in the hinge gap area.  
 Minimum gap 3.5 mm.

# ALU 5200-DK BD 3.5 (FBS-G) Frame dimensions



# ALU 5200-TBT

**Tilt-before-turn hardware for hinge clearance (BD) 3.5 mm with mishandling device (FBS) on the corner drive (EUL)**



Technical specifications and colours are subject to change

H48.5200LS003en/0

## Size range (depends on hardware)

		Windows		French doors
		min.	max.	max.
Sash width	(mm)	365 to 1600		1300
Sash height	(mm)	550 to 2000		2400
Sash weight	(kg)	<b>max. 100/130</b>		<b>max. 100/130</b>

## The following information from the aluminium planning manual must be observed:

*Guidelines of the Gütegemeinschaft Schlösser und Beschläge e. V  
(German quality association for locks and hardware)*

- Document no. H45.4200LS001EN

*Application diagrams:*

- Sash weight up to max. 100 kg: Document no. H58.AWDLMS003EN

- Sash weight up to max. 130 kg: Document no. H58.AWDLMS004EN

*Basic safety notes:*

- Document no. H45.5200LS001EN

*Abbreviations:*

- Document no. H45.5200LS002EN

*Adjustment options:*

- Document no. H45.5200LS004EN

*Profile recommendation:*

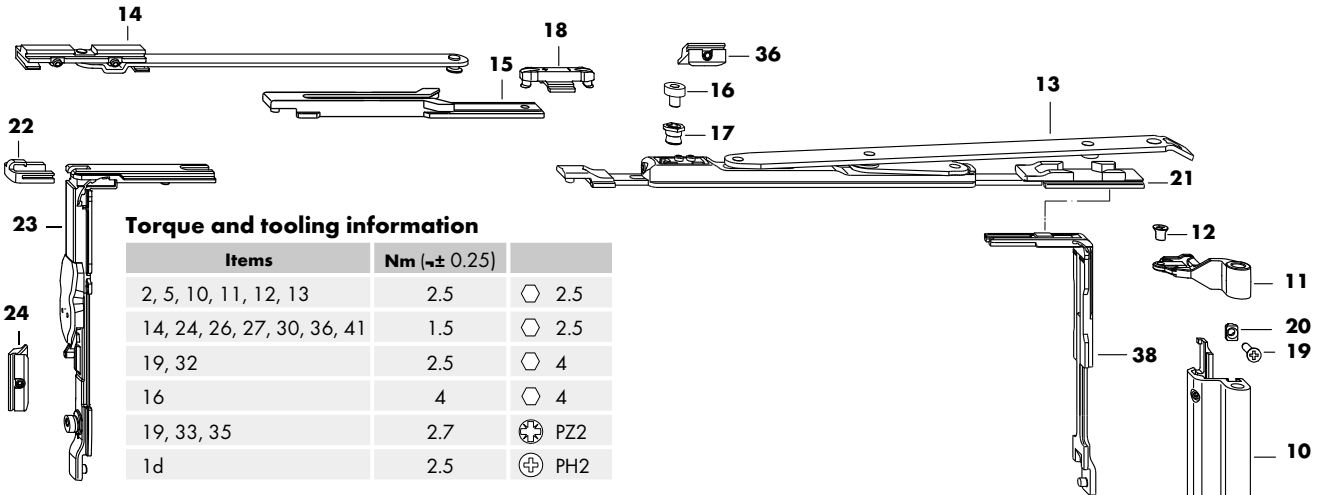
- Document no. H48.ZubhLS008EN

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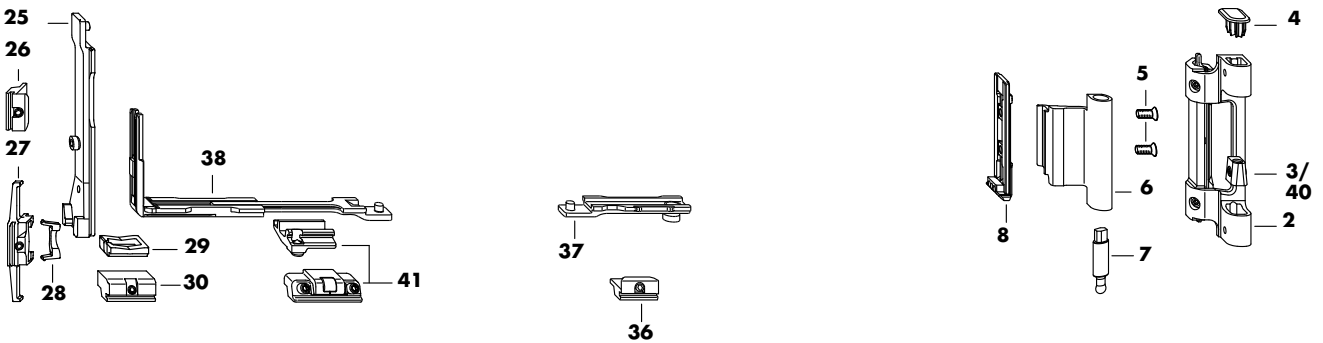
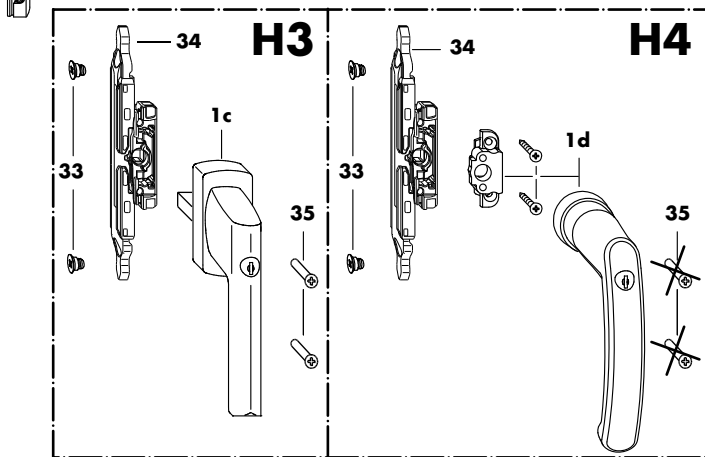
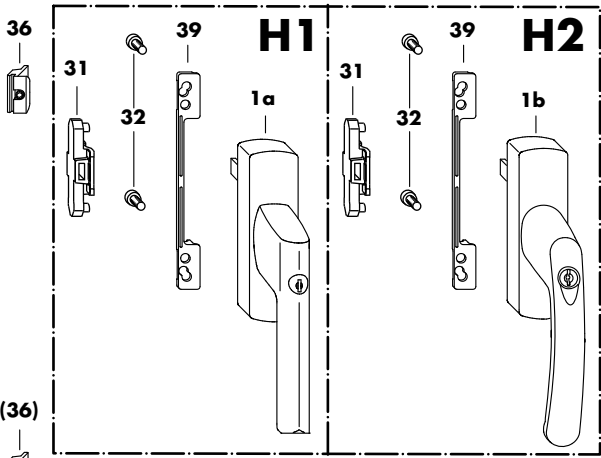
**Assembly instructions**  
H48.5200LS003en

# ALU 5200-TBT BD 3.5 (FBS-EUL) Hardware overview



## Torque and tooling information

Items	Nm (±0.25)	
2, 5, 10, 11, 12, 13	2.5	⬡ 2.5
14, 24, 26, 27, 30, 36, 41	1.5	⬡ 2.5
19, 32	2.5	⬡ 4
16	4	⬡ 4
19, 33, 35	2.7	⊕ PZ2
1d	2.5	⊕ PH2



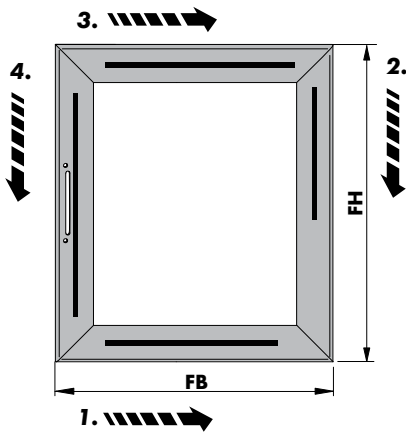
## ALU 5200-TBT BD 3.5 (FBS-EUL) Hardware list

	Item	Quantity	Description		VE		VE	
H1	1a	1	Handle LM Si-line lockable/TBT	Only use in combination with coupling set	See ALU handle overview, document no.: H48.ZubhLS007en in ALU planning manual			
H2	1b		Handle LM Globe lockable/TBT					
H3	1c		Handle TITAN lockable/TBT		(□ 7 mm x 25, cam dia.10 mm)			
H4	1d		Handle LM round rose lockable /TBT	Only use in combination with gear set	See Handle Globe RR, document no.: H48.ZubhLS006en in ALU planning manual			
		1	Hinge side LM 5200 BD 3.5					
				Silver	MMBS0220-525010	1	MMBS0220-525020	10
				White RAL 9016	MMBS0220-504010	1	MMBS0220-504020	10
				Black RAL 9005	MMBS0220-523010	1	MMBS0220-523020	10
				EV1	MMBS0220-524010	1	MMBS0220-524020	10
				Mill finish	-	-	MMBS0220-500120	5
	2	1	Bottom hinge					
	3	1	Adjusting piece					
	4	1	Cover cap					
	5	2	M5 x 8.5 countersunk screw					
	6	1	Corner hinge					
	7	1	Bottom hinge pin					
	8	1	Clamping piece E					
	9	1	Top hinge pin					
	10	1	Top hinge					
	11	1	Stay hinge bearing					
	12	1	M5 x 7.5 countersunk screw					
	13	1	Stay LM	Size 20      FB (mm) 365 to 600      Weight < 100 kg	884805	1	273 098	20
				35      601 to 1600	884782	1	314 203	20
		0...1	Additional stay LM	From FB 1251 with stay size 35 < 100 kg From FB 1020 with stay size 35 > 100 kg to 130 kg	857076	1	247006	10
According to FB/kg	14	1	Additional stay					
	15	1	Striker plate					
	16	1	Locking cam					
	17	1	Eccentric rivet					
	18	0...1	Stay striker MV	(> 100 kg FB > 1021 mm) (< 100 kg FB > 1251)	MXSK0010-100010	1	MXSK0010-100030	20
According to kg		0...1	Accessories set LM for 130 kg	> 100 kg to 130 kg	-	1	247037	20
	19	1	M5 x 13 countersunk screw					
	20	1	Support bracket					
		1	Locking side LM-TBT (with FBS on corner drive) KPS		MMVS0320-100010	1	MMVS0320-100030	20
	21	1	Locking bolt TBT					
	22	1	Clamping piece EUL					
	23	1	VSO FBS corner drive					
	24	1	Striker EUL					
	25	1	Tilt lock TBT					
	26	1	Striker					
	27	1	Tilt locking part TBT					
	28	1	Spring	Grey from FH 550 - 1100 mm Black from FH 1101 - 2400 mm				
	29	1	Run-up block					
	30	1	Run-up block TBT					
H1		0...1	Coupling set LM (without FBS on gear)	Only use in combination with H1/H2	MMKL0060-100010	1	MMKL0060-100030	20
H2	31	1	Coupling bracket					
	32	2	M5 x 12 cheese head screw					
H3		0...1	Gear set LM (without FBS on gear)	Only use in combination with H3/H4 (see drawing no. H48.ZubhLS005en)	MMGI0090-100010	1	MMGI0090-100030	20
H4	33	2	M6 coupling screw					
	34	1	M6 ESG					
	35	2	M5 x 3.5 countersunk screw					
According to FB/FH		0...2	MV LM-DK/TBT	(FB/FH > 1251 mm)	857045	1	246979	20
	36	2	Striker					
	37	1	Slider					
	38	1	VSU/BSO corner drive					
Accessories	39	0...1	Handle support LM	Only use in combination with H1/H2	-	-	(see table on page 4)	200
	40	0...1	Adjusting piece AV	For compression + 0.5 mm	MXBS0100-100010	1	MXBS0100-100030	20
	41	0...1	Sash lift LM	(see drawing no. H48.ZubhLS014en)	MMFH0010-100010	1	MMFH0010-100030	20



# ALU 5200-TBT BD 3.5 (FBS-EUL) Assembly and handle support

## Observe installation sequence

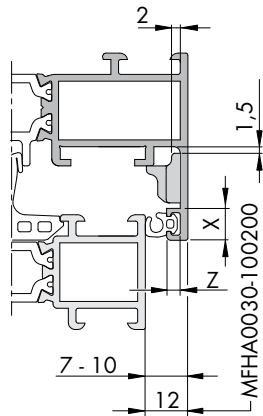


Sequence of installation in sash

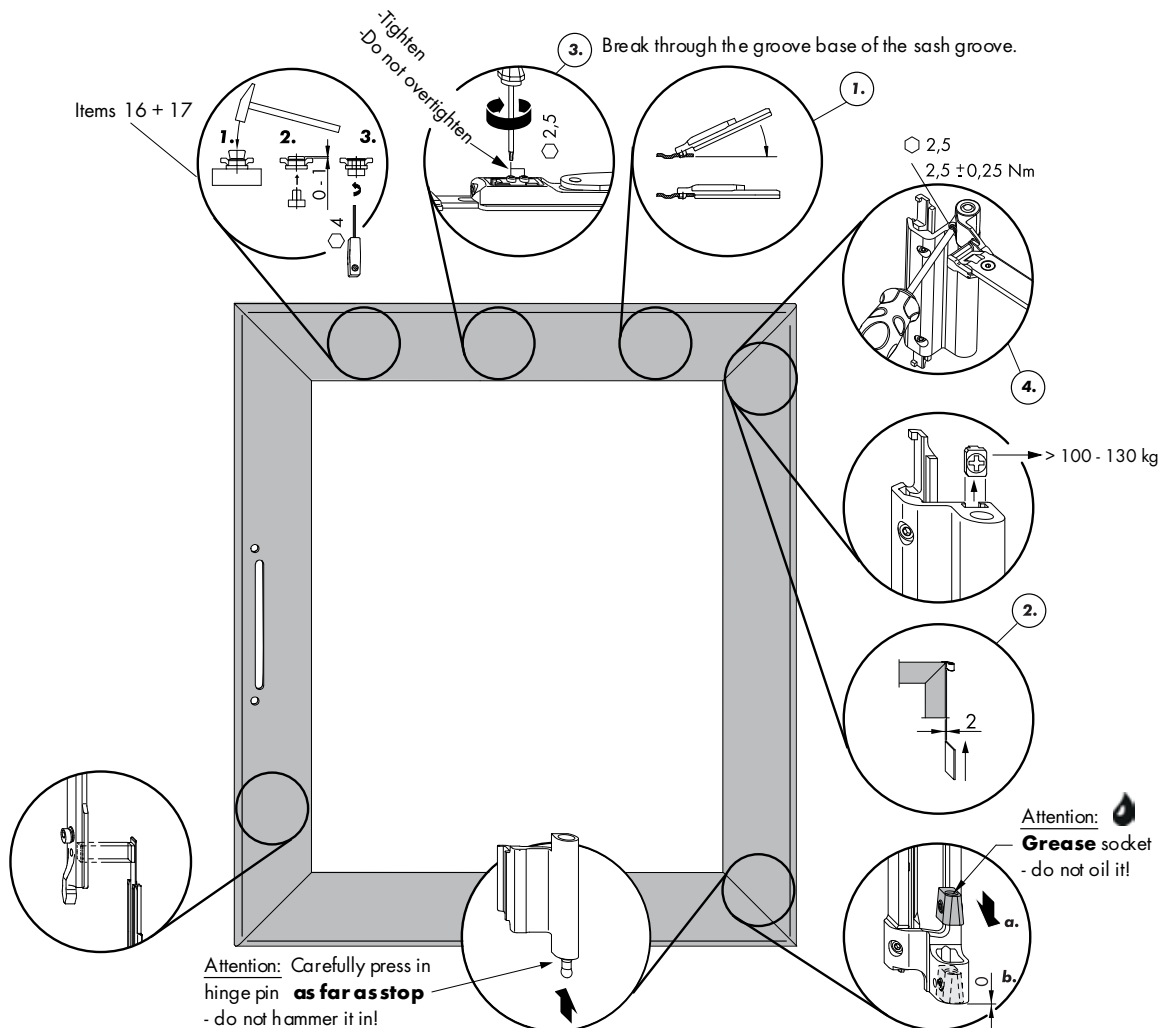
- without centre lock (3. - 4.)
- with centre lock (1. - 2. - 3. - 4.)

## Design variants for the handle support (item 39) (H1/H2)

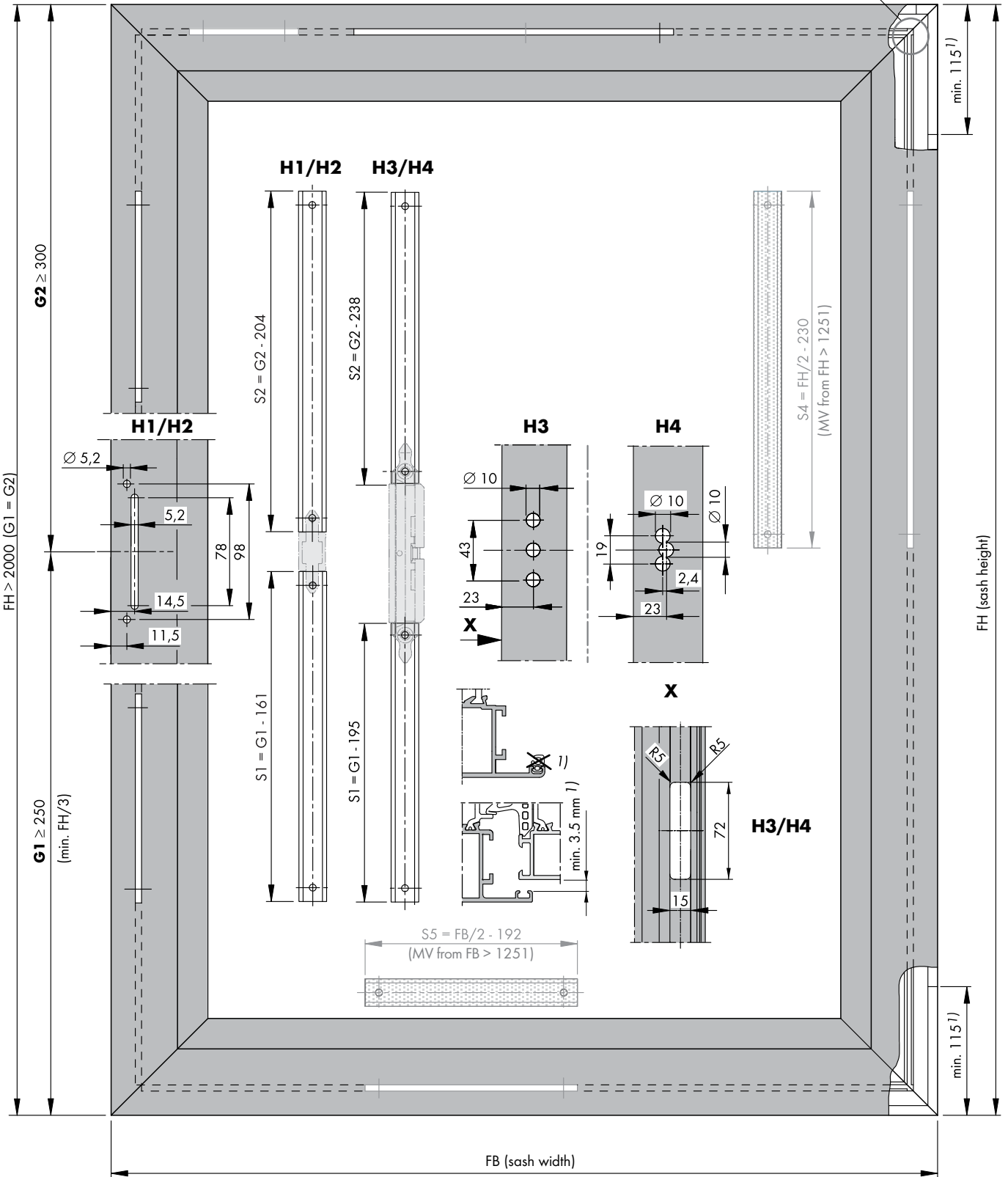
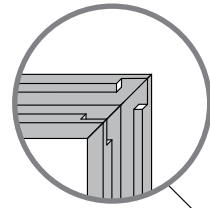
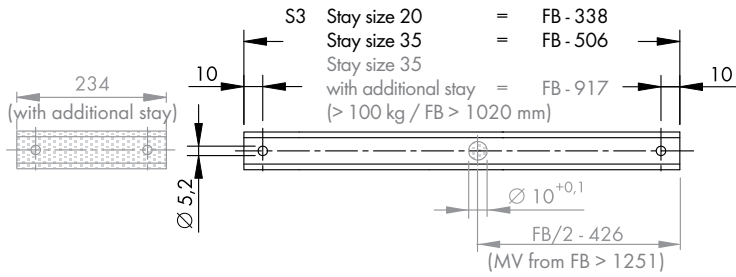
USH	Z	X < 7 mm	X 7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-



## Assembly settings and installation sequence ① to ④

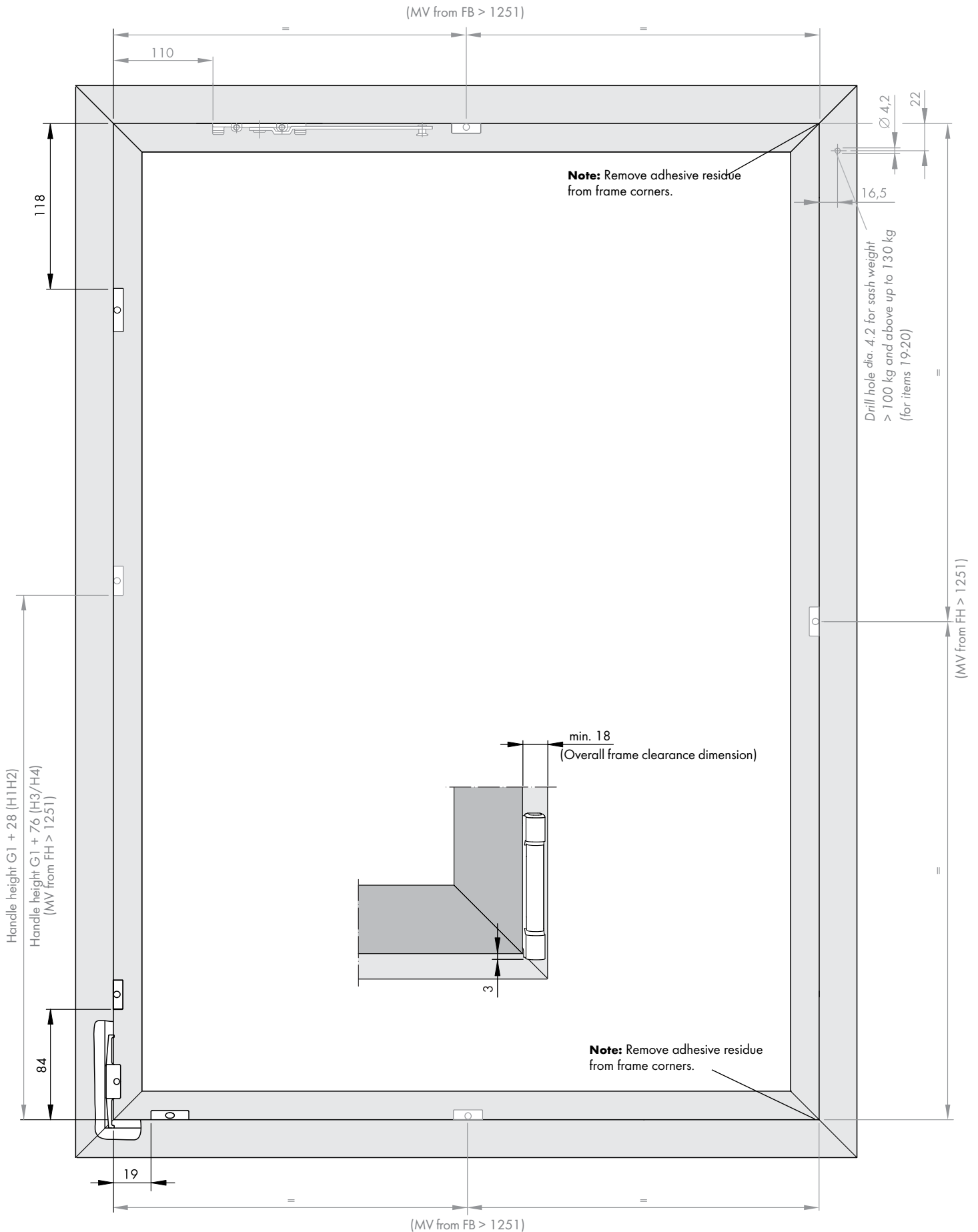


# ALU 5200-TBT BD 3.5 (FBS-EUL) Sash dimensions



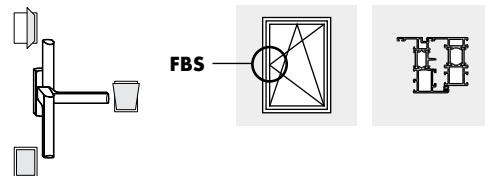
1) Remove the rebate seal in the hinge gap area.  
Minimum gap 3.5 mm.

**ALU 5200-TBT BD 3.5 (FBS-EUL) Frame dimensions**



# ALU 5200-TBT

## Tilt-before-turn hardware for hinge clearance (BD) 3.5 mm mishandling device (FBS) on the gear (G)



### Size range (depends on hardware)

		Window		French windows
		min.	max.	max.
Sash width	(mm)	365 to 1600		1300
Sash height	(mm)	550 to 2000		2400
Sash weight	(kg)	<b>max. 100/130</b>		<b>max. 100/130</b>

### The following information from the aluminium planning manual must be observed:

Guidelines of the Gütegemeinschaft Schlösser und Beschläge e. V.  
(German quality association for locks and hardware)

- Document no. H45.4200LS001EN

Application diagrams:

- Sash weight up to max. 100 kg: Document no. H58.AWDLMS003EN

- Sash weight up to max. 130 kg: Document no. H58.AWDLMS004EN

Basic safety notes:

- Document no. H45.5200LS001EN

Abbreviations:

- Document no. H45.5200LS002EN

Setting options:

- Document no. H45.5200LS004EN

Profile recommendation:

- Document no. H48.ZubhLS008EN

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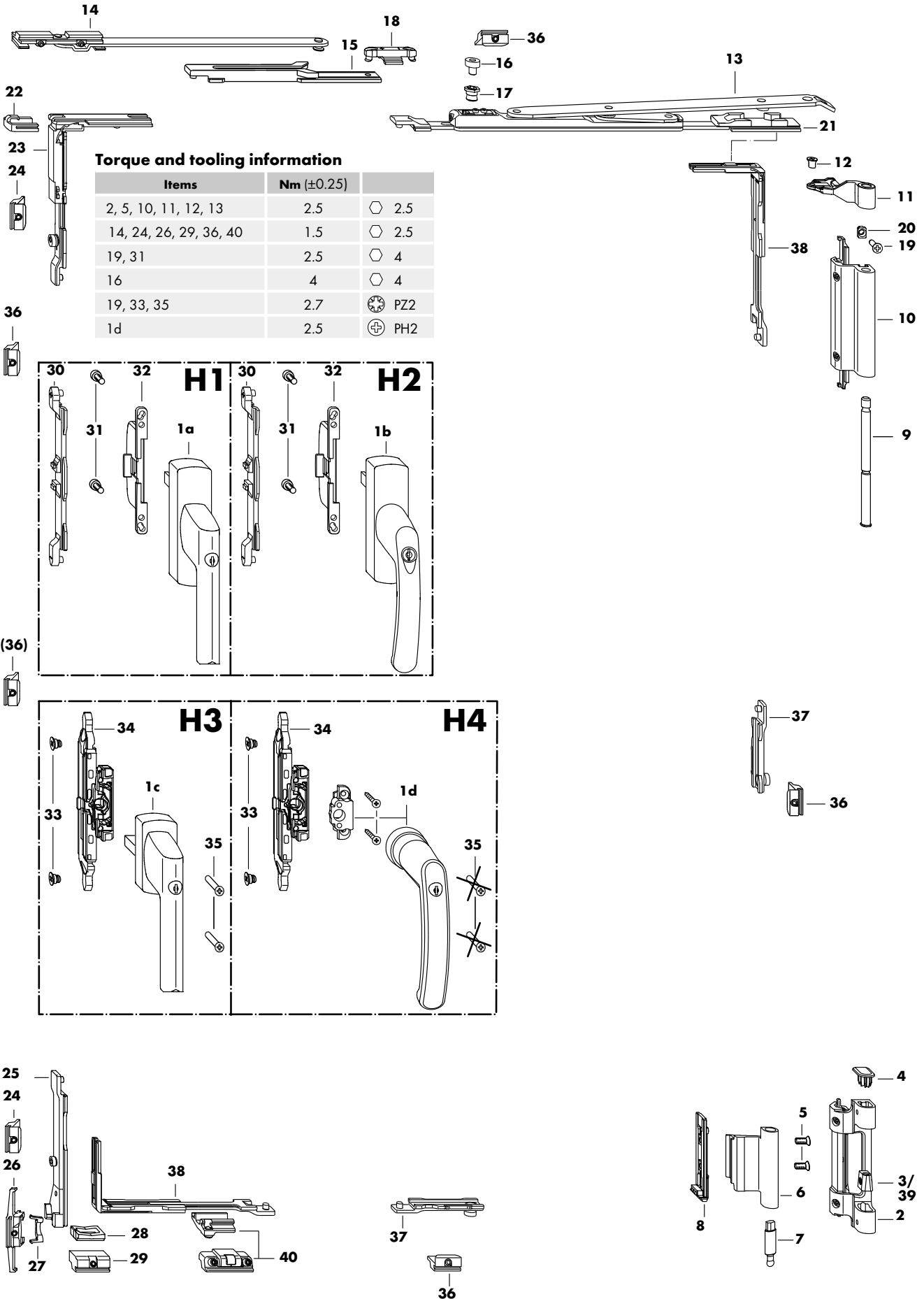
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**Assembly instructions**  
 H48.5200LS004en

Technical specifications and colours are subject to change

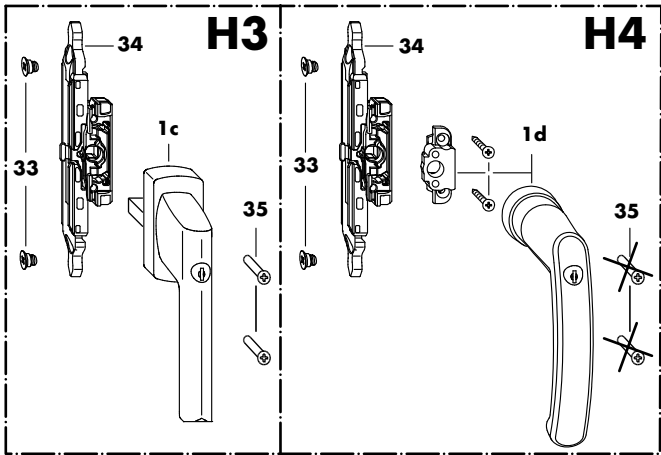
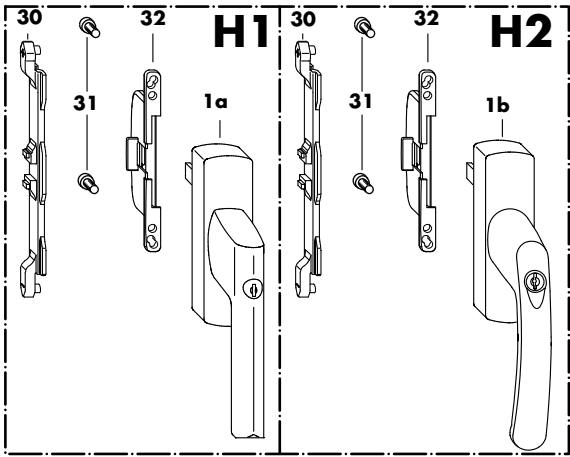
H48.5200LS004en/0

# ALU 5200 TBT BD 3.5 (FBS-G) Hardware overview



**Torque and tooling information**

Items	Nm (±0.25)	
2, 5, 10, 11, 12, 13	2.5	⬡ 2.5
14, 24, 26, 29, 36, 40	1.5	⬡ 2.5
19, 31	2.5	⬡ 4
16	4	⬡ 4
19, 33, 35	2.7	⊕ PZ2
1d	2.5	⊕ PH2

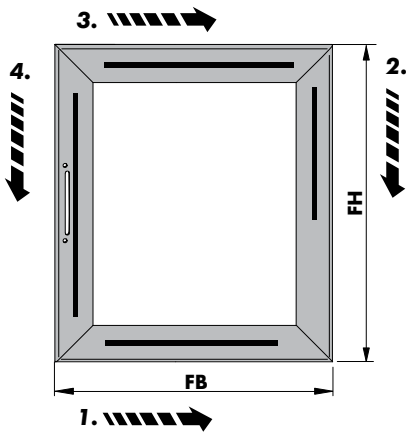


## ALU 5200-TBT BD 3.5 (FBS-G) Hardware list

	Item	Piece	Description		VE		VE	
	H1	1a	<b>Handle LM Si-line lockable/TBT</b>	Only use in combination with coupling set	See handle overview ALU document no.: H48.ZubhLS007en in ALU planning manual			
	H2	1b	<b>Handle LM Globe lockable/TBT</b>					
	H3	1c	<b>Handle TITAN lockable/TBT</b>	Only use in combination with gear set	See Handle Globe RR document no.: H48.ZubhLS006en in ALU planning manual	(□ 7mm x 25, cam dia. 10 mm)		
	H4	1d	<b>Handle LM Round rose lockable/TBT</b>					
		1	<b>Hinge side LM 5200 BD 3.5</b>	<b>Silver</b> <b>White</b> RAL 9016 <b>Black</b> RAL 9005 <b>EV1</b> <b>Mill finish</b>	<b>MMBS0220-525010</b> <b>MMBS0220-504010</b> <b>MMBS0220-523010</b> <b>MMBS0220-524010</b> -	<b>1</b> <b>1</b> <b>1</b> <b>1</b> -	<b>MMBS0220-525020</b> <b>MMBS0220-504020</b> <b>MMBS0220-523020</b> <b>MMBS0220-524020</b> <b>MMBS0220-500120</b>	<b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>5</b>
		2	Bottom hinge					
		3	Adjusting piece					
		4	Cover cap					
		5	M5 x 8.5 countersunk screw					
		6	Corner hinge					
		7	Bottom hinge pin					
		8	Clamp E					
		9	Top hinge pin					
		10	Top hinge					
		11	Stay hinge bearing					
		12	M5 x 7.5 countersunk screw					
		13	<b>Stay LM</b>	Size      FB (mm)      weight 20          365 to 600      < 100 kg 35          601 to 1600	<b>884805</b> <b>884782</b>	<b>1</b> <b>1</b>	<b>273 098</b> <b>314 203</b>	<b>20</b> <b>20</b>
		0...1	<b>Additional stay LM</b>	From FB 1251 with stay size 35 < 100 kg From FB 1020 with stay size 35 > 100 kg to 130 kg	<b>857076</b>	<b>1</b>	<b>247006</b>	<b>10</b>
dependent on FB/kg		14	Additional stay					
		15	Striker plate					
		16	Locking cam					
		17	Eccentric rivet					
		18	<b>Stay striker MV</b>	(> 100 kg FB > 1021 mm) (< 100 kg FB > 1251)	<b>MXSK0010-100010</b>	<b>1</b>	<b>MXSK0010-100030</b>	<b>20</b>
dependent on kg		0...1	<b>Accessory set LM for 130 kg</b>	> 100 kg to 130 kg	-	<b>1</b>	<b>247037</b>	<b>20</b>
		19	M5 x 13 countersunk screw					
		20	Mounting bracket					
		1	<b>Locking side LM-TBT (for FBS on gear) KPS</b>		<b>MMVS0270-100010</b>	<b>1</b>	<b>MMVS0270-100030</b>	<b>20</b>
		21	Locking bolt TBT					
		22	Clamp EUL					
		23	VSO corner drive					
		24	Locking part					
		25	TBT tilt lock					
		26	Tilt locking part TBT					
		27	Spring	Grey          from FH 550 - 1100 mm Black          from FH 1101 - 2400 mm				
		28	Run-up block					
		29	TBT run-up block					
		0...1	<b>Coupling set (with FBS on gear)</b>	Only use in combination with H1/H2 (see page 4 for notes on rebate height (USH))	<b>MMKL0030-100010</b>	<b>1</b>	<b>MMKL0030-100030</b>	<b>20</b>
			(9 mm)		<b>MMKL0010-100010</b>	<b>1</b>	<b>MMKL0010-100030</b>	<b>20</b>
			(10 mm)		<b>MMKL0040-100010</b>	<b>1</b>	<b>MMKL0040-100030</b>	<b>20</b>
	H1 H2	30	Coupling bracket					
		31	M5 x 12 cheese head screw					
		32	Mishandling device					
		0...1	<b>Gear set LM FBS (with FBS on gear)</b>	Only use in combination with H3/H4 (see drawing no. H48.ZubhLS005de)	<b>MMGI0080-100010</b>	<b>1</b>	<b>MMGI0080-100030</b>	<b>20</b>
	H3 H4	33	M6 coupling screw					
		34	M6 ESG FBS					
		35	M5 x 35 countersunk screw					
Accessories dependent on FB/FH		0...2	<b>MVLM-DK/TBT</b>	(FB/FH > 1251 mm)	<b>857045</b>	<b>1</b>	<b>246979</b>	<b>20</b>
		36	Locking part					
		37	Slider					
		38	VSU/BSO corner drive					
		39	<b>Adjusting piece AV</b>	For compression + 0.5 mm	<b>MXBS0100-100010</b>	<b>1</b>	<b>MXBS0100-100030</b>	<b>20</b>
		40	<b>Sash lift LM</b>	(see drawing no. H48.ZubhLS014de)	<b>MMFH0010-100010</b>	<b>1</b>	<b>MMFH0010-100030</b>	<b>20</b>

# ALU 5200-TBT BD 3.5 (FBS-G) Assembly and design variants coupling set

## Observe installation sequence



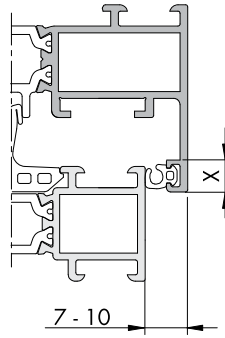
Sequence of installation in sash

- without centre lock (3. - 4.)

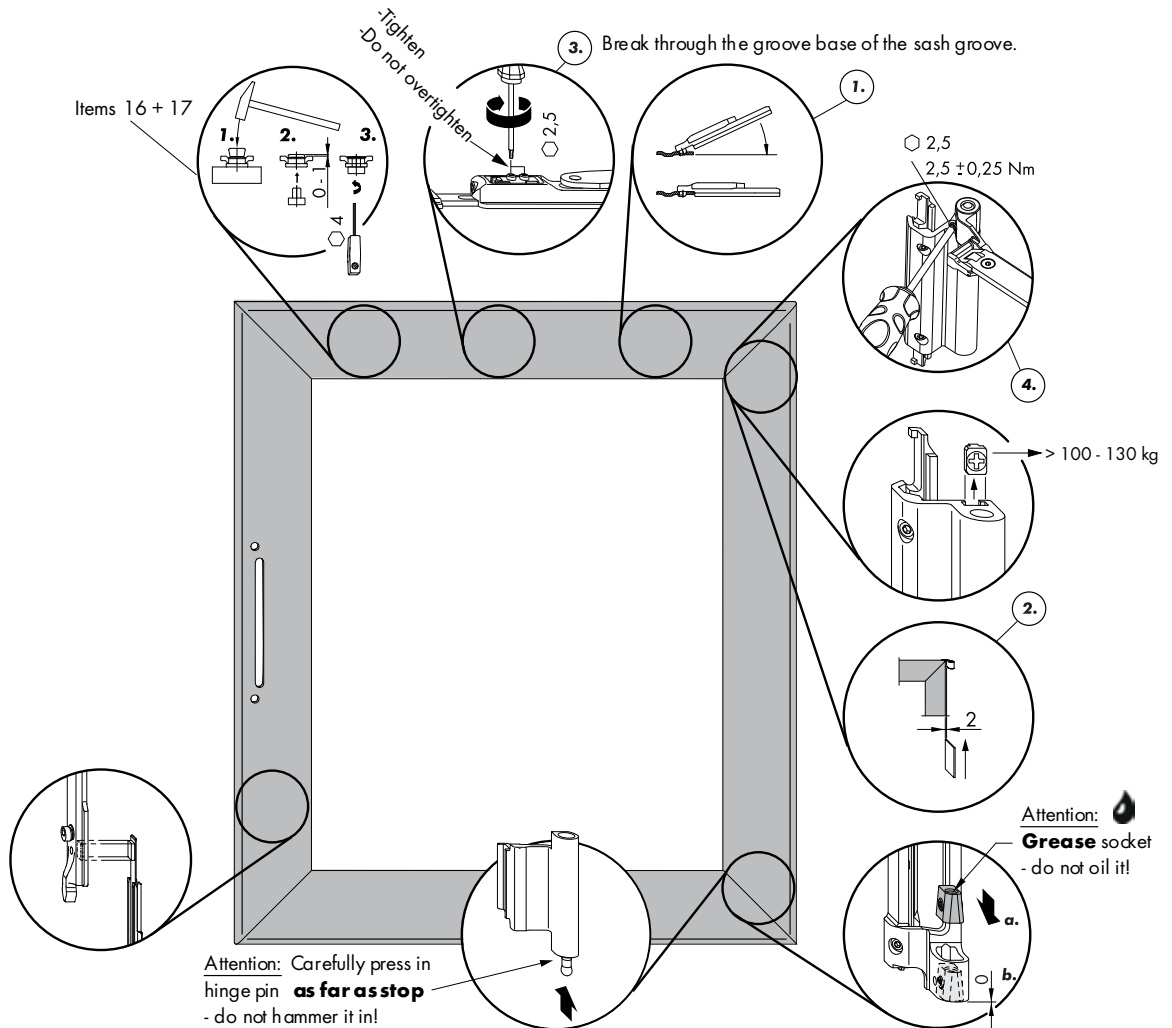
- with centre lock (1. - 2. - 3. - 4.)

## Design variants for coupling set (item 30-32) (H1/H2)

USH	X	Material no.
7 - 10 mm	≤ 8.5 mm	MMKL0030-100030
7 - 10 mm	≤ 7.5 mm	MMKL0010-100030
12 mm	≤ 7 mm	MMKL0040-100030



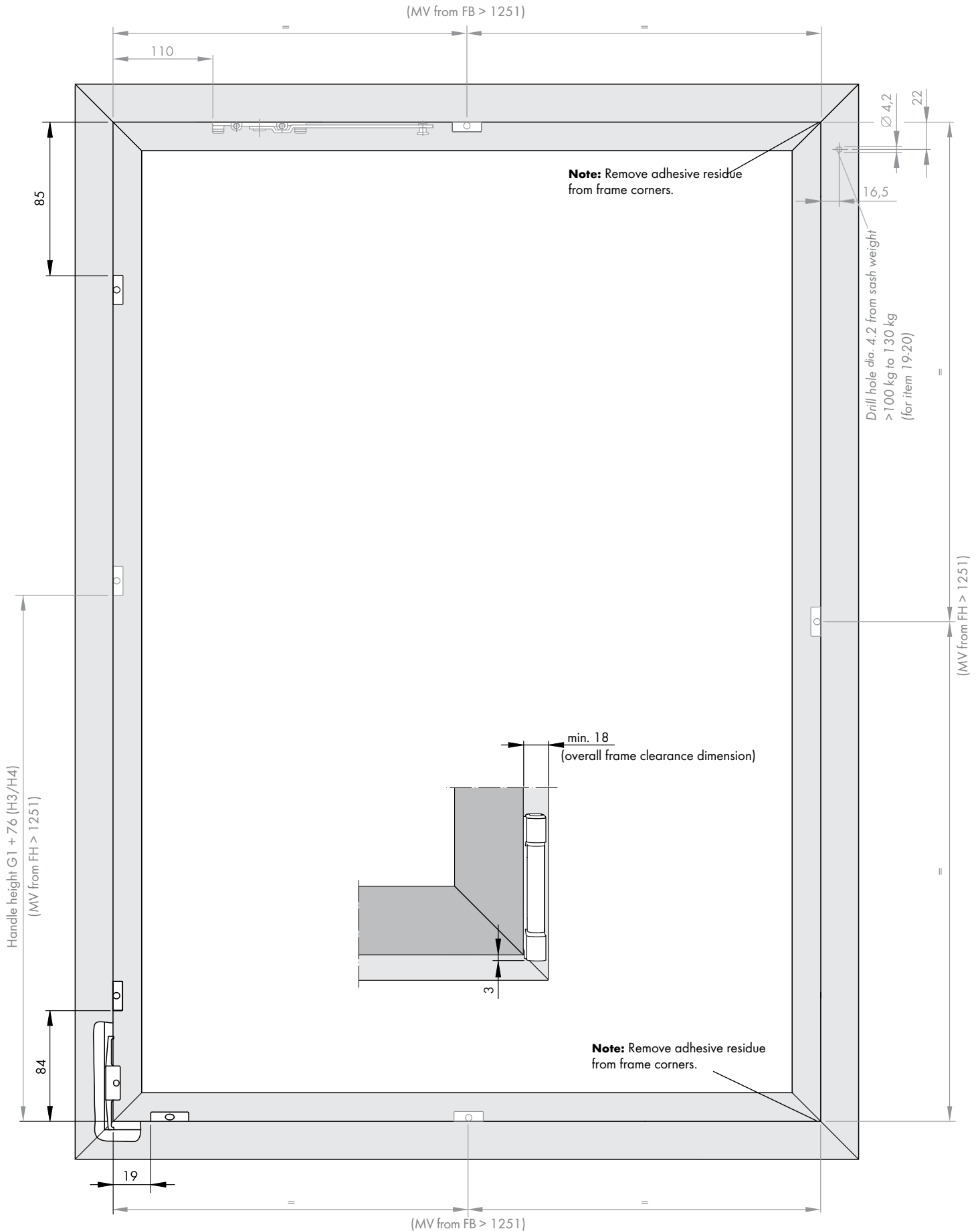
## Assembly settings and installation sequence ① to ④





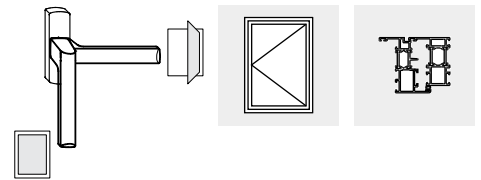


# ALU 5200-TBT BD 3.5 (FBS-G) Frame dimensions



# ALU 5200-D

Standard turning hardware with hinge clearance (BD) 3.5 mm



Technical specifications and colours are subject to change

**Size range** (depends on hardware)

		Windows		French doors
		min.	max.	max.
Sash width	(mm)	365 to 1600		1300
Sash height	(mm)	550 to 2000		2400
Sash weight	(kg)	<b>max. 100/130</b>		<b>max. 100/130</b>

**The following information from the aluminium planning manual must be observed:**

*Guidelines of the Gütegemeinschaft Schlösser und Beschläge e. V (German quality association for locks and hardware).*

- Document no. H45.4200LS001EN

*Application diagrams:*

- Sash weight up to max. 100 kg: Document no. H58.AWDLMS003EN

- Sash weight up to max. 130 kg: Document no. H58.AWDLMS004EN

*Basic safety notes:*

- Document no. H45.5200LS001EN

*Abbreviations:*

- Document no. H45.5200LS002EN

*Adjustment options:*

- Document no. H45.5200LS004EN

*Profile recommendation:*

- Document no. H48.ZubhLS008EN

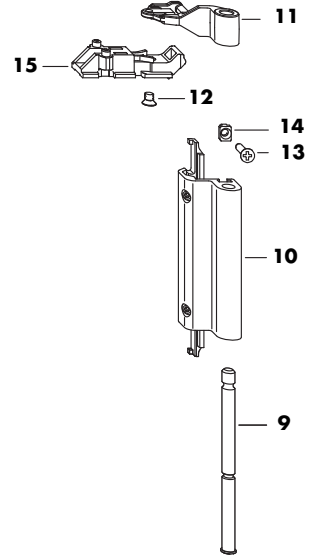
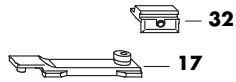
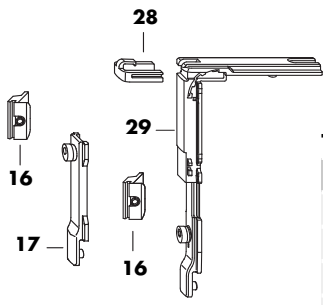
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H48.5200LS005en/0

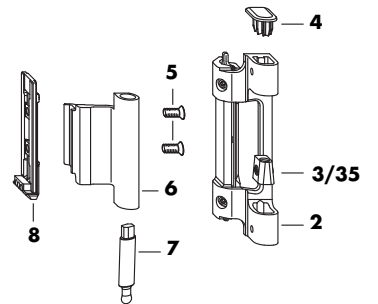
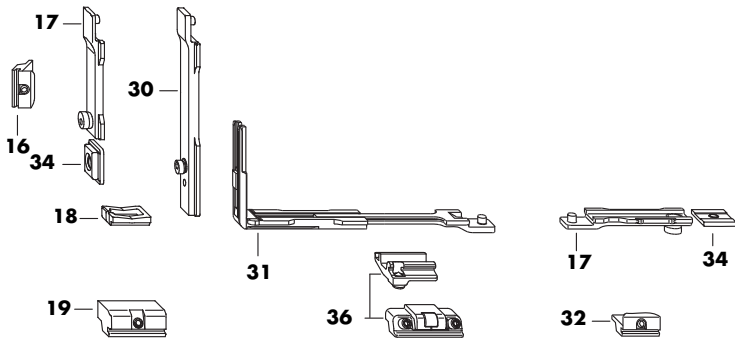
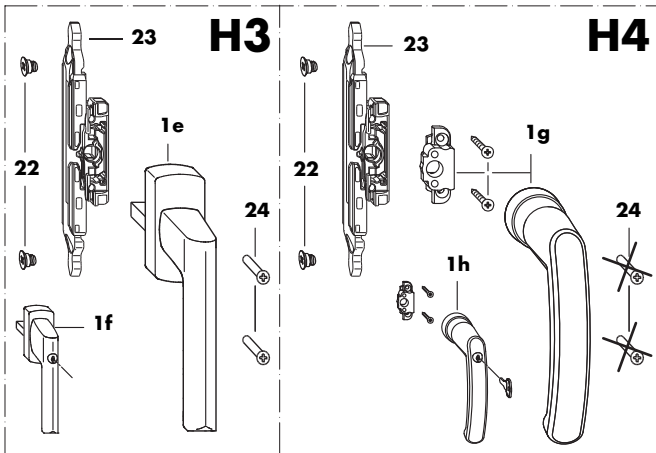
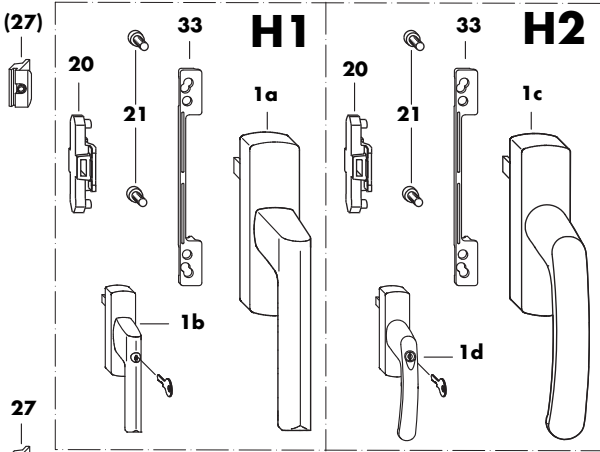
**Assembly instructions**  
H48.5200LS005en

# ALU 5200-D BD 3.5 Hardware overview



## Torque and tooling information

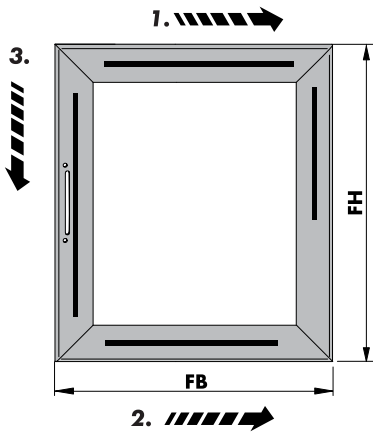
Items	Nm (±0.25)	
2, 5, 10, 11, 12	2.5	⊕ 2.5
16, 19, 25, 26, 27, 32.36	1.5	⊕ 2.5
21, 34	2.5	⊕ 4
13, 22, 24	2.7	⊕ PZ2
1g, 1h	2.5	⊕ PH2



# ALU 5200-D BD 3.5 Hardware list

	Item	Quantity	Description		VE		VE	
H1	1a	1	Handle LM Si-line	Only use in combination with coupling set	See ALU handle overview, document no.: H48.ZubhLS007en in ALU planning manual			
	1b		Handle LM Si-line lockable					
H2	1c		Handle LM Globe					
	1d		Handle LM Globe lockable					
H3	1e		Handle TITAN	Only use in combination with gear set	(□ 7 mm x 25, cam dia. 10 mm)			
	1f		Handle TITAN lockable					
H4	1g		Handle LM round rose	See Handle Globe RR, document no.: H48.ZubhLS006en in ALU planning manual				
	1h		Handle LM round rose lockable					
	1	1	Hinge side LM 5200 BD 3.5	Silver	MMBS0220-525010	1	MMBS0220-525020	10
			White RAL 9016	MMBS0220-504010	1	MMBS0220-504020	10	
			Black RAL 9005	MMBS0220-523010	1	MMBS0220-523020	10	
			EV1	MMBS0220-524010	1	MMBS0220-524020	10	
			Mill finish	-	-	MMBS0220-500120	5	
	2	1	Bottom hinge					
	3	1	Adjusting piece S					
	4	1	Cover cap					
	5	2	M5 x 8.5 countersunk screw					
	6	1	Corner hinge					
	7	1	Bottom hinge pin					
	8	1	Clamping piece E					
9	1	Top hinge pin						
10	1	Top hinge						
11	1	Stay hinge bearing						
12	1	M5 x 7.5 countersunk screw						
According to kg	0...1	1	Accessories set LM for 130 kg	> 100 kg - 130 kg	-	1	247037	20
	13	1	M5 x 13 countersunk screw					
	14	1	Support bracket					
	1	1	Locking side LM-D SDF		MMVS0280-100010	1	MMVS0280-100030	20
	15	1	Stay LM-D					
	16	2	Striker					
	17	2	Slider					
	18	1	Run-up block					
	19	1	Run-up block TBT					
H1 H2	0...1	1	Coupling set LM (without FBS on gear)	Only use in combination with H1/H2	MMKL0060-100010	1	MMKL0060-100030	20
	20	1	Coupling bracket					
	21	2	M5 x 12 cheese head screw					
H3 H4	0...1	1	Gear set LM (without FBS on gear)	Only use in combination with H3/H4 (see drawing no. H48.ZubhLS005en)	MMGI0090-100010	1	MMGI0090-100030	20
	22	2	M6 coupling screw					
	23	1	M6 ESG					
	24	2	M5 x 35 countersunk screw					
According to FH	0...1	1	MV LM-D (VS/BS)	(FH > 1251 mm)	857052	1	246986	20
	25	1	Striker MV					
	26	1	Locking bolt					
According to FB	0...1	1	MV LM-D (VSU/VSO)	(FB > 1251 mm)	MMMV0040-100010	1	MMMV0040-100030	20
	28	1	Clamping piece EUL					
	29	1	VSO corner drive					
	30	1	Locking bolt					
	31	1	VSU/BSO corner drive					
Accessories	32	2	Striker					
	33	0...1	Handle support LM	Only use in combination with H1/H2	-	-	(see table on page 4)	200
	34	0...1	Stop		820544	1	222805	10
	35	0...1	Adjusting piece AV	For compression + 0.5 mm	MXBS0100-100010	1	MXBS0100-100030	20
	36	0...1	Sash lift LM	(see drawing no. H48.ZubhLS014en)	MMFH0010-100010	1	MMFH0010-100030	20

**Observe installation sequence**

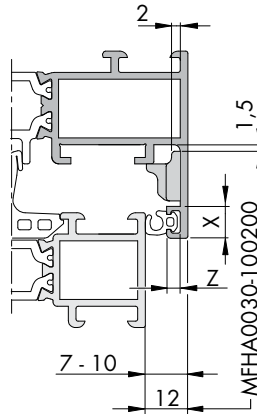


Sequence of installation in sash

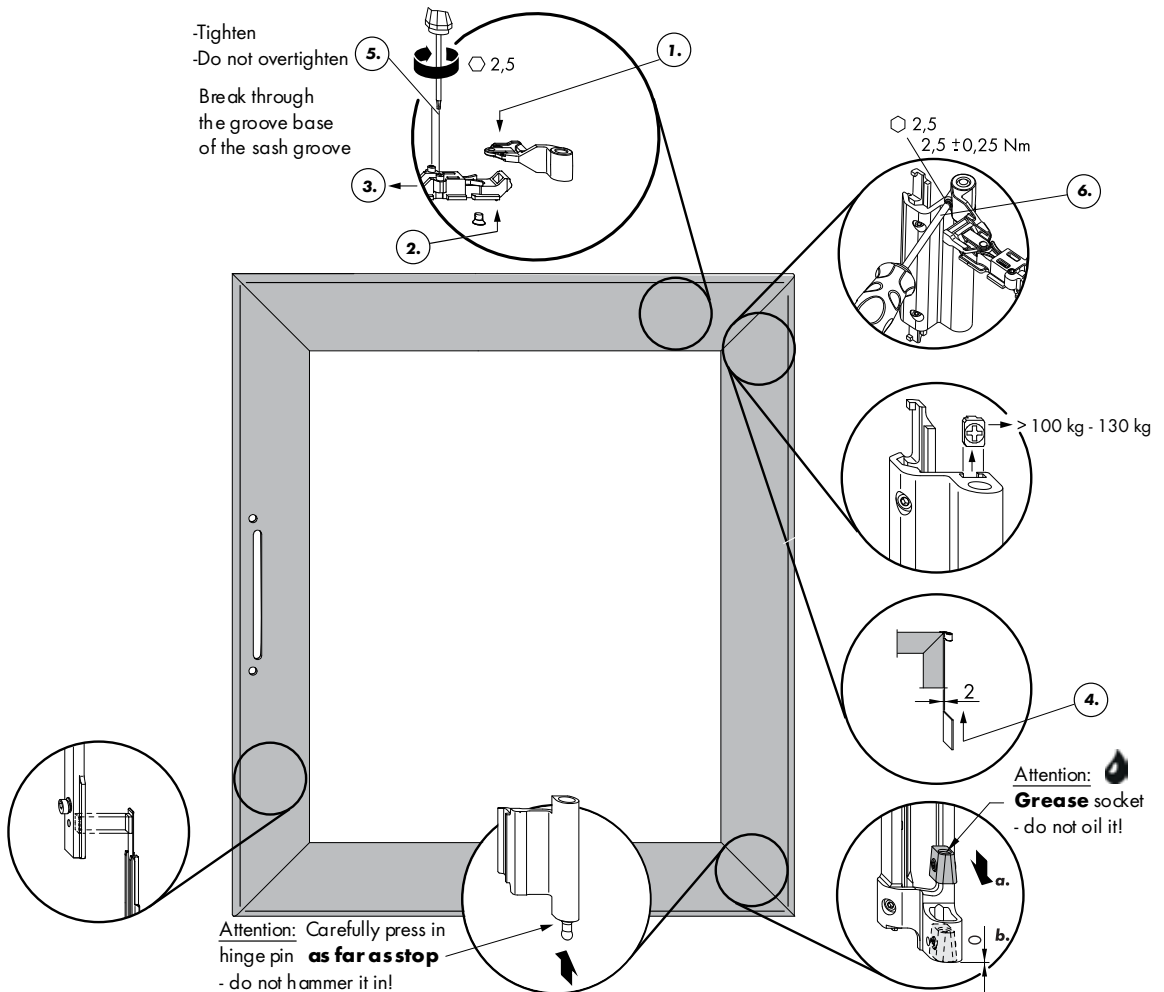
- without centre lock (3.)
- with centre lock (1. - 2. - 3.)

**Design variants for the handle support (item 33) (H1/H2)**

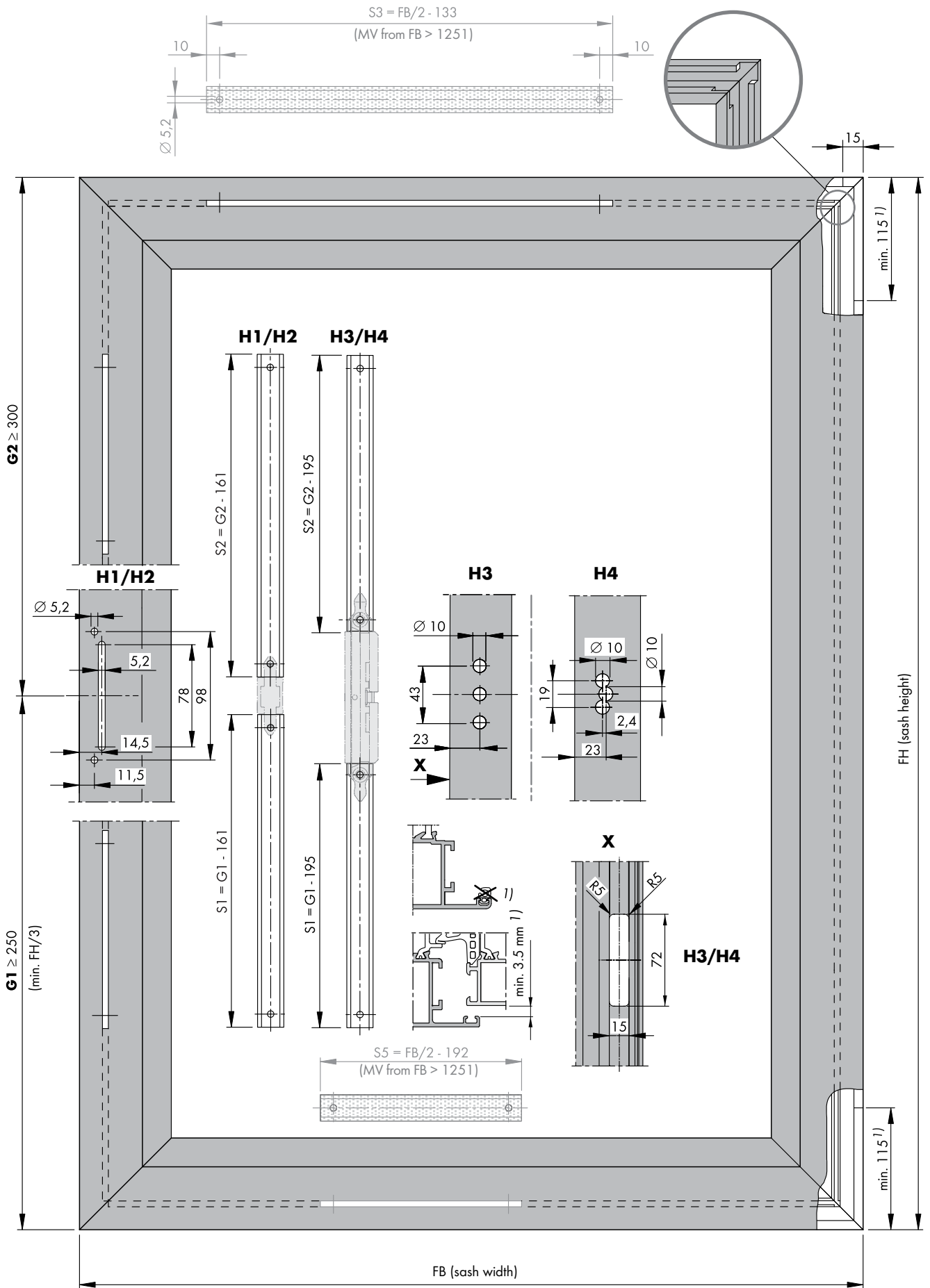
USH	Z	X < 7 mm	X 7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-



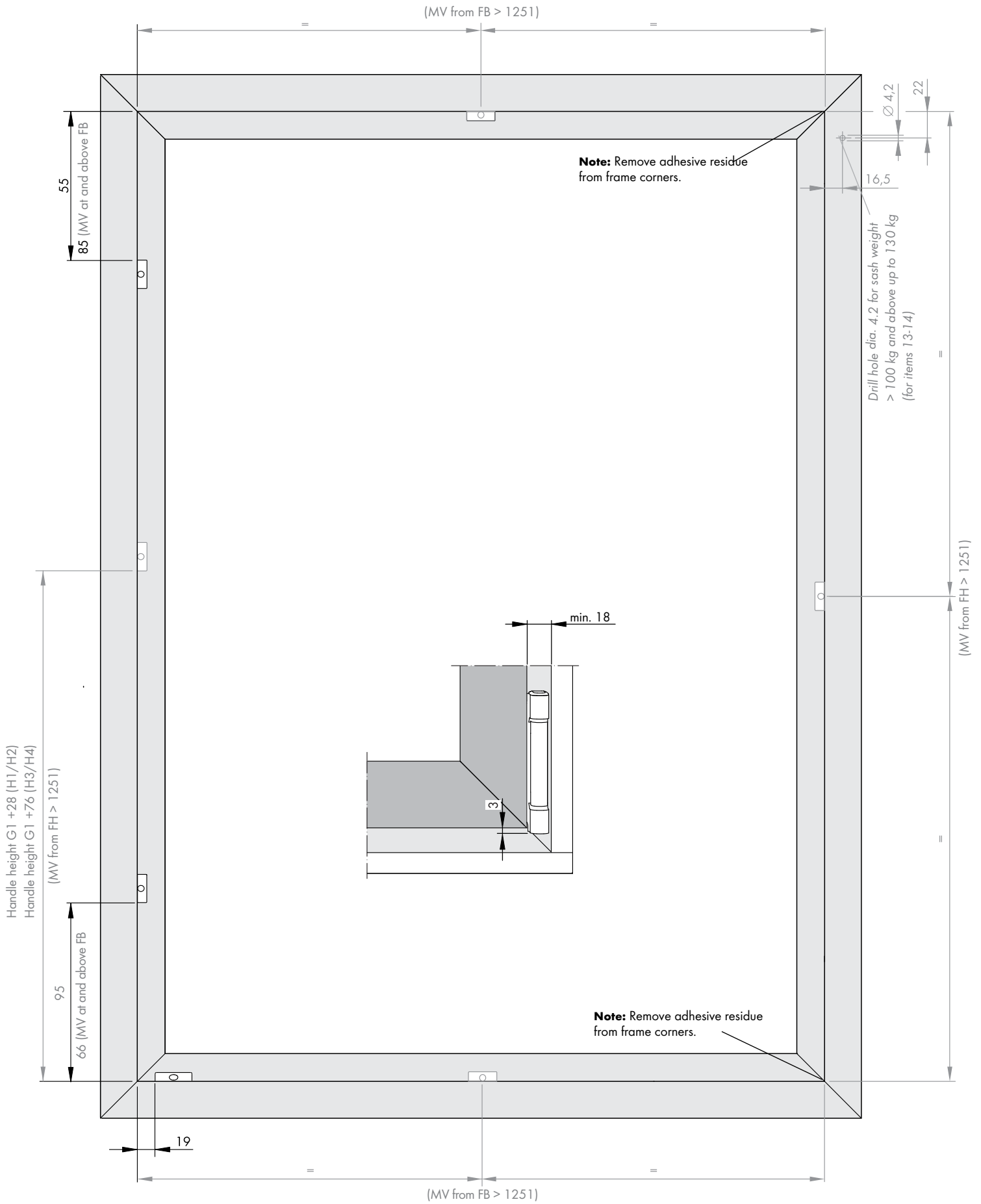
**Assembly settings and installation sequence (1.) to (6.)**



# ALU 5200-D BD 3.5 Sash dimensions

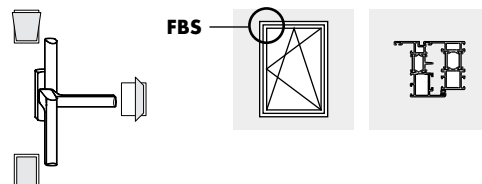


# ALU 5200-D (BD 3.5) Frame dimensions



# ALU 5200-DK

Tilt & turn hardware for  
hinge clearance (BD) 5 mm  
with mishandling device (FBS)  
on the corner drive (EUL)



**Size range** (depends on hardware)

		Windows		French doors
		min.	max.	max.
Sash width	(mm)	365 to 1600		1300
Sash height	(mm)	550 to 2000		2400
Sash weight	(kg)	<b>max. 100/130</b>		<b>max. 100/130</b>

**The following information from the aluminium planning manual must be observed:**

*Guidelines of the Gütegemeinschaft Schlösser und Beschläge e. V.  
(German quality association for locks and hardware)*

- Document no. H45.4200LS001EN

*Application diagrams:*

- Sash weight up to max. 100 kg: Document no. H58.AWDLMS003EN

- Sash weight up to max. 130 kg: Document no. H58.AWDLMS004EN

*Basic safety notes:*

- Document no. H45.5200LS001EN

*Abbreviations:*

- Document no. H45.5200LS002EN

*Adjustment options:*

- Document no. H45.5200LS004EN

*Profile recommendation:*

- Document no. H48.ZubhLS008EN

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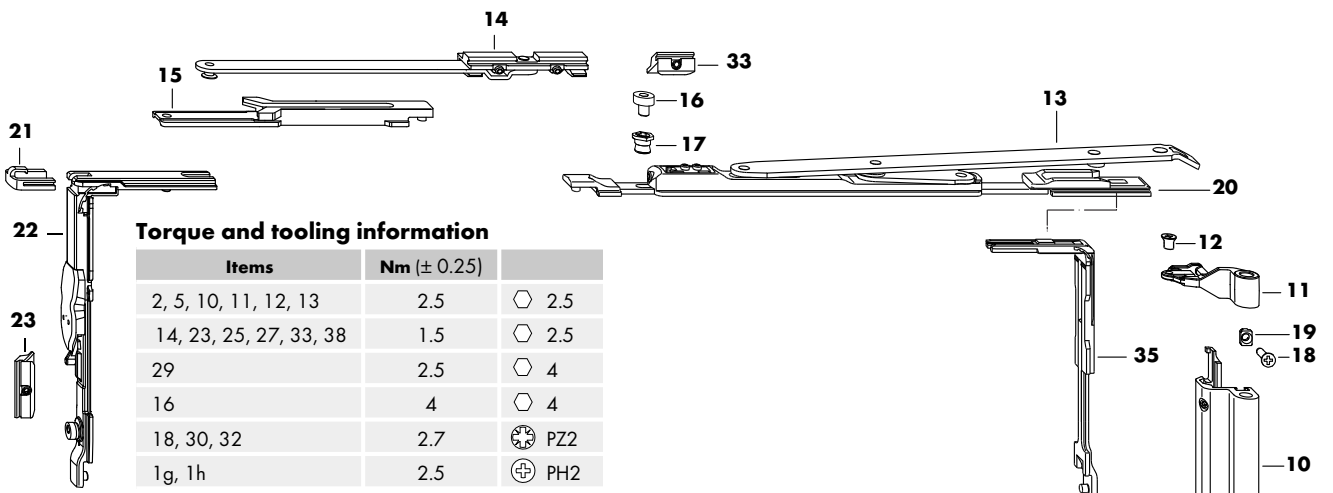
**Assembly instructions**  
H48.5200LS014en

Technical specifications and colours are subject to change

H48.5200LS014en/0

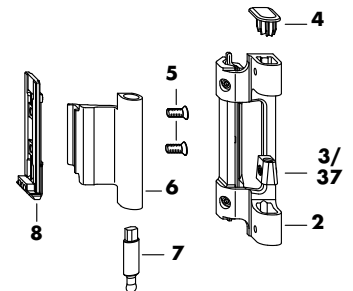
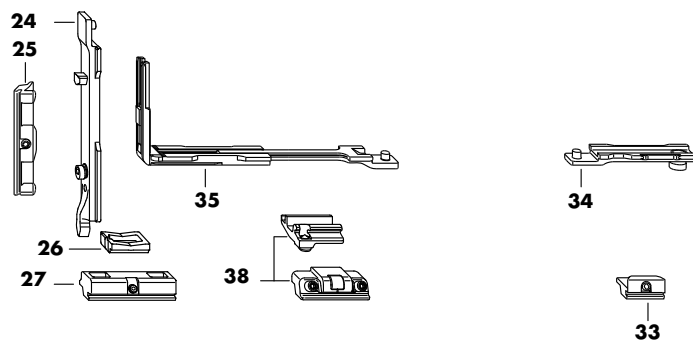
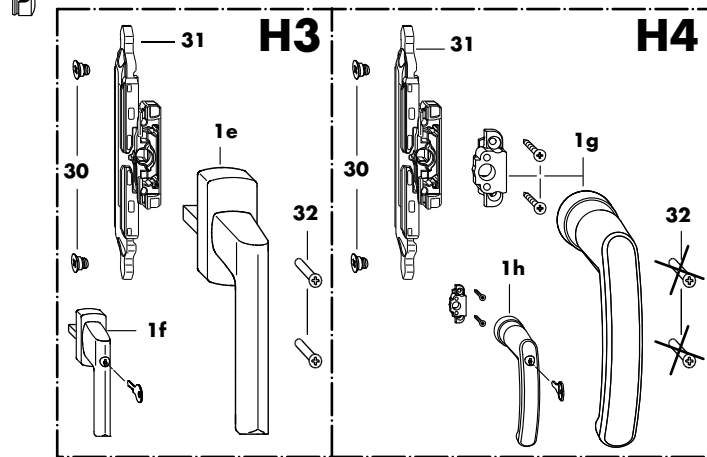
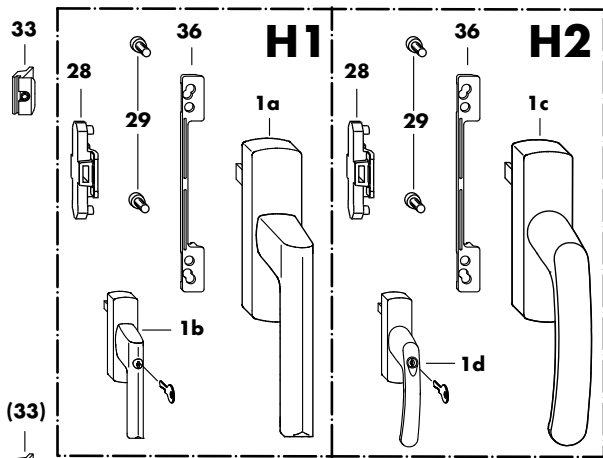


# ALU 5200-DK BD 5 (FBS-EUL) Hardware overview



## Torque and tooling information

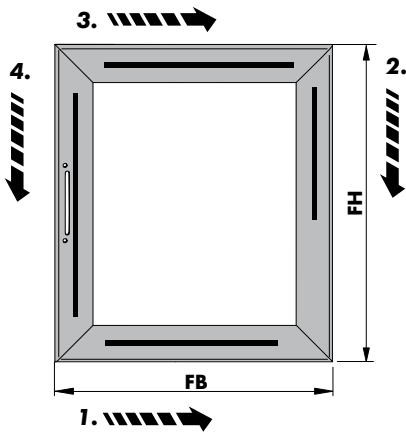
Items	Nm (± 0.25)	
2, 5, 10, 11, 12, 13	2.5	⬡ 2.5
14, 23, 25, 27, 33, 38	1.5	⬡ 2.5
29	2.5	⬡ 4
16	4	⬡ 4
18, 30, 32	2.7	⊕ PZ2
1g, 1h	2.5	⊕ PH2



## ALU 5200-DK BD 5 (FBS-EUL) Hardware list

	Item	Quantity	Description		VE		VE					
H1	1a	1	<b>Handle LM Si-line</b>	Only use in combination with coupling set	See ALU handle overview, document no.: H48.ZubhLS007en in ALU planning manual							
	1b		<b>Handle LM Si-line lockable</b>									
H2	1c		<b>Handle LM Globe</b>									
	1d		<b>Handle LM Globe lockable</b>									
H3	1e		<b>Handle TITAN</b>					Only use in combination with gear set	(□ 7 mm x 25, cam dia. 10 mm)	See Handle Globe RR, document no.: H48.ZubhLS006en in ALU planning manual		
	1f		<b>Handle TITAN lockable</b>									
H4	1g		<b>Handle LM round rose</b>									
	1h		<b>Handle LM round rose lockable</b>									
	1	1	<b>Hinge side LM 5200 BD 5</b>	<b>Silver</b>	<b>MMBS0230-525010</b>	<b>1</b>	<b>MMBS0230-525020</b>	<b>10</b>				
			<b>White</b> RAL 9016	<b>MMBS0230-504010</b>	<b>1</b>	<b>MMBS0230-504020</b>	<b>10</b>					
			<b>Black</b> RAL 9005	<b>MMBS0230-523010</b>	<b>1</b>	<b>MMBS0230-523020</b>	<b>10</b>					
			<b>EV1</b>	<b>MMBS0230-524010</b>	<b>1</b>	<b>MMBS0230-524020</b>	<b>10</b>					
			<b>Mill finish</b>	-	-	<b>MMBS0230-500120</b>	<b>5</b>					
	2	1	Bottom hinge									
	3	1	Adjusting piece									
	4	1	Cover cap									
	5	2	M5 x 8.5 countersunk screw									
	6	1	Corner hinge									
	7	1	Bottom hinge pin									
	8	1	Clamping piece E									
9	1	Top hinge pin										
10	1	Top hinge										
11	1	Stay hinge bearing										
12	1	M5 x 7.5 countersunk screw										
	13	1	<b>Stay LM</b>	Size	FB (mm)	Weight	<b>884805</b>	<b>1</b>	<b>273 098</b>	<b>20</b>		
				20	365 to 600	< 100 kg						
				35	601 to 1600		<b>884782</b>	<b>1</b>	<b>314 203</b>	<b>20</b>		
According to FB/kg	0...1	0...1	<b>Additional stay LM</b>	From FB 1251 with stay size 35 <100 kg From FB 1020 with stay size 35>100 kg to 130 kg	<b>857076</b>	<b>1</b>	<b>247006</b>	<b>10</b>				
	14	1	Additional stay									
	15	1	Striker plate									
	16	1	Locking cam									
	17	1	Eccentric rivet									
According to kg	0...1	0...1	<b>Accessories set LM for 130 kg</b>	> 100 kg to 130 kg	-	-	<b>247037</b>	<b>20</b>				
	18	1	M5 x 13 countersunk screw									
	19	1	Support bracket									
	1	1	<b>Locking side LM DK (with FBS on corner drive) KPS</b>		<b>MMVS0310-100010</b>	<b>1</b>	<b>MMVS0310-100030</b>	<b>20</b>				
			20	Locking bolt DK								
			21	Clamping piece EUL								
			22	VSO corner drive								
			23	Striker EUL								
			24	Tilt lock cam 10								
			25	Striker E cam 10								
			26	Run-up block								
			27	Tilt locking part								
H1 H2	0...1	0...1	<b>Coupling set LM (without FBS on gear)</b>	Only use in combination with H1/H2	<b>MMKL0060-100010</b>	<b>1</b>	<b>MMKL0060-100030</b>	<b>20</b>				
	28	1	ALU coupling bracket									
29	2	M5 x 12 cheese head screw										
H3 H4	0...1	0...1	<b>Gear set LM (without FBS on gear)</b>	Only use in combination with H3/H4 (see drawing no. H48.ZubhLS005en)	<b>MMGI0090-100010</b>	<b>1</b>	<b>MMGI0090-100030</b>	<b>20</b>				
	30	2	M6 coupling screw									
	31	1	M6 ESG									
	32	2	M5 x 35 countersunk screw									
According to FB/FH	0...2	0...2	<b>MV LM-DK/TBT</b>	(FB/FH > 1251 mm)	<b>857045</b>	<b>1</b>	<b>246979</b>	<b>20</b>				
	33	2	Striker									
	34	1	Slider									
	35	1	VSU/BSO corner drive									
Accessories	0...1	0...1	<b>Handle support LM</b>	Only use in combination with H1/H2	-	-	(see table on page 4)	<b>200</b>				
	37	0...1	<b>Adjusting piece AV</b>	For compression + 0.5 mm	<b>MXBS0100-100010</b>	<b>1</b>	<b>MXBS0100-100030</b>	<b>20</b>				
	38	0...1	<b>Sash lift LM</b>	(see drawing no. H48.ZubhLS014en)	<b>MMFH0010-100010</b>	<b>1</b>	<b>MMFH0010-100030</b>	<b>20</b>				

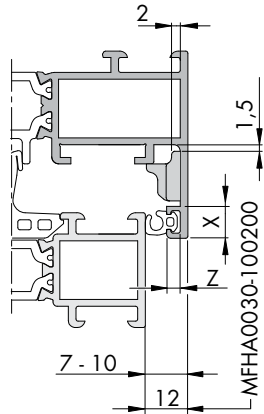
**Observe installation sequence**



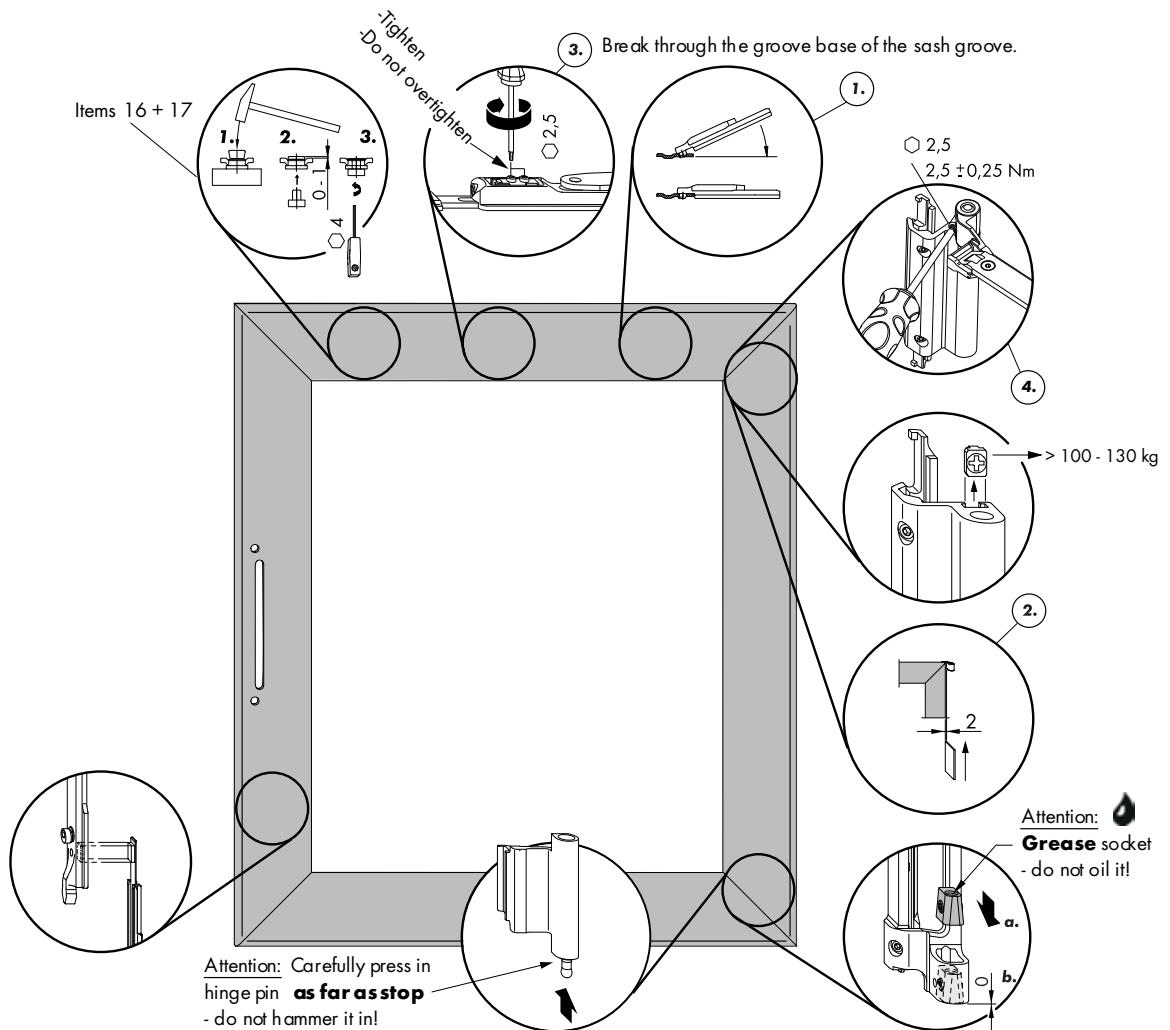
Sequence of installation in sash  
 - without centre lock (3. - 4.)  
 - with centre lock (1. - 2. - 3. - 4.)

**Design variants for the handle support (item 36) (H1/H2)**

USH	Z	X < 7 mm	X 7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-

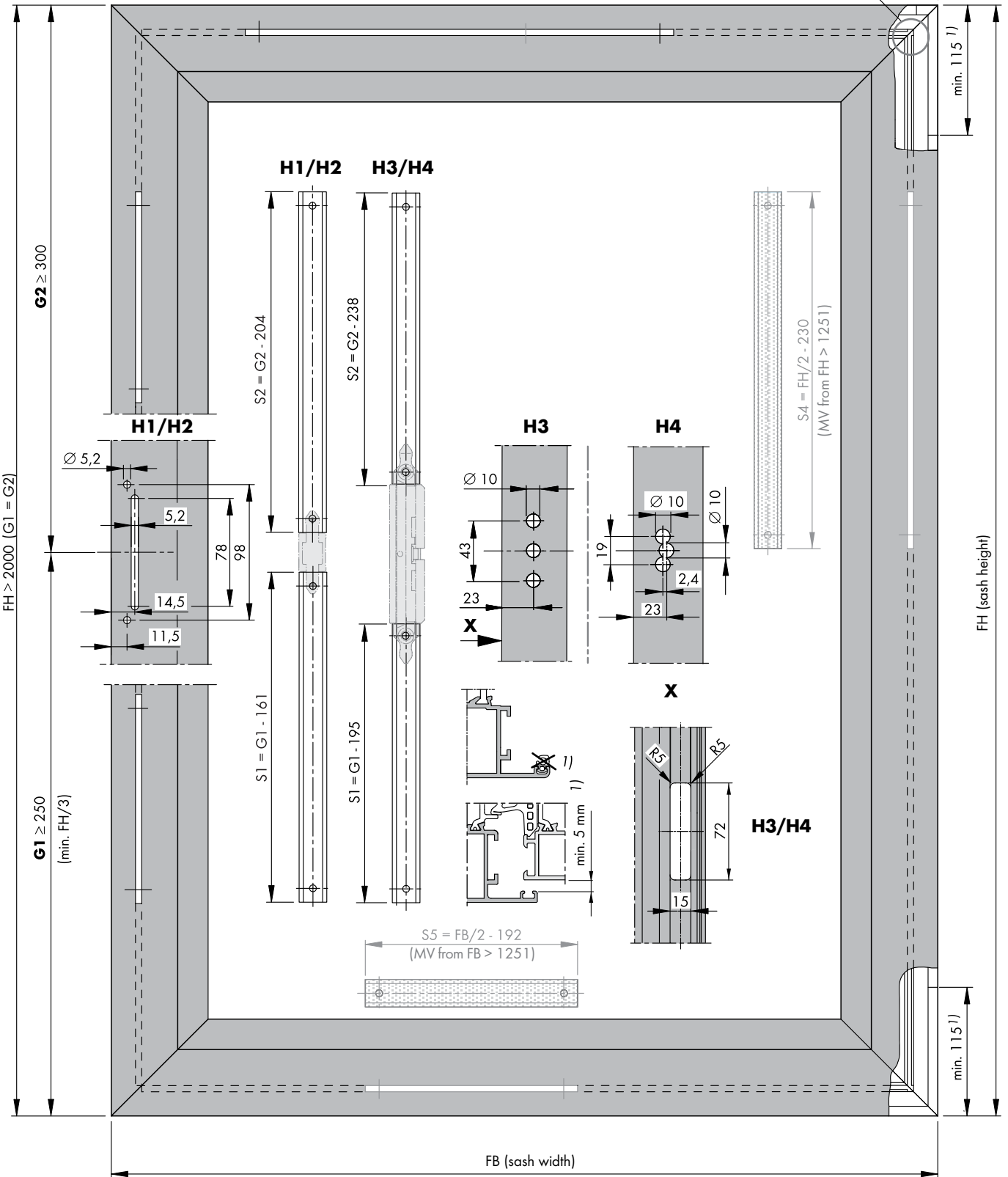
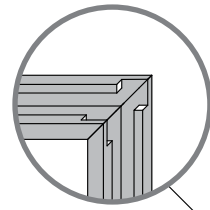
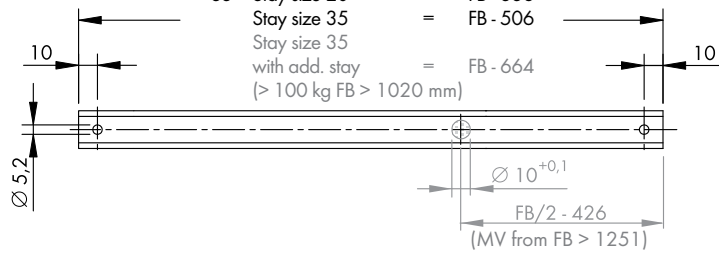


**Assembly settings and installation sequence ① to ④.**



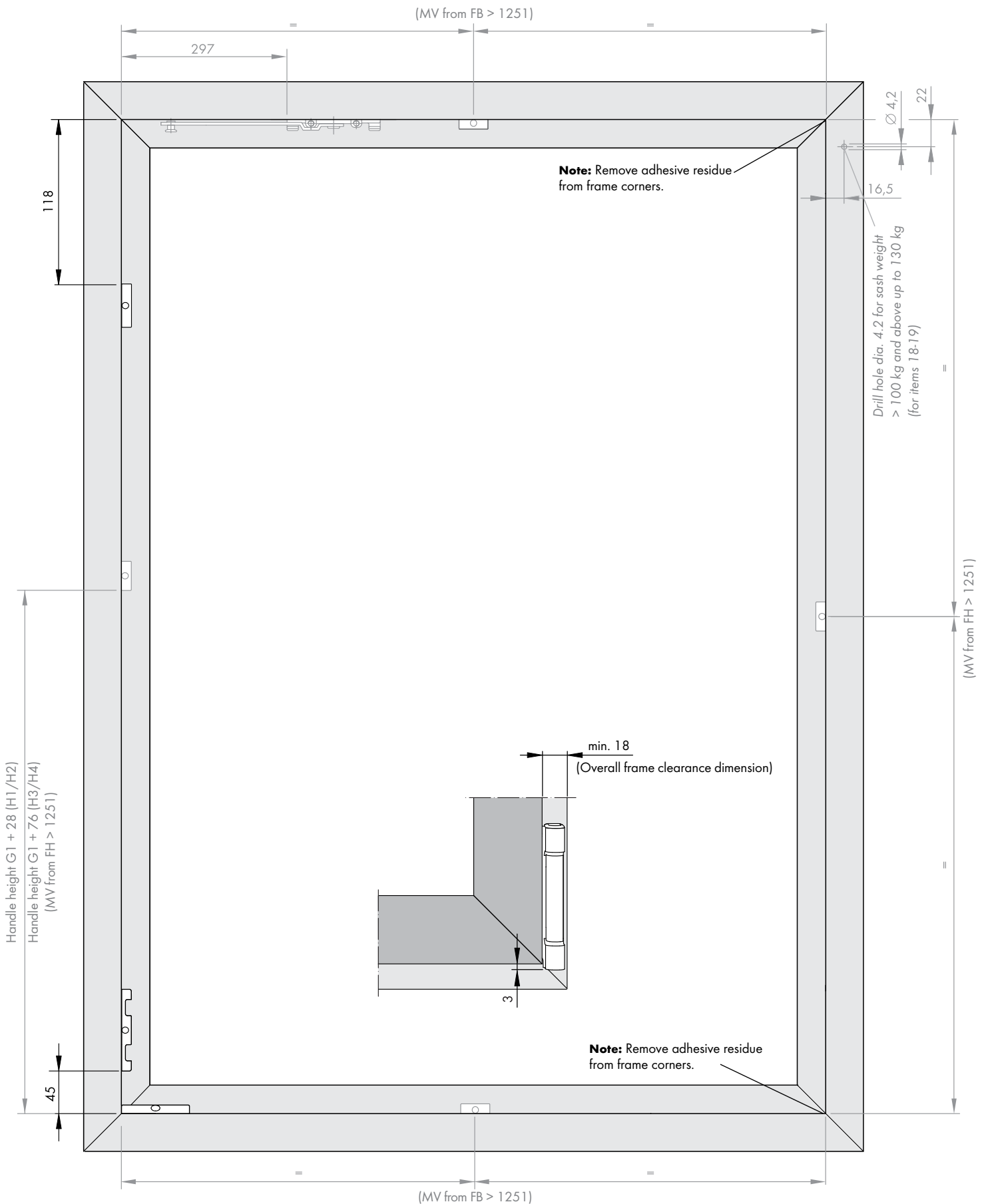
# ALU 5200-DK BD 5 (FBS-EUL) Sash dimensions

S3 Stay size 20 = FB - 338  
 Stay size 35 = FB - 506  
 Stay size 35 with add. stay (> 100 kg FB > 1020 mm) = FB - 664



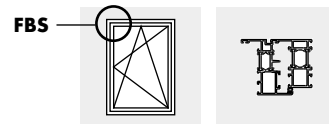
1) Remove the rebate seal in the hinge gap area.  
 Minimum gap 5 mm.

# ALU 5200-DK BD 5 (FBS-EUL) Frame dimensions



# ALU 5200-DK KPW

Tilt & turn hardware for  
hinge clearance (BD) 5 mm  
with mishandling device (FBS) on the corner drive (EUL)  
and horizontal tilt point (KPW)



## Size range (depends on hardware)

		Windows		French doors
		min.	max.	max.
Sash width	(mm)	600 to 1600		1300
Sash height	(mm)	600 to 2000		2600
Sash weight	(kg)	<b>max. 100/150</b>		<b>max. 100/150</b>

## The following information from the aluminium planning manual must be observed:

Guidelines of the Gütegemeinschaft Schlösser und Beschläge e. V.  
(German quality association for locks and hardware)

- Document no. H45.4200LS001EN

Application diagrams:

- Sash weight up to max. 100 kg: Document no. H58.AWDLMS003EN

- Sash weight up to max. 150 kg: Document no. H58.AWDLMS005EN

Basic safety notes:

- Document no. H45.5200LS001EN

Abbreviations:

- Document no. H45.5200LS002EN

Adjustment options:

- Document no. H45.5200LS004EN

Profile recommendation:

- Document no. H48.ZubhLS008EN

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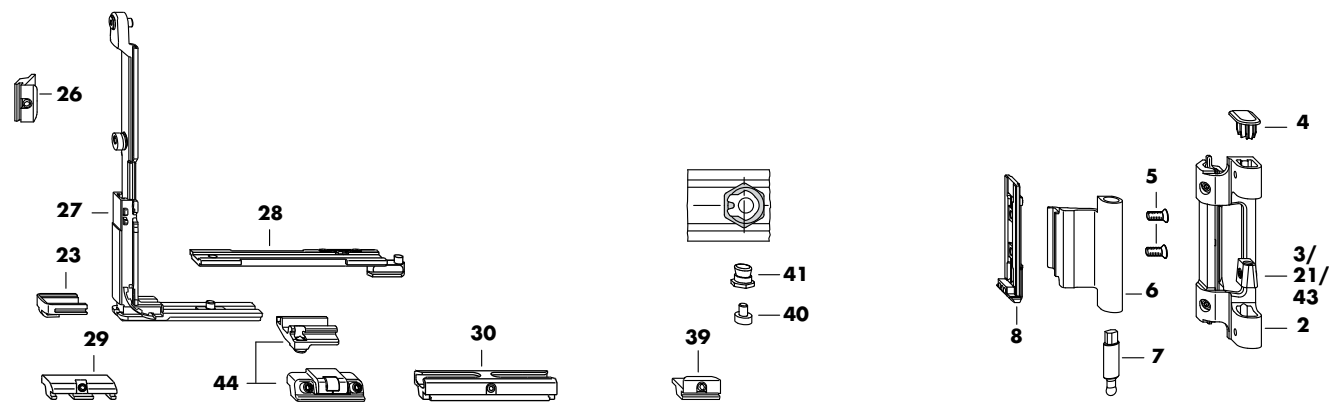
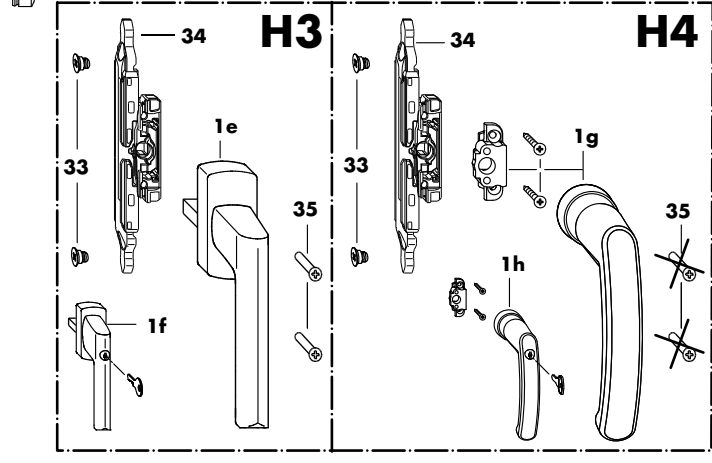
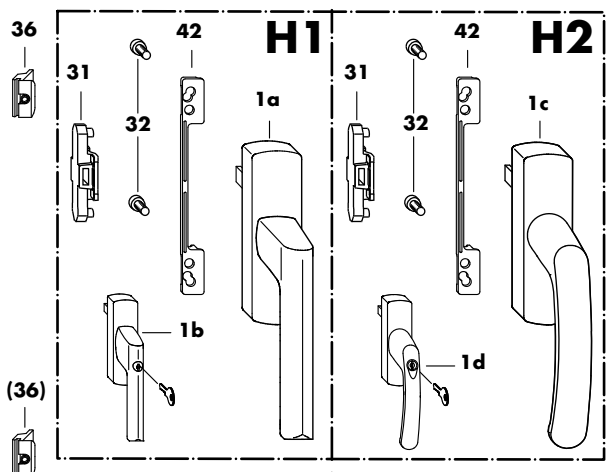
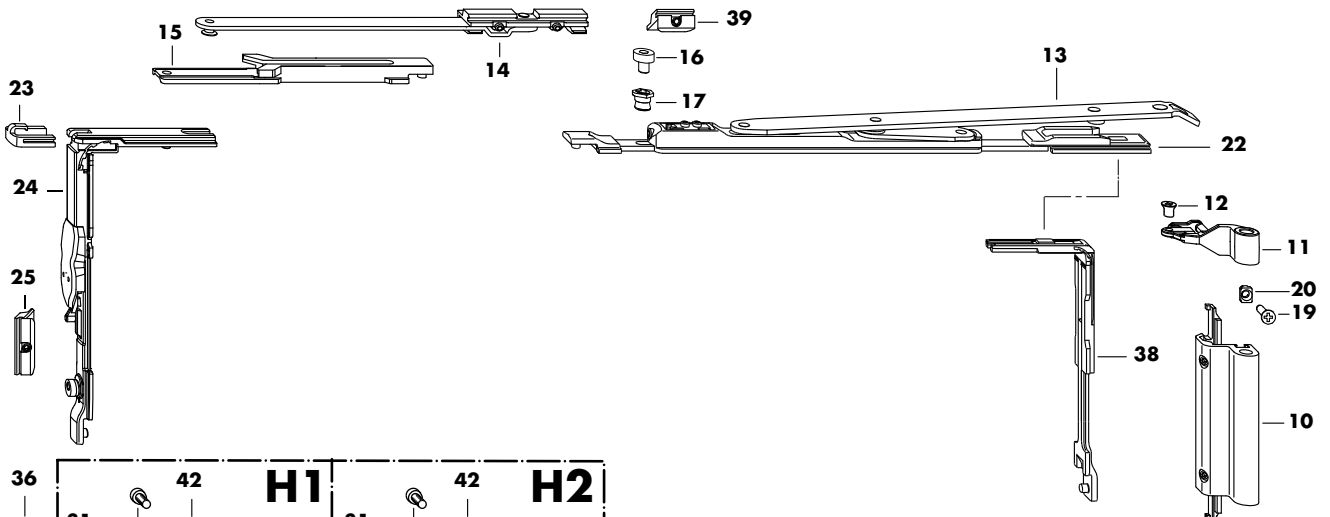
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Assembly instructions  
H48.5200LS007en

Technical specifications and colours are subject to change

H48.5200LS007en/0

# ALU 5200-DK BD 5 KPW (FBS-EUL) Hardware overview



## Torque and tooling information

Items	Nm (±0.25)	
2, 5, 10, 11, 12, 13	2.5	⬡ 2.5
14, 25, 26, 29, 30, 36, 39, 44	1.5	⬡ 2.5
32	2.5	⬡ 4
16, 40	4	⬡ 4
19, 33, 35	2.7	⊕ PZ2
1g, 1h	2.5	⊕ PH2

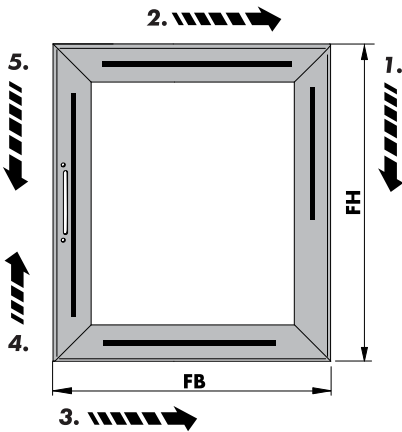
# ALU 5200-DK BD 5 KPW (FBS-EUL) Hardware list

	Item	Quantity	Description		VE		VE		
H1	1a	1	Handle LM Si-line	Only use in combination with coupling set	See ALU handle overview, document no.: H48.ZubhLS007en in ALU planning manual				
	1b		Handle LM Si-line lockable						
H2	1c		Handle LM Globe	Only use in combination with gear set					
	1d		Handle LM Globe lockable						
H3	1e		Handle TITAN	Only use in combination with gear set				(□ 7 mm x 25, cam dia. 10 mm)	
	1f		Handle TITAN lockable						
H4	1g		Handle LM round rose	Only use in combination with gear set				See Handle Globe RR, document no.: H48.ZubhLS006en in ALU planning manual	
	1h		Handle LM round rose lockable						
	1	1	Hinge side LM 5200 BD 5	Silver	MMBS0230-525010	1	MMBS0230-525020	10	
			White RAL 9016	MMBS0230-504010	1	MMBS0230-504020	10		
			Black RAL 9005	MMBS0230-523010	1	MMBS0230-523020	10		
			EV1	MMBS0230-524010	1	MMBS0230-524020	10		
			Mill finish	-	-	MMBS0230-500120	5		
	2	1	Bottom hinge						
	3	1	Adjusting piece	(replaced by item 21 with sash weight >100 kg)					
	4	1	Cover cap						
	5	2	M5 x 8.5 countersunk screw						
	6	1	Corner hinge						
	7	1	Bottom hinge pin						
	8	1	Clamping piece E						
9	1	Top hinge pin							
10	1	Top hinge							
11	1	Stay hinge							
12	1	M5 x 7.5 countersunk screw							
	13	1	Stay LM	Size 35      FB (mm) 600 to 1600      Weight	884782	1	314 203	20	
According to FB/kg	0...1	0...1	Additional stay LM	From FB 1251 with stay size 35 <100 kg From FB 1020 with stay size 35 >100 kg to 150 kg	857076	1	247006	10	
	14	1	Additional stay						
	15	1	Striker plate						
	16	1	Locking cam						
	17	1	Eccentric rivet						
According to sash weight	0...1	0...1	Accessories set LM 5200 BD 5 150 kg	> 100 kg to 150 kg	-	-	MZBS0110-000030	20	
	19	1	M5 x 13 countersunk screw						
	20	1	Support bracket						
	21	1	Adjusting piece S						
			1	Locking side LM-DK-TBT EUL (horizontal tilt point) (with FBS on the corner drive)		MMV50340-100010	1	MMV50340-100030	20
	22	1	Locking bolt DK	(not used for DK)					
	23	1	Locking bolt TBT						
	23	2	Clamping piece EUL						
	24	1	VSO FBS corner drive						
	25	1	Striker EUL VSO						
	26	1	Striker						
	27	1	VSU corner drive						
	28	1	Tilt lock						
	29	1	Run-up block						
	30	1	Tilt lock						
H1	0...1	0...1	Coupling set LM (without FBS on gear)	Only use in combination with H1/H2	MMKL0060-100010	1	MMKL0060-100030	20	
H2	31	1	ALU coupling bracket						
	32	2	M5 x 12 cheese head screw						
H3	0...1	0...1	Gear set LM (without FBS on gear)	Only use in combination with H3/H4 (see drawing no. H48.ZubhLS005en)	MMGI0090-100010	1	MMGI0090-100030	20	
H4	33	2	M6 coupling screw						
	34	1	M6 ESG						
	35	2	M5 x 3.5 countersunk screw						
According to FH	0...1	0...1	MV-LM DK/TBT	FH > 1251 mm	857045	1	246979	20	
	36	2	Striker						
	37	1	Slider						
According to FB	38	1	VSU/BSO corner drive						
	0...1	0...1	MV LM RB/SF	FB > 1251 mm	894316	1	303917	20	
	39	2	Striker						
Accessories	40	1	Locking cam						
	41	1	Eccentric rivet						
	42	0...1	0...1	Handle support LM	Only use in combination with H1/H2	-	-	(see table on page 4)	1
	43	0...1	0...1	Adjusting piece AV	For compression + 0.5 mm	MXBS0100-100010	1	MXBS0100-100030	20
	44	0...1	0...1	Sash lift LM	(see drawing no. H48.ZubhLS014en)	MMFH0010-100010	1	MMFH0010-100030	20



# ALU 5200-DK BD 5 KPW (FBS-EUL) Assembly and handle support

## Observe installation sequence



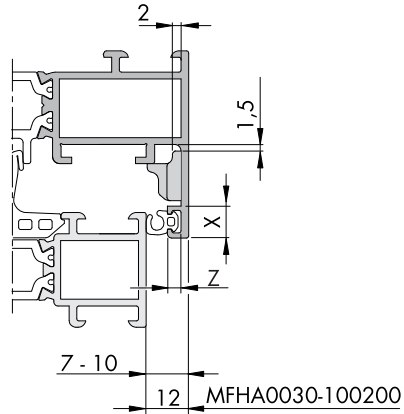
Sequence of installation in sash

- without centre lock (2. - 3. - 4. - 5.)

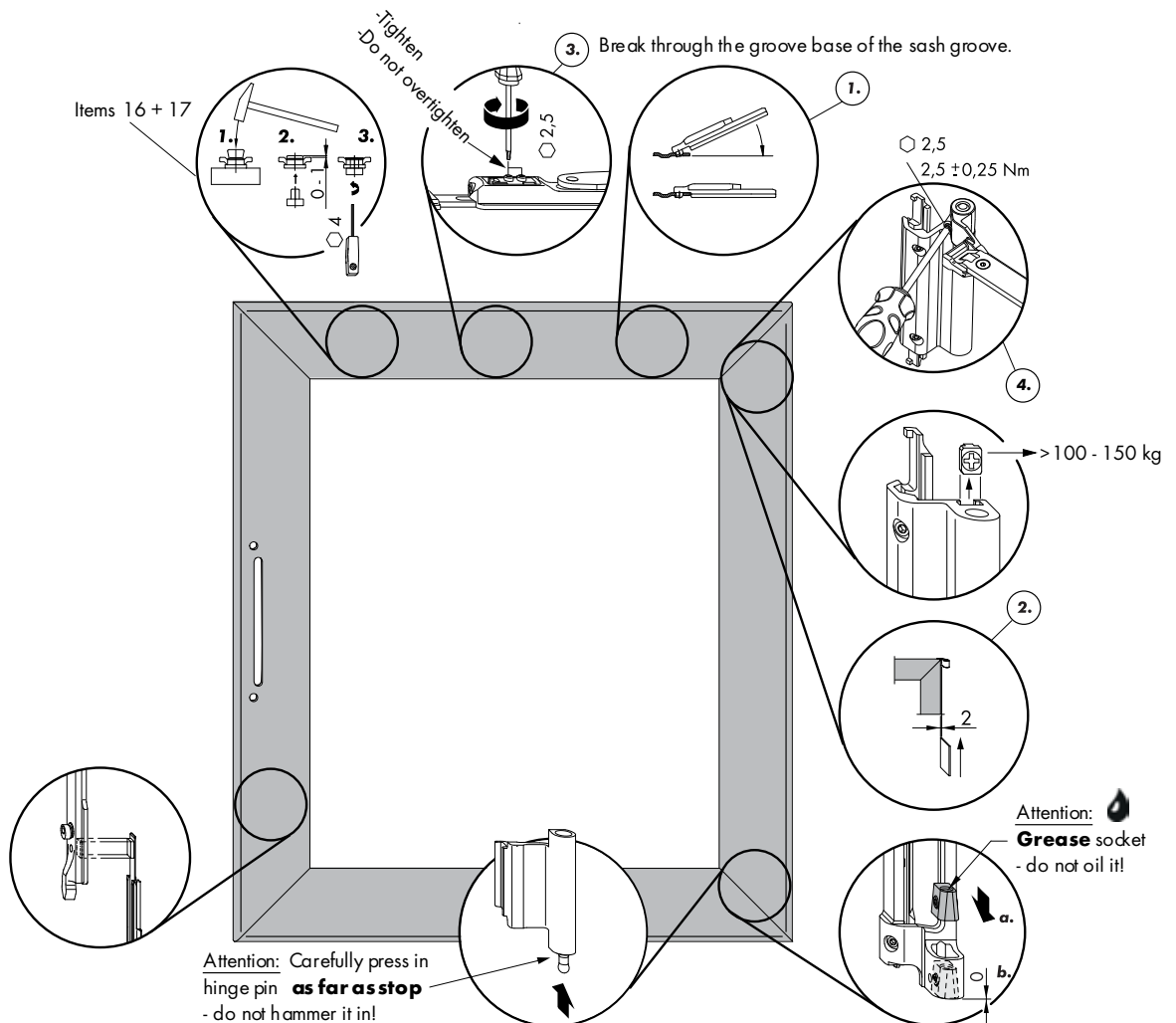
- with centre lock (1. - 2. - 3. - 4. - 5.)

## Design variants for the handle support (item 42) (H1/H2)

USH	Z	X < 7 mm	X 7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-

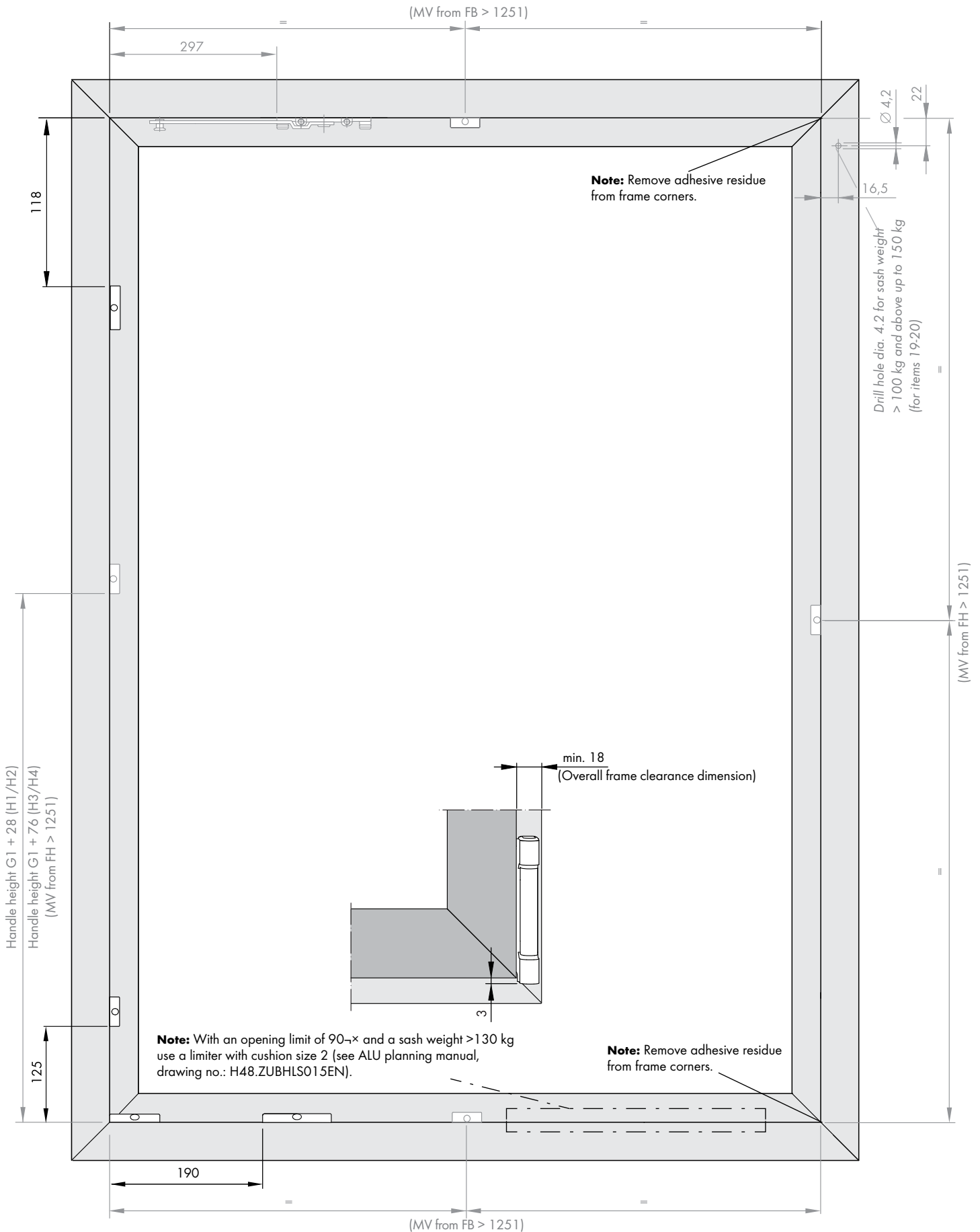


## Assembly settings and installation sequence (1.) to (4.)



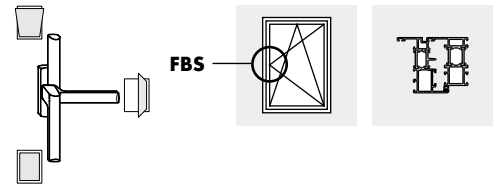


# ALU 5200-DK BD 5 KPW (FBS-EUL) Frame dimensions



# ALU 5200-DK

Tilt & turn hardware for  
hinge clearance (BD) 5 mm  
with mishandling device (FBS)  
on the gear (G)



**Size range** (depends on hardware)

		Windows		French doors
		min.	max.	max.
Sash width	(mm)	365 to 1600		1300
Sash height	(mm)	550 to 2000		2400
Sash weight	(kg)	<b>max. 100/130</b>		<b>max. 100/130</b>

**The following information from the aluminium planning manual must be observed:**

*Guidelines of the Gütegemeinschaft Schlösser und Beschläge e. V.  
(German quality association for locks and hardware)*

- Document no. H45.4200LS001EN

*Application diagrams:*

- Sash weight up to max. 100 kg: Document no. H58.AWDLMS003EN

- Sash weight up to max. 130 kg: Document no. H58.AWDLMS004EN

*Basic safety notes:*

- Document no. H45.5200LS001EN

*Abbreviations:*

- Document no. H45.5200LS002EN

*Adjustment options:*

- Document no. H45.5200LS004EN

*Profile recommendation:*

- Document no. H48.ZubhLS008EN

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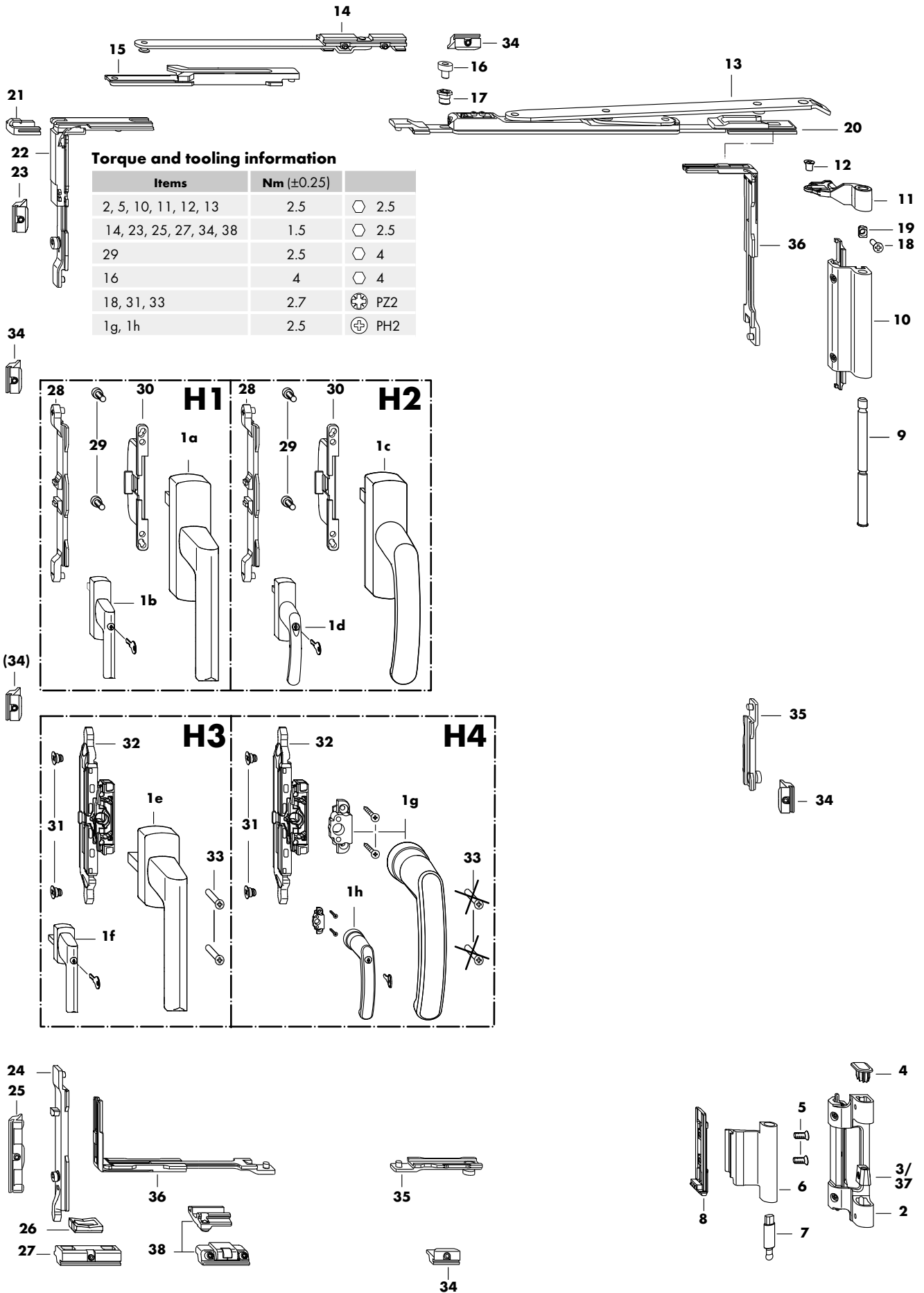
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**Assembly instructions**  
H48.5200LS013en

Technical specifications and colours are subject to change

H48.5200LS013en/0

# ALU 5200-DK BD 5 (FBS-G) Hardware overview



## Torque and tooling information

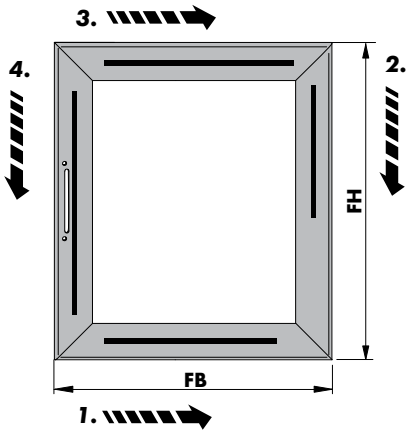
Items	Nm (±0.25)	Tool
2, 5, 10, 11, 12, 13	2.5	○ 2.5
14, 23, 25, 27, 34, 38	1.5	○ 2.5
29	2.5	○ 4
16	4	○ 4
18, 31, 33	2.7	⊗ PZ2
1g, 1h	2.5	⊕ PH2

# ALU 5200-DK BD 5 (FBS-G) Hardware list

	Item	Quantity	Description		VE		VE			
H1	1a	1	<b>Handle LM Si-line</b>	Only use in combination with coupling set	See ALU handle overview, document no.: H48.ZubhLS007en in ALU planning manual					
	1b		<b>Handle LM Si-line lockable</b>							
H2	1c		<b>Handle LM Globe</b>							
	1d		<b>Handle LM Globe lockable</b>							
H3	1e		<b>Handle TITAN</b>	Only use in combination with gear set				(□ 7 mm x 25, cam dia. 10 mm)		
	1f		<b>Handle TITAN lockable</b>							
H4	1g		<b>Handle LM round rose</b>	See Handle Globe RR, document no.: H48.ZubhLS006en in ALU planning manual						
	1h		<b>Handle LM round rose lockable</b>							
	1	1	<b>Hinge side LM 5200 BD 5</b>	<b>Silver</b>	<b>MMBS0230-525010</b>	<b>1</b>	<b>MMBS0230-525020</b>	<b>10</b>		
			<b>White</b> RAL 9016	<b>MMBS0230-504010</b>	<b>1</b>	<b>MMBS0230-504020</b>	<b>10</b>			
			<b>Black</b> RAL 9005	<b>MMBS0230-523010</b>	<b>1</b>	<b>MMBS0230-523020</b>	<b>10</b>			
			<b>EV1</b>	<b>MMBS0230-524010</b>	<b>1</b>	<b>MMBS0230-524020</b>	<b>10</b>			
			<b>Mill finish</b>	-	-	<b>MMBS0230-500120</b>	<b>5</b>			
	2	1	Bottom hinge							
	3	1	Adjusting piece							
	4	1	Cover cap							
	5	2	M5 x 8.5 countersunk screw							
	6	1	Corner hinge							
	7	1	Bottom hinge pin							
	8	1	Clamping piece E							
9	1	Top hinge pin								
10	1	Top hinge								
11	1	Stay hinge bearing								
12	1	M5 x 7.5 countersunk screw								
	13	1	<b>Stay LM</b>	Size	FB (mm)	Weight	<b>884805</b>	<b>1</b>	<b>273 098</b>	<b>20</b>
				20	365 to 600	< 100 kg				
				35	601 to 1600		<b>884782</b>	<b>1</b>	<b>314 203</b>	<b>20</b>
According to FB/kg	0...1	0...1	<b>Additional stay LM</b>	From FB 1251 with stay size 35	<100 kg	<b>857076</b>	<b>1</b>	<b>247006</b>	<b>10</b>	
	14	1	Additional stay	From FB 1020 with stay size 35	>100 kg to 130 kg					
	15	1	Striker plate							
	16	1	Locking cam							
	17	1	Eccentric rivet							
According to kg	0...1	0...1	<b>Accessories set LM for 130 kg</b>	> 100 kg to 130 kg		-	-	<b>247037</b>	<b>20</b>	
	18	1	M5 x 13 countersunk screw							
	19	1	Support bracket							
	1	1	<b>Locking side LM-DK (for FBS on gear) KPS</b>		<b>MMVS0250-100010</b>	<b>1</b>	<b>MMVS0250-100030</b>	<b>20</b>		
			20	1	Locking bolt DK					
			21	1	Clamping piece EUL					
			22	1	VSO corner drive					
			23	1	Striker					
			24	1	Tilt lock cam 10					
			25	1	Striker E cam 10					
			26	1	Run-up block					
			27	1	Tilt lock					
H1 H2	0...1	0...1	<b>Coupling set LM (with FBS on gear) (9 mm)</b>		<b>MMKL0030-100010</b>	<b>1</b>	<b>MMKL0030-100030</b>	<b>20</b>		
			<b>(10 mm)</b>	Only use in combination with H1/H2 (For notes on overlaps (USH) see page 4)	<b>MMKL0010-100010</b>	<b>1</b>	<b>MMKL0010-100030</b>	<b>20</b>		
			<b>(USH 12 mm)</b>		<b>MMKL0040-100010</b>	<b>1</b>	<b>MMKL0040-100030</b>	<b>20</b>		
	28	1	Coupling bracket							
	29	2	M5 x 12 cheese head screw							
30	1	Mishandling device								
H3 H4	0...1	0...1	<b>Gear set LM FBS (with FBS on gear)</b>	Only use in combination with H3/H4 (see drawing no. H48.ZubhLS005en)	<b>MMGI0080-100010</b>	<b>1</b>	<b>MMGI0080-100030</b>	<b>20</b>		
			31	2	M6 coupling screw					
			32	1	M6 ESG FBS					
			33	2	M5 x 35 countersunk screw					
According to FB/FH	0...2	0...2	<b>MV LM-DK/TBT</b>	(FB/FH ≥ 1251 mm)	<b>857045</b>	<b>1</b>	<b>246979</b>	<b>20</b>		
			34	2	Striker					
			35	1	Slider					
			36	1	VSU/BSO corner drive					
Accessories	0...1	0...1	<b>Adjusting piece AV</b>	For compression + 0.5 mm	<b>MXBS0100-100010</b>	<b>1</b>	<b>MXBS0100-100030</b>	<b>20</b>		
	0...1	0...1	<b>Sash lift LM</b>	(see drawing no. H48.ZubhLS014en)	<b>MMFH0010-100010</b>	<b>1</b>	<b>MMFH0010-100030</b>	<b>20</b>		

# ALU 5200-DK BD 5 (FBS-G) Assembly and design variants for coupling set

## Observe installation sequence

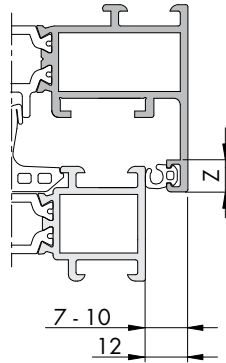


Sequence of installation in sash

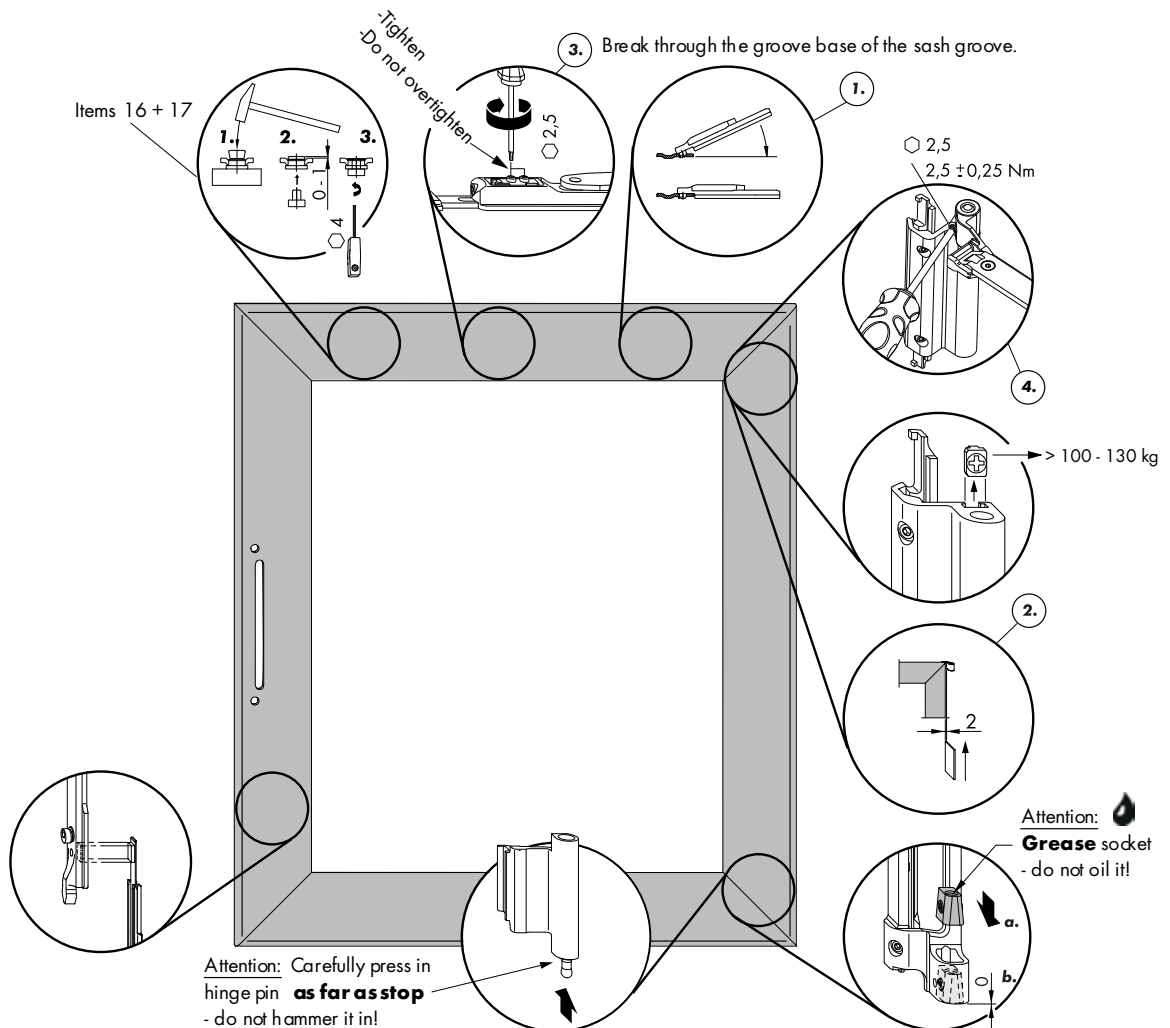
- without centre lock (3. - 4.)
- with centre lock (1. - 2. - 3. - 4.)

## Design variants for coupling set (items 28-30) (H1/H2)

USH	X	Material no.
7 - 10 mm	≤ 8.5 mm	MMKL0030-100030
7 - 10 mm	≤ 7.5 mm	MMKL0010-100030
12 mm	≤ 7 mm	MMKL0040-100030

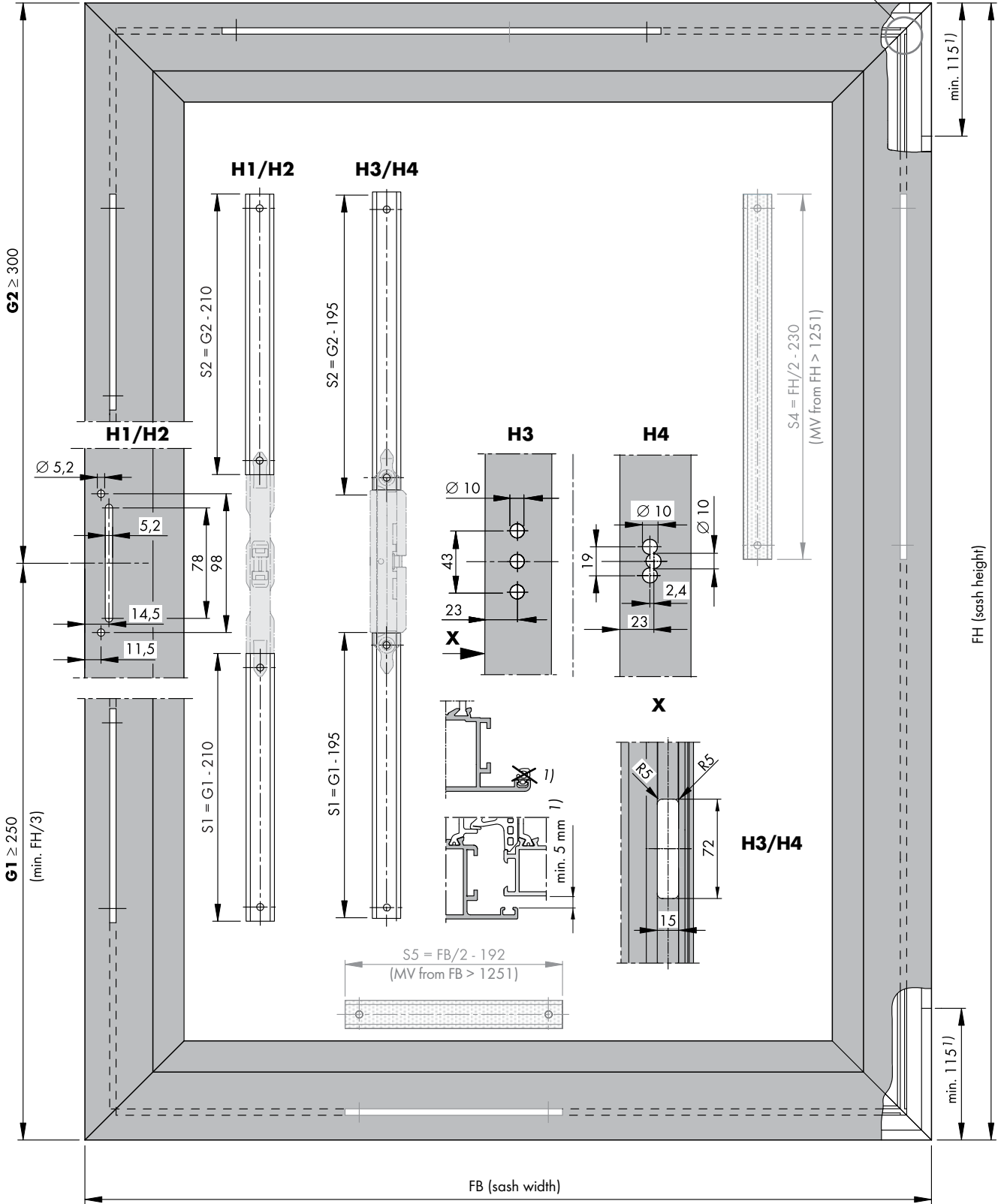
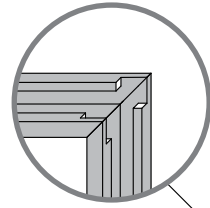
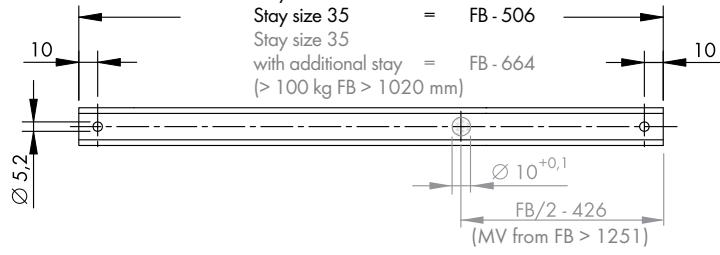


## Assembly settings and installation sequence (1. to 4.)



# ALU 5200-DK BD 5 (FBS-G) Sash dimensions

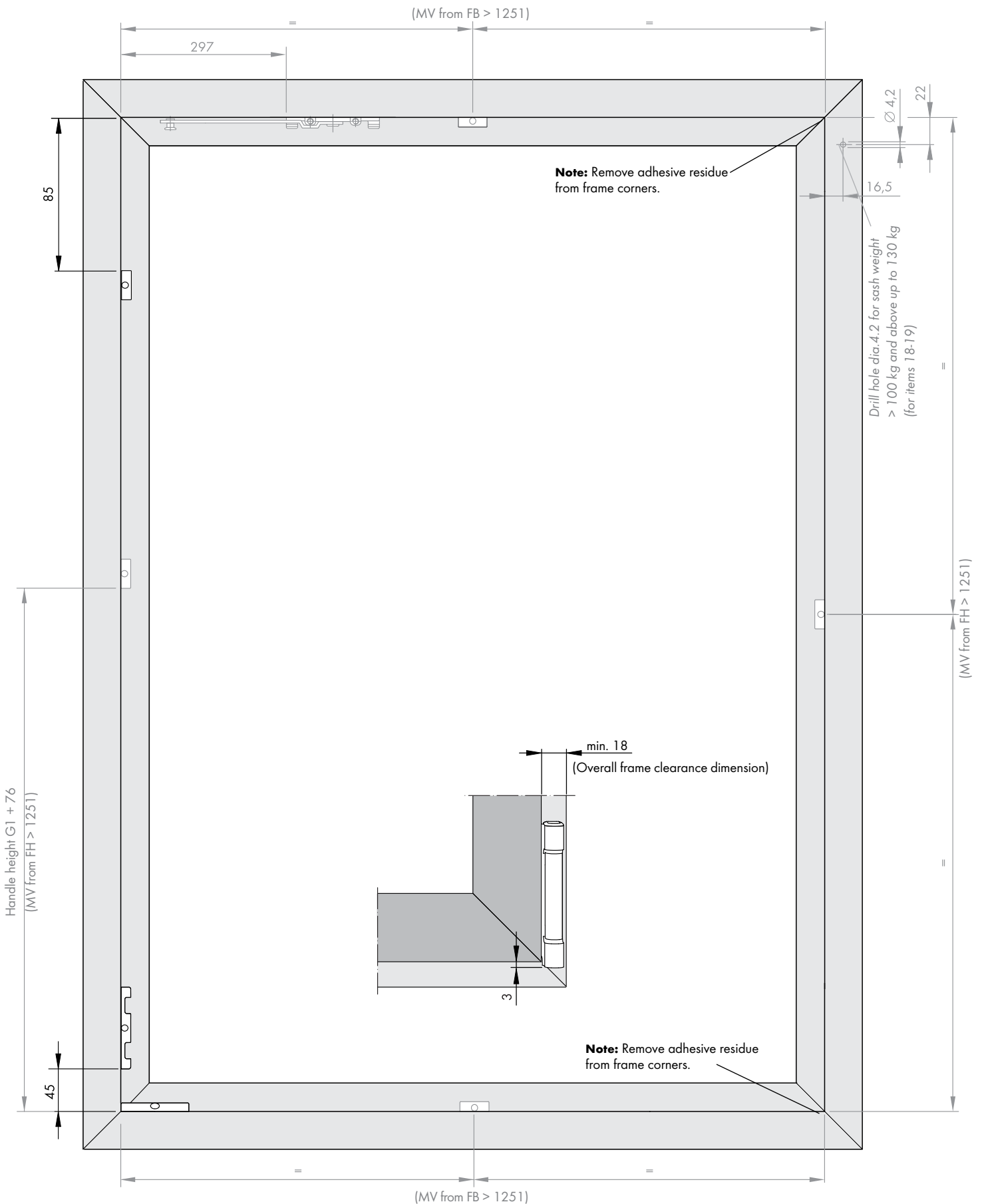
S3 Stay size 20 = FB - 338  
 Stay size 35 = FB - 506  
 Stay size 35 with additional stay = FB - 664  
 (> 100 kg FB > 1020 mm)



1) Remove the rebate seal in the hinge gap area.  
 Minimum gap 5 mm.

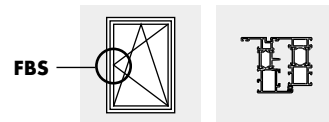


# ALU 5200-DK BD 5 (FBS-G) Frame dimensions



# ALU 5200-DK KPW

Tilt & turn hardware for  
hinge clearance (BD) 5 mm  
with mishandling device (FBS) on the gear (G)  
and horizontal tilt point (KPW)



## Size range (depends on hardware)

		Windows		French doors
		min.	max.	max.
Sash width	(mm)	600 to 1600		1300
Sash height	(mm)	600 to 2000		2600
Sash weight	(kg)	<b>max. 100/150</b>		<b>max. 100/150</b>

## The following information from the aluminium planning manual must be observed:

Guidelines of the Gütegemeinschaft Schlösser und Beschläge e. V.  
(German quality association for locks and hardware).

- Document no. H45.4200LS001EN

Application diagrams:

- Sash weight up to max. 100 kg: Document no. H58.AWDLMS003EN

- Sash weight up to max. 150 kg: Document no. H58.AWDLMS005EN

Basic safety notes:

- Document no. H45.5200LS001EN

Abbreviations:

- Document no. H45.5200LS002EN

Adjustment options:

- Document no. H45.5200LS004EN

Profile recommendation:

- Document no. H48.ZubhLS008EN

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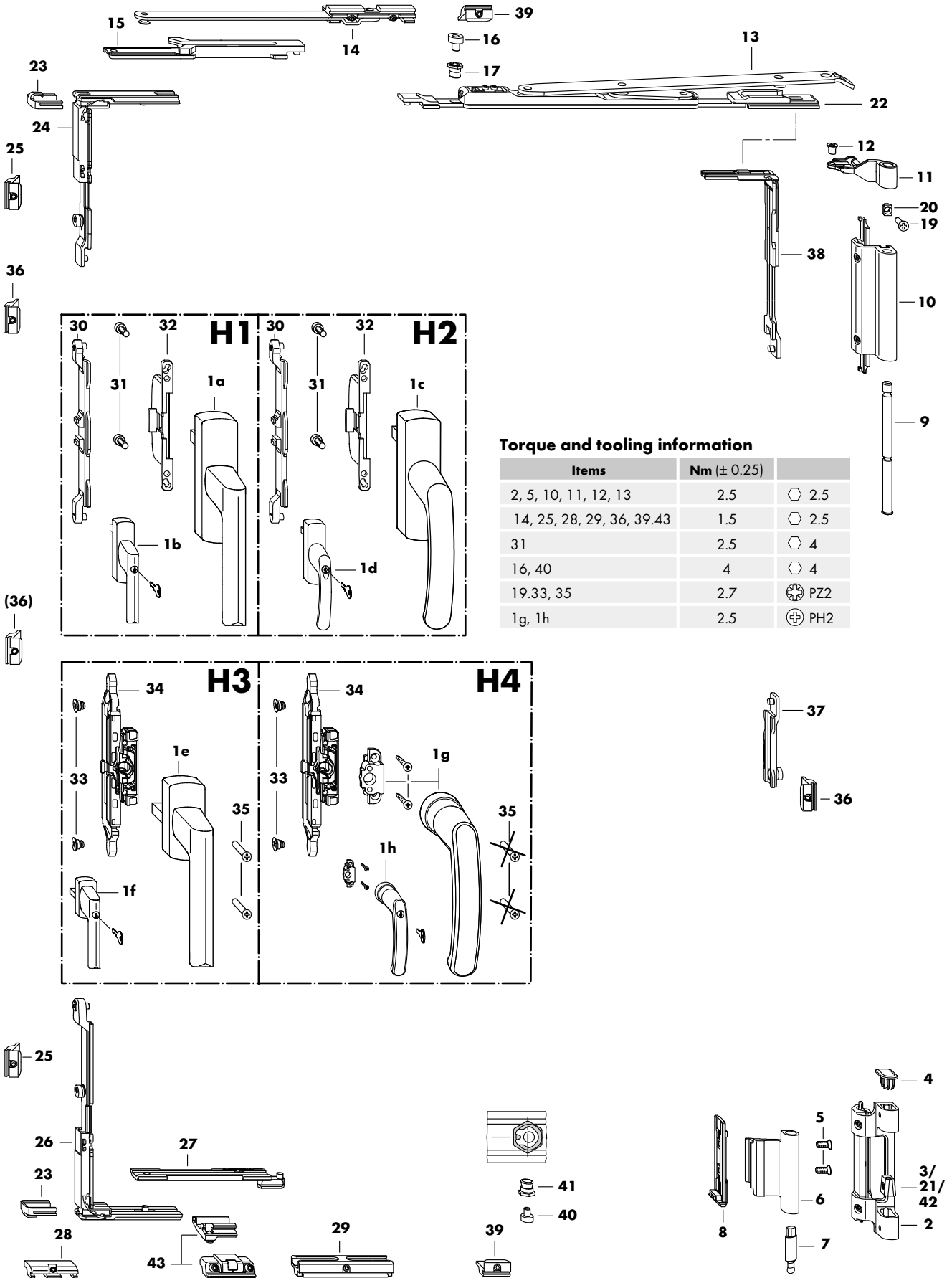
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Frame dimensions .....	6

Assembly instructions  
H48.5200LS006en

Technical specifications and colours are subject to change

H48.5200LS006en/0

# ALU 5200-DK BD 5 KPW (FBS-G) Hardware overview

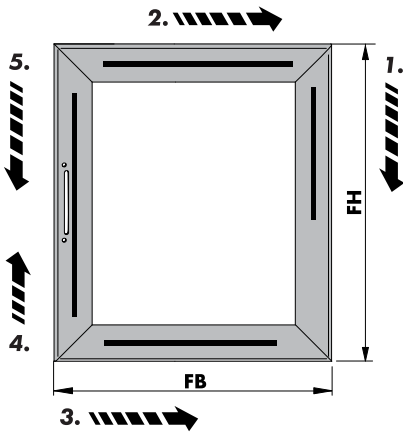


# ALU 5200-DK BD 5 KPW (FBS-G) Hardware list

	Item	Quantity	Description		VE		VE			
H1	1a	1	Handle LM Si-line	Only use in combination with coupling set	See ALU handle overview, document no.: H48.ZubhLS007en in ALU planning manual					
	1b		Handle LM Si-line lockable							
H2	1c		Handle LM Globe	Only use in combination with gear set						
	1d		Handle LM Globe lockable							
H3	1e		Handle TITAN	Only use in combination with gear set				(□ 7 mm x 25, cam dia. 10 mm)		
	1f		Handle TITAN lockable							
H4	1g		Handle LM round rose	Only use in combination with gear set				See Handle Globe RR, document no.: H48.ZubhLS006en in ALU planning manual		
	1h		Handle LM round rose lockable							
	1	1	Hinge side LM 5200 BD 5	Size	FB (mm)	Weight				
			Silver	MMBS0230-525010	1	MMBS0230-525020	10			
			White RAL 9016	MMBS0230-504010	1	MMBS0230-504020	10			
			Black RAL 9005	MMBS0230-523010	1	MMBS0230-523020	10			
			EV1	MMBS0230-524010	1	MMBS0230-524020	10			
		2	1	Bottom hinge						
		3	1	Adjusting piece	(replaced by item 21 with sash weight >100 kg)					
		4	1	Cover cap						
		5	2	M5 x 8.5 countersunk screw						
		6	1	Corner hinge						
		7	1	Bottom hinge pin						
		8	1	Clamping piece E						
	9	1	Top hinge pin							
	10	1	Top hinge							
	11	1	Stay hinge bearing							
	12	1	M5 x 7.5 countersunk screw							
	13	1	Stay LM	Size 35	FB (mm) 600 to 1600	Weight	884782	1	314 203	20
According to FB		0...1	Additional stay LM	From FB 1251 with stay size 35	<100 kg		857076	1	247006	10
		14	1	Additional stay	From FB 1020 with stay size 35	>100 kg to 150 kg				
		15	1	Striker plate						
		16	1	Locking cam						
		17	1	Eccentric rivet						
According to sash weight		0...1	Accessories set LM 5200 BD 5 150 kg	> 100 kg to 150 kg			-	-	MZBS0110-000030	20
		19	1	M5 x 13 countersunk screw						
		20	1	Support bracket						
		21	1	Adjusting piece S						
		1	Locking side LM-DK/TBT (horizontal tilt point) (for FBS on gear)				MMVS0400-100010	1	MMVS0400-100030	20
		22	1	Locking bolt DK						
		23	1	Locking bolt TBT	(not used for DK)					
		23	2	Clamping piece EUL						
		24	1	VSO corner drive						
		25	2	End piece						
		26	1	VSU corner drive						
		27	1	Tilt lock						
		28	1	Run-up block						
		29	1	Tilt lock						
H1 H2		0...1	Coupling set LM (with FBS on gear)	(9 mm)			MMKL0030-100010	1	MMKL0030-100030	20
				(10 mm)	Only use in combination with H1/H2 (For notes on overlaps (USH) see page 4)		MMKL0010-100010	1	MMKL0010-100030	20
				(USH 12 mm)			MMKL0040-100010	1	MMKL0040-100030	20
		30	1	Coupling bracket						
		31	2	M5 x 12 cheese head screw						
	32	1	Mishandling device							
H3 H4		0...1	Gear set LM FBS (with FBS on gear)	Only use in combination with H3/H4 (see drawing no. H48.ZubhLS005en)			MMGI0080-100010	1	MMGI0080-100030	20
		33	2	M6 coupling screw						
		34	1	M6 ESG FBS						
		35	2	M5 x 35 countersunk screw						
According to FH		0...1	MV-LM DK/TBT	FH > 1251 mm			857045	1	246979	20
		36	2	Striker						
		37	1	Slider						
	38	1	VSU/BSO corner drive							
According to FB		0...1	MV LM RB/SF	FB > 1251 mm			894316	1	303917	20
		39	2	Striker						
		40	1	Locking cam						
	41	1	Eccentric rivet							
Accessories		0...1	Adjusting piece AV	For compression + 0.5 mm			MXBS0100-100010	1	MXBS0100-100030	20
		0...1	Sash lift LM	(see drawing no. H48.ZubhLS014en)			MMFH0010-100010	1	MMFH0010-100030	20

# ALU 5200-DK BD 5 KPW (FBS-G) Assembly and design variants for coupling set

## Observe installation sequence



Sequence of installation in sash

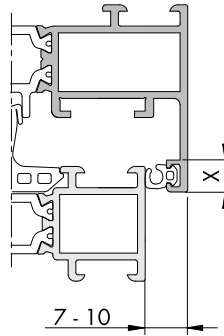
- without centre lock (2. - 3. - 4. - 5.)

- with centre lock (1. - 2. - 3. - 4. - 5.)

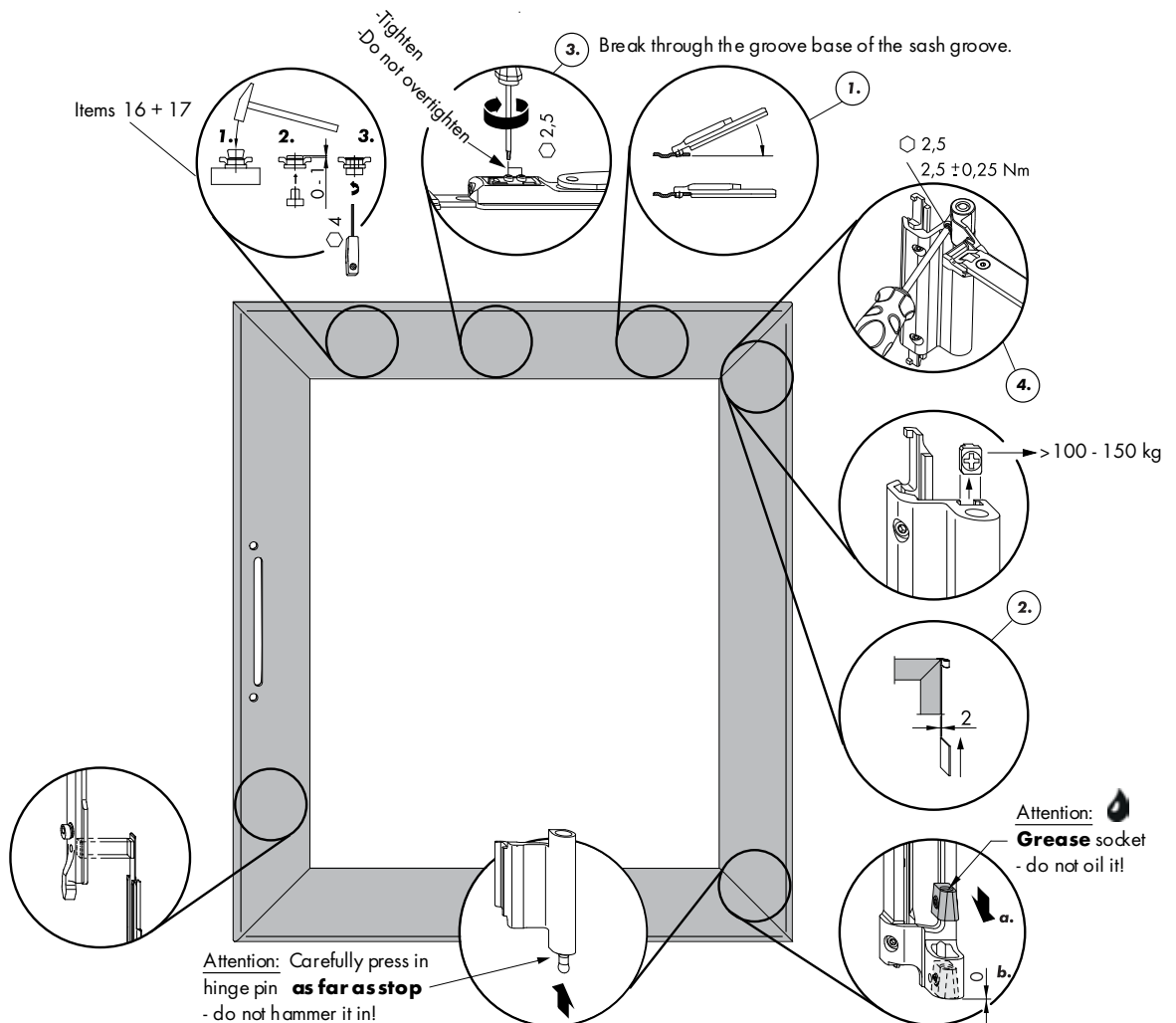
## Design variations for coupling set (items 30-32) (H1/H2)

1) Overlap height (USH)

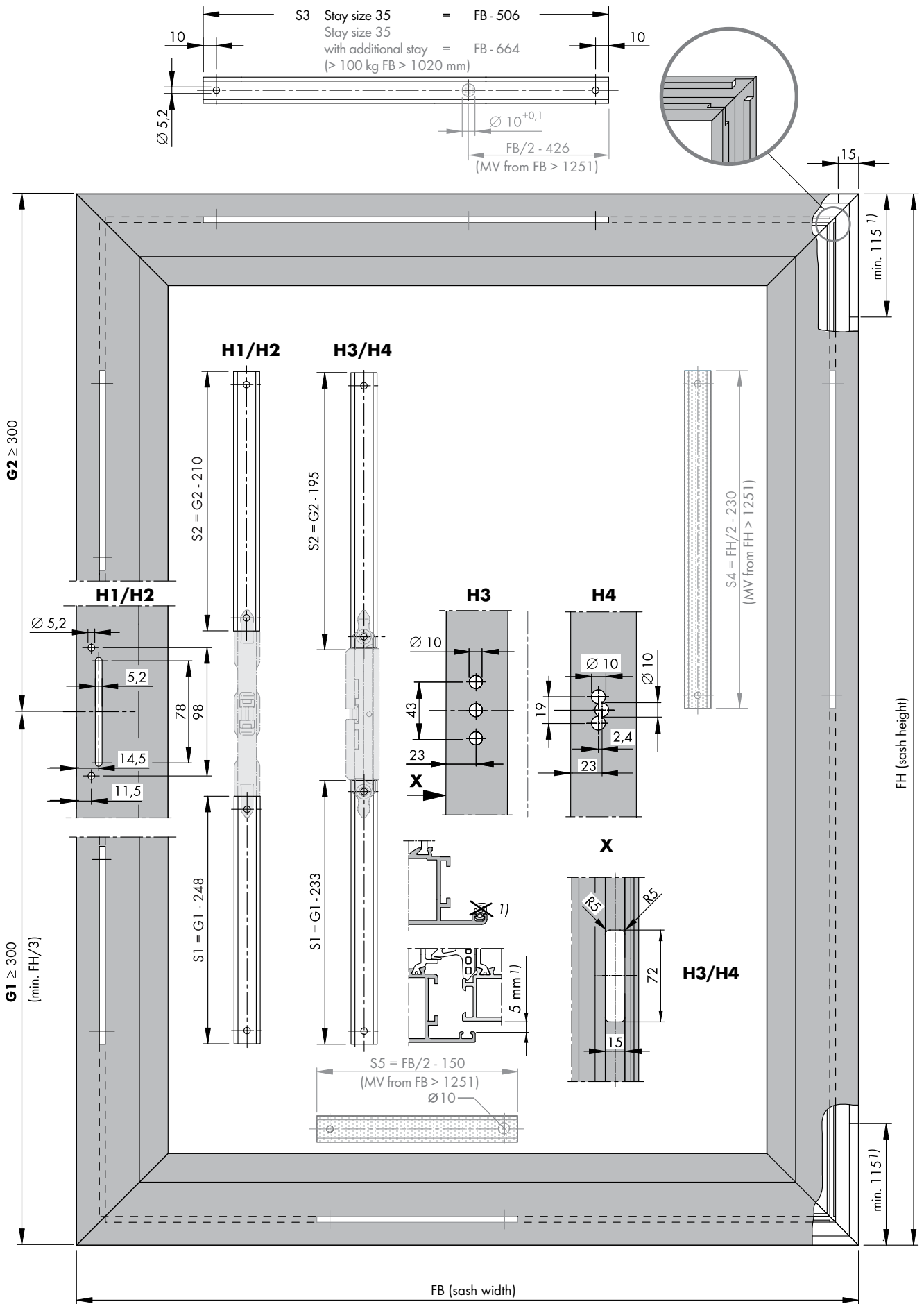
USH <sup>1)</sup>	X	Material no.
7 - 10 mm	≤ 8.5 mm	MMKL0030-100030
7 - 10 mm	≤ 7.5 mm	MMKL0010-100030
12 mm	≤ 7 mm	MMKL0040-100030



## Assembly settings and installation sequence ① to ④

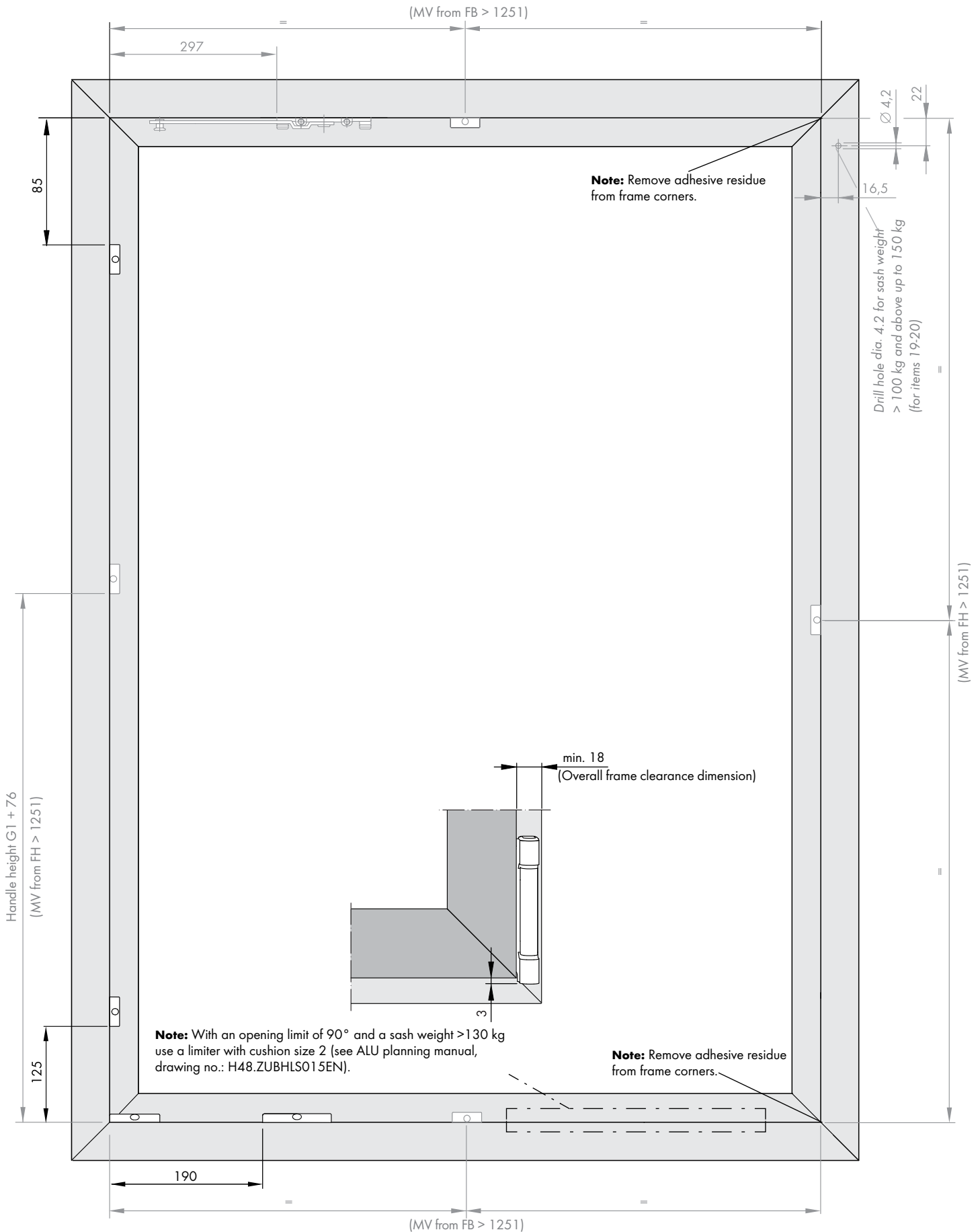


# ALU 5200-DK BD 5 KPW (FBS-G) Sash dimensions



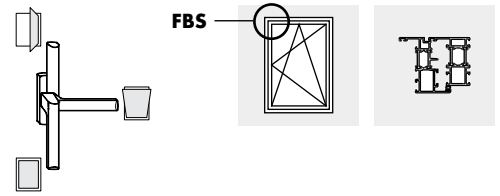
1) Remove the rebate seal in the hinge gap area.  
 Minimum gap 5 mm.

# ALU 5200-DK BD 5 KPW (FBS-G) Frame dimensions



# ALU 5200-TBT

**Tilt-before-turn hardware for hinge clearance (BD) 5 mm with mishandling device (FBS) on the corner drive (EUL)**



## Size range (depends on hardware)

		Windows		French doors
		min.	max.	max.
Sash width	(mm)	365 to 1600		1300
Sash height	(mm)	550 to 2000		2400
Sash weight	(kg)	<b>max. 100/130</b>		<b>max. 100/130</b>

## The following information from the aluminium planning manual must be observed:

Guidelines of the Gütegemeinschaft Schlösser und Beschläge e. V.  
(German quality association for locks and hardware).

- Document no. H45.4200LS001EN

Application diagrams:

- Sash weight up to max. 100 kg: Document no. H58.AWDLMS003EN

- Sash weight up to max. 130 kg: Document no. H58.AWDLMS004EN

Basic safety notes:

- Document no. H45.5200LS001EN

Abbreviations:

- Document no. H45.5200LS002EN

Adjustment options:

- Document no. H45.5200LS004EN

Profile recommendation:

- Document no. H48.ZubhLS008EN

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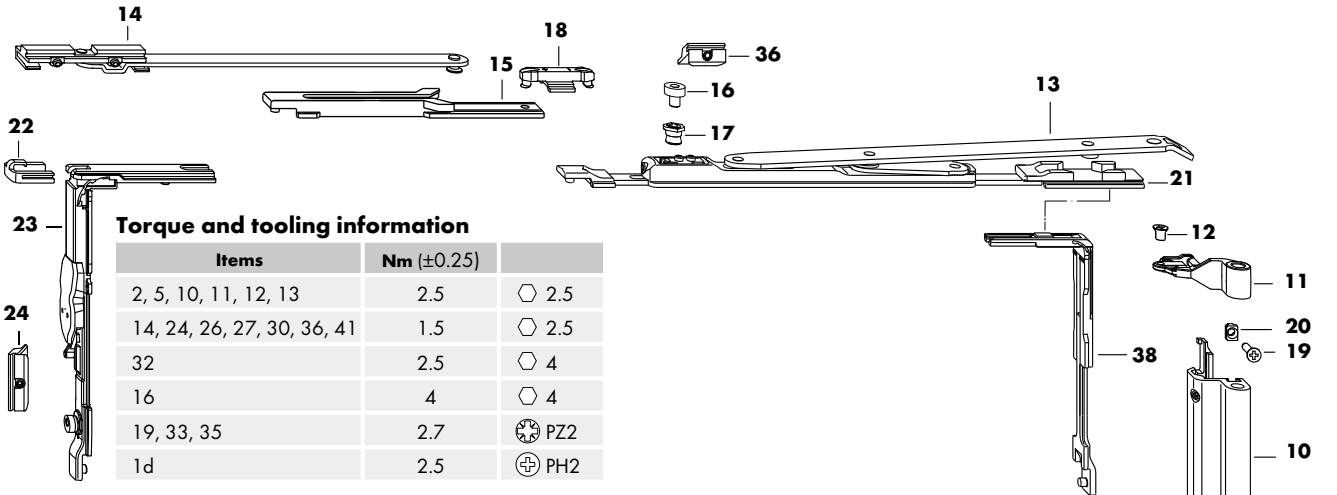
**Assembly instructions**  
 H48.5200LS016en

Technical specifications and colours are subject to change

H48.5200LS016en/0

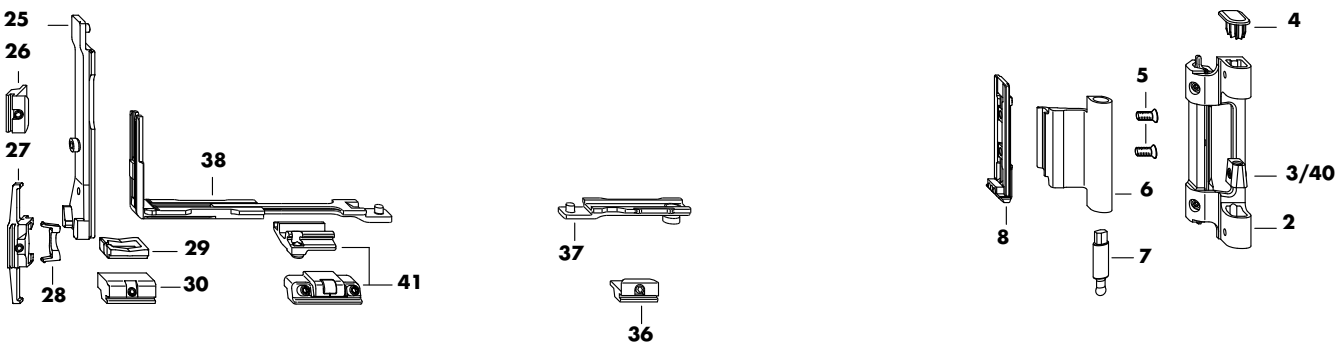
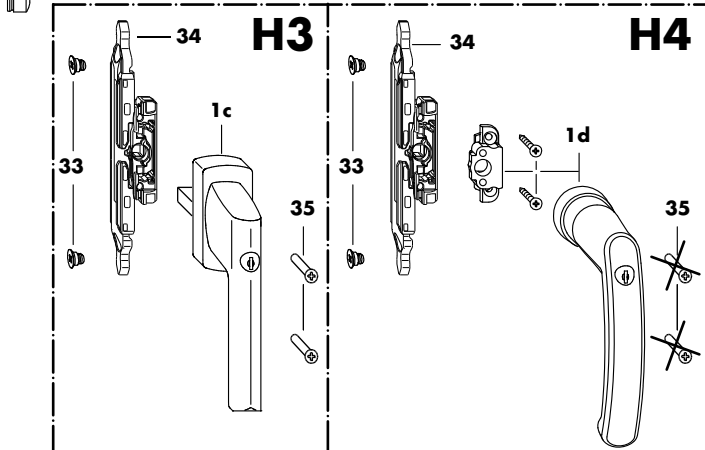
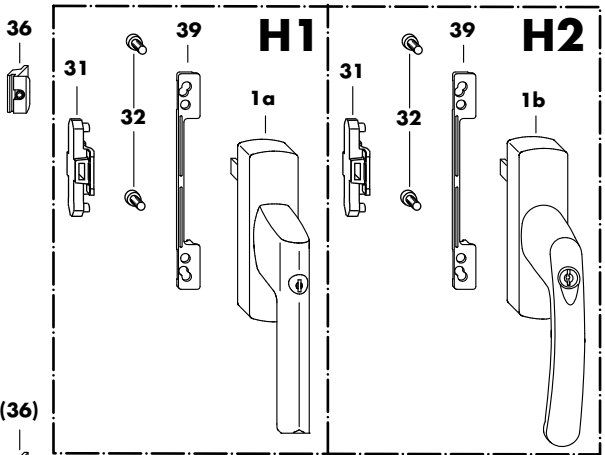


# ALU 5200-TBT BD 5 (FBS-EUL) Hardware overview



**Torque and tooling information**

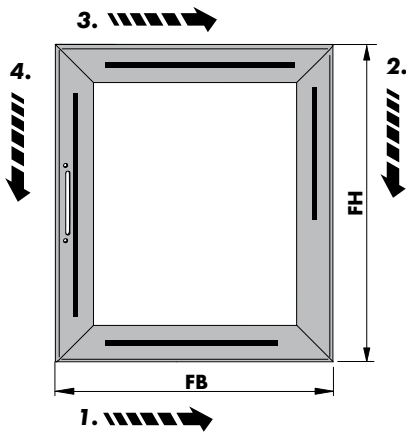
Items	Nm (±0.25)	
2, 5, 10, 11, 12, 13	2.5	⬡ 2.5
14, 24, 26, 27, 30, 36, 41	1.5	⬡ 2.5
32	2.5	⬡ 4
16	4	⬡ 4
19, 33, 35	2.7	⊕ PZ2
1d	2.5	⊕ PH2



## ALU 5200-TBT BD 5 (FBS-EUL) Hardware list

	Item	Quantity	Description		VE		VE	
	H1	1a	<b>Handle LM Si-line lockable/TBT</b>	Only use in combination with coupling set	See ALU handle overview, document no.: H48.ZubhLS007en in ALU planning manual			
	H2	1b	<b>Handle LM Globe lockable/TBT</b>					
	H3	1c	<b>Handle TITAN lockable /TBT</b>		(□ 7 mm x 25, cam dia. 10 mm)			
	H4	1d	<b>Handle LM round rose lockable/TBT</b>	Only use in combination with gear set	See Handle Globe RR, document no.: H48.ZubhLS006en in ALU planning manual			
		1	<b>Hinge side LM 5200 BD 5</b>	<b>Silver</b> <b>White</b> RAL 9016 <b>Black</b> RAL 9005 <b>EV1</b> <b>Mill finish</b>	<b>MMBS0230-525010</b> <b>MMBS0230-504010</b> <b>MMBS0230-523010</b> <b>MMBS0230-524010</b> -	1 1 1 1 -	<b>MMBS0230-525020</b> <b>MMBS0230-504020</b> <b>MMBS0230-523020</b> <b>MMBS0230-524020</b> <b>MMBS0230-500120</b>	10 10 10 10 5
		2	Bottom hinge					
		3	Adjusting piece					
		4	Cover cap					
		5	M5 x 8.5 countersunk screw					
		6	Corner hinge					
		7	Bottom hinge pin					
		8	Clamping piece E					
		9	Top hinge pin					
		10	Top hinge					
		11	Stay hinge bearing					
		12	M5 x 7.5 countersunk screw					
		13	<b>Stay LM</b>	Size 20      FB (mm) 365 to 600      Weight < 100 kg 35            601 to 1600	<b>884805</b> <b>884782</b>	1 1	<b>273 098</b> <b>314 203</b>	20 20
		0...1	<b>Additional stay LM</b>	From FB 1251 with stay size 35 < 100 kg From FB 1020 with stay size 35 > 100 kg to 130 kg	<b>857076</b>	1	<b>247006</b>	10
According to FB/kg		14	Additional stay					
		15	Striker plate					
		16	Locking cam					
		17	Eccentric rivet					
		18	<b>Stay striker MV</b>	(> 100 kg FB > 1021 mm) (< 100 kg FB > 1251)	<b>MXSK0010-100010</b>	1	<b>MXSK0010-100030</b>	20
According to kg		0...1	<b>Accessories set LM for 130 kg</b>	> 100 kg to 130 kg	-	1	<b>247037</b>	20
		19	M5 x 13 countersunk screw					
		20	Support bracket					
		1	<b>Locking side LM-TBT (with FBS on corner drive) KPS</b>		<b>MMV50320-100010</b>	1	<b>MMV50320-100030</b>	20
		21	Locking bolt TBT					
		22	Clamping piece EUL					
		23	VSO FBS corner drive					
		24	Striker EUL					
		25	TBT tilt lock					
		26	Striker					
		27	Tilt lock part TBT					
		28	Spring	Grey            from FH 550 - 1100 mm Black            from FH 1101 - 2400 mm				
		29	Run-up block					
		30	Run-up block TBT					
	H1	0...1	<b>Coupling set LM (without FBS on gear)</b>	Only use in combination with H1/H2	<b>MMKL0060-100010</b>	1	<b>MMKL0060-100030</b>	20
	H2	31	Coupling bracket					
		32	M5 x 12 cheese head screw					
	H3	0...1	<b>Gear set LM (without FBS on gear)</b>	Only use in combination with H3/H4 (see drawing no. H48.ZubhLS005en)	<b>MMGI0090-100010</b>	1	<b>MMGI0090-100030</b>	20
	H4	33	M6 coupling screw					
		34	M6 ESG					
		35	M5 x 35 countersunk screw					
According to FB/FH		0...2	<b>MV LM-DK/TBT</b>	(FB/FH > 1251 mm)	<b>857045</b>	1	<b>246979</b>	20
		36	Striker					
		37	Slider					
		38	VSU/BSO corner drive					
Accessories		0...1	<b>Handle support LM</b>	Only use in combination with H1/H2	-	-	(see table on page 4)	200
		40	<b>Adjusting piece AV</b>	For compression + 0.5 mm	<b>MXBS0100-100010</b>	1	<b>MXBS0100-100030</b>	20
		41	<b>Sash lift LM</b>	(see drawing no. H48.ZubhLS014en)	<b>MMFH0010-100010</b>	1	<b>MMFH0010-100030</b>	20

**Observe installation sequence**

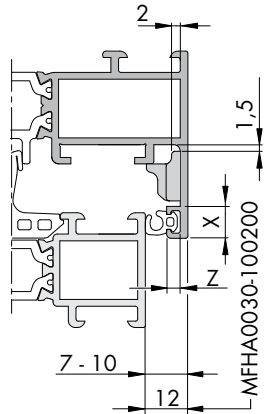


Sequence of installation in sash

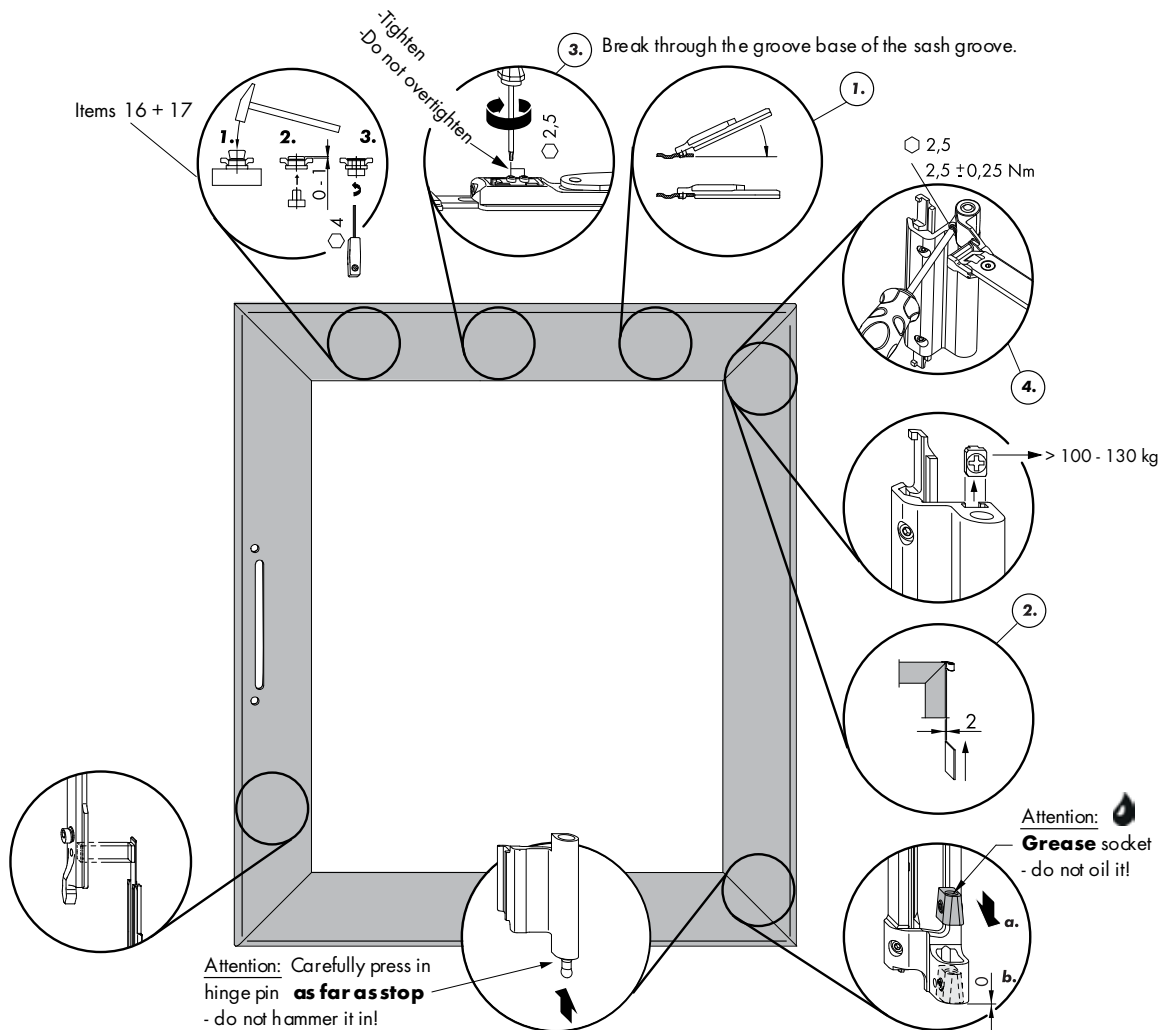
- without centre lock (3. - 4.)
- with centre lock (1. - 2. - 3. - 4.)

**Design variants for the handle support (item 39) (H1/H2)**

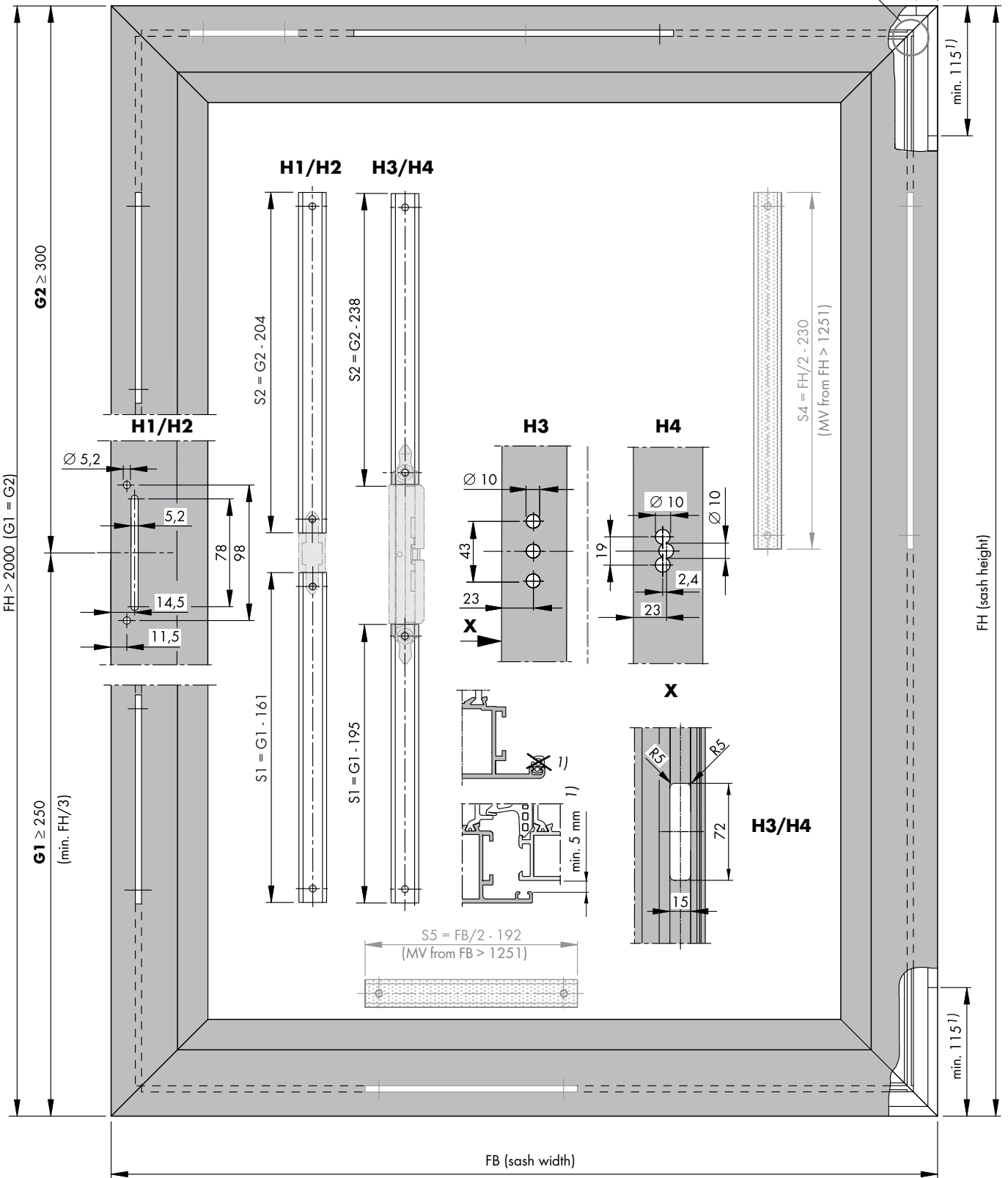
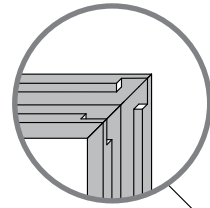
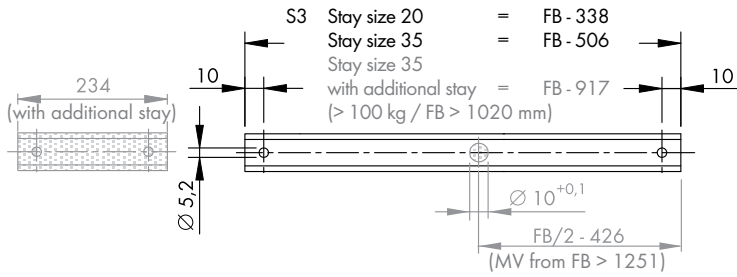
USH	Z	X < 7 mm	X 7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-



**Assembly settings and installation sequence ① to ④**

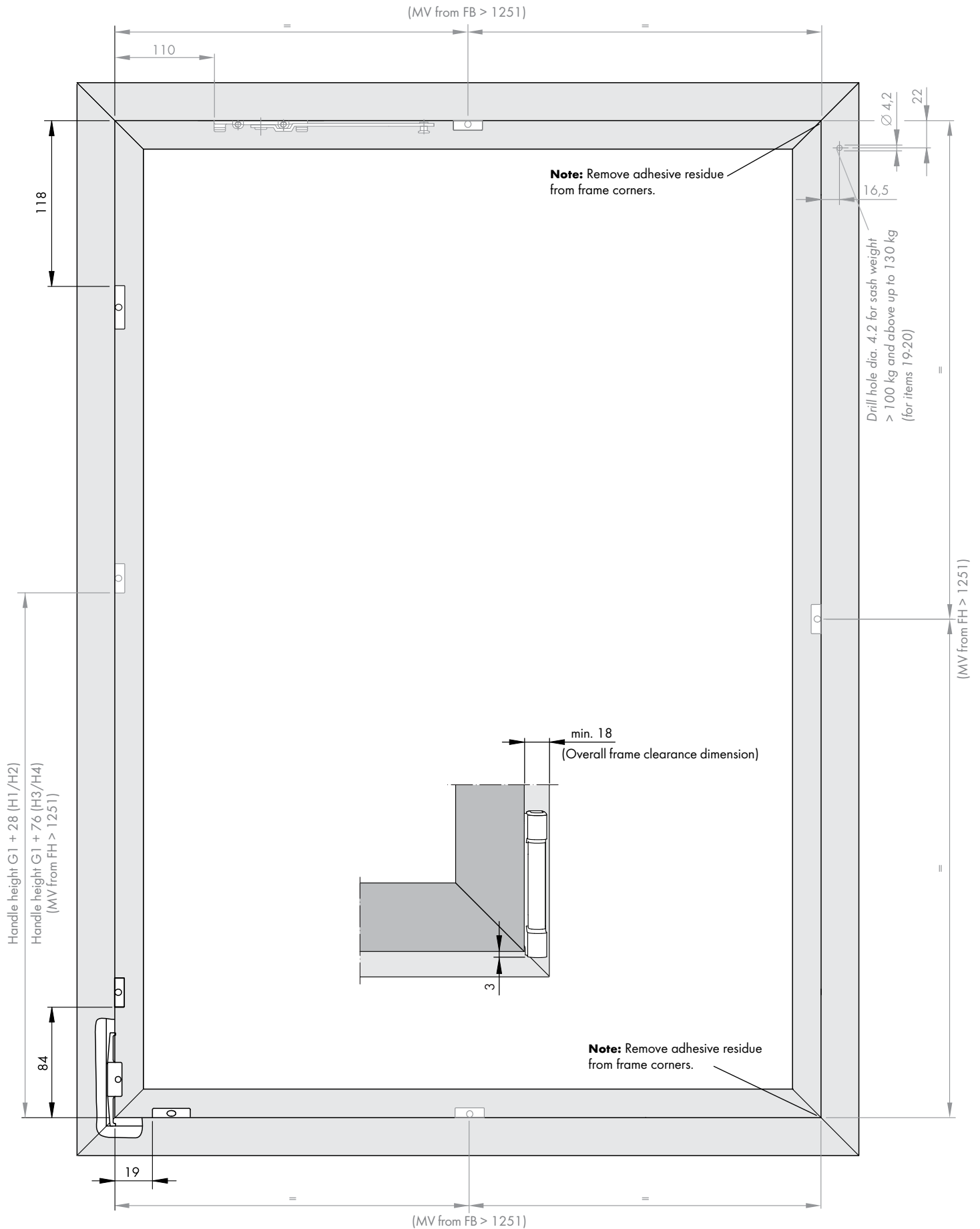


# ALU 5200-TBT BD 5 (FBS-EUL) Sash dimensions



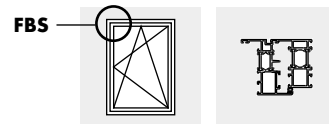
1) Remove the rebate seal in the hinge gap area.  
 Minimum gap 5 mm.

# ALU 5200-TBT BD 5 (FBS-EUL) Frame dimensions



# ALU 5200-TBT KPW

Tilt-before-turn hardware for  
hinge clearance (BD) 5 mm  
with mishandling device (FBS) on the corner drive (EUL)  
and horizontal tilt point (KPW)



**Size range** (depends on hardware)

		Window		French windows
		min.	max.	max.
Sash width	(mm)	600 to 1600		1300
Sash height	(mm)	600 to 2000		2600
Sash weight	(kg)	<b>max. 100/150</b>		<b>max. 100/150</b>

**The following information from the aluminium planning manual must be observed:**

*Guidelines of the Gütegemeinschaft Schlösser und Beschläge e. V.  
(German quality association for locks and hardware)*

- Document no. H45.4200LS001EN

*Application diagrams:*

- Sash weight up to max. 100 kg: Document no. H58.AWDLMS003EN

- Sash weight up to max. 150 kg: Document no. H58.AWDLMS005EN

*Basic safety notes:*

- Document no. H45.5200LS001EN

*Abbreviations:*

- Document no. H45.5200LS002EN

*Setting options:*

- Document no. H45.5200LS004EN

*Profile recommendation:*

- Document no. H48.ZubhLS008EN

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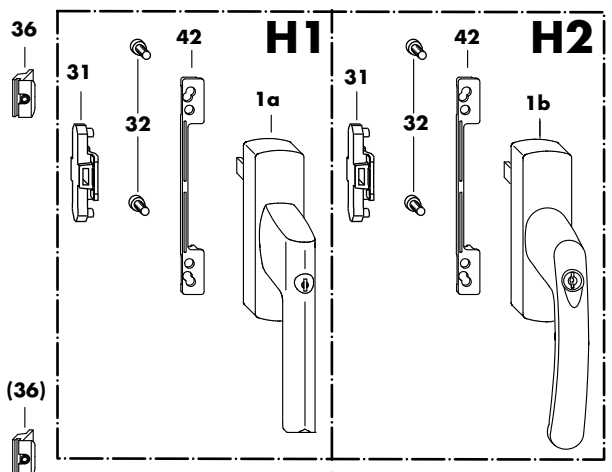
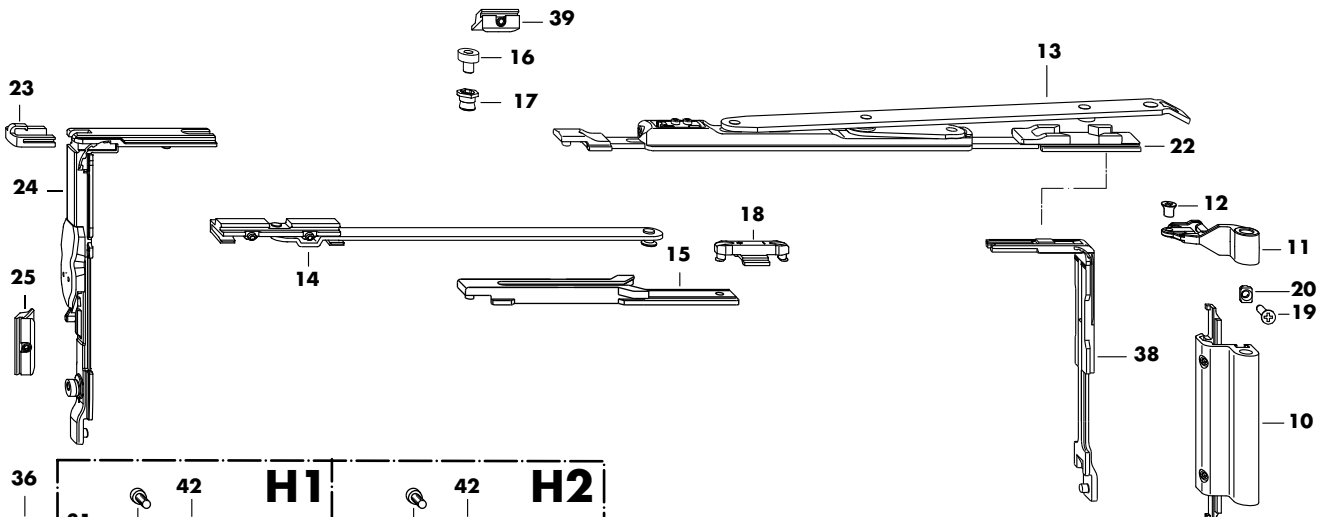
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**Assembly instructions**  
H48.5200LS009en

Technical specifications and colours are subject to change

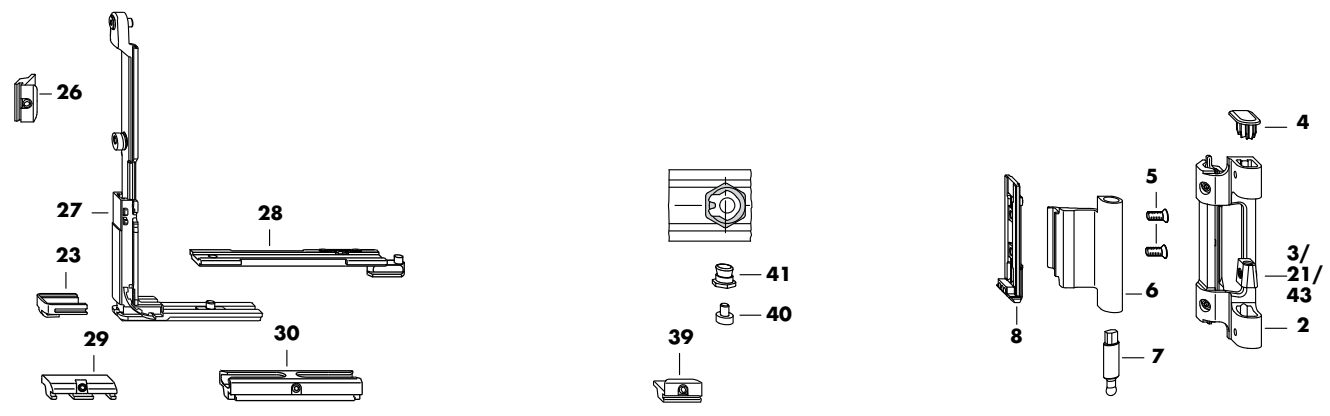
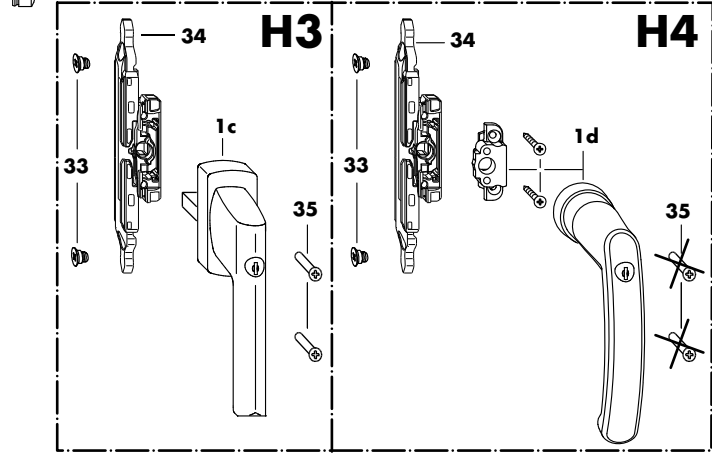
H48.5200LS009en/0

# ALU 5200-TBT BD 5 KPW (FBS-EUL) Hardware overview



## Torque and tooling information

Items	Nm (±0.25)	
2, 5, 10, 11, 12, 13	2.5	⬡ 2.5
14, 25, 26, 29, 30, 36, 39	1.5	⬡ 2.5
32	2.5	⬡ 4
16, 40	4	⬡ 4
19, 33, 35	2.7	⊕ PZ2
1d	2.5	⊕ PH2

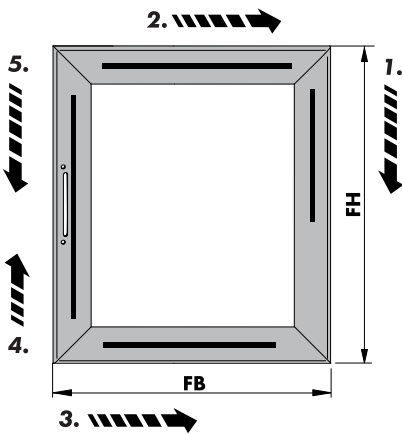


# ALU 5200-TBT BD 5 KPW (FBS-EUL) Hardware list

	Item	Piece	Description		VE		VE	
	H1	1a	Handle LM Si-line lockable/TBT	Only use in combination with coupling set	See handle overview ALU document no.: H48.ZubhLS007en in ALU planning manual			
	H2	1b	Handle LM Globe lockable/TBT					
	H3	1c	Handle TITANIUM lockable/TBT		(□ 7mm x 25, cam dia.10 mm)			
	H4	1d	Handle LM Round rose lockable/TBT	Only use in combination with gear set	See Handle Globe RR document no.: H48.ZubhLS006en in ALU planning manual			
		1	Hinge side LM 5200 BD 5	Silver	MMBS0230-525010	1	MMBS0230-525020	10
				White RAL 9016	MMBS0230-504010	1	MMBS0230-504020	10
				Black RAL 9005	MMBS0230-523010	1	MMBS0230-523020	10
				EV1	MMBS0230-524010	1	MMBS0230-524020	10
				Mill finish	-	-	MMBS0230-500120	5
		2	Bottom hinge					
		3	Adjusting piece	(will be replaced by item 21 if sash weight >100 kg)				
		4	Cover cap					
		5	M5 x 8.5 countersunk screw					
		6	Corner hinge					
		7	Bottom hinge pin					
		8	Clamp E					
		9	Top hinge pin					
		10	Top hinge					
		11	Stay hinge bearing					
		12	M5 x 7.5 countersunk screw					
		13	Stay LM	Size 35      FB (mm) 600 to 1600      weight	884782	1	314 203	20
dependent on FB/kg		0...1	Additional stay LM	From FB 1251 with stay size 35 <100 kg From FB 1020 with stay size 35 >100 kg to 150 kg	857076	1	247006	10
		14	Additional stay					
		15	Striker plate					
		16	Locking cam					
		17	Eccentric rivet					
		18	Stay striker MV	From FB 1100 or more (only with TBT)	MXSK0010-100010	1	MXSK0010-100030	20
dependent on sash weight		0...1	Accessory set LM 5200 BD 5 150 kg	> 100 kg to 150 kg	-	-	MZBS0110-000030	20
		19	M5 x 13 countersunk screw					
		20	Mounting bracket					
		21	Adjusting piece S					
		1	Locking side LM-DK-TBT EUL tilt point horizontal) (with FBS on the corner drive)		MMVS0340-100010	1	MMVS0340-100030	20
		22	Lock DK	(omitted with TBT)				
		23	Locking bolt TBT					
		24	Clamp EUL					
		25	VSO FBS corner drive					
		26	Locking part EUL VSO					
		27	Striker					
		28	VSU corner drive					
		29	Tilt lock					
		30	Run-up block					
		31	Tilt locking part					
H1		0...1	Coupling set LM (without FBS on gear)	Only use in combination with H1/H2	MMKL0060-100010	1	MMKL0060-100030	20
H2		32	ALU coupling bracket					
		33	M5 x 12 cheese head screw					
H3		0...1	Gear set LM (without FBS on gear)	Only use in combination with H3/H4 (see drawing no. H48.ZubhLS005de)	MMGI0090-100010	1	MMGI0090-100030	20
H4		34	M6 coupling screw					
		35	M6 ESG					
		36	M5 x 35 countersunk screw					
dependent on independent on FH		0...1	MV-LM DK/TBT	(FH > 1251 mm)	857045	1	246979	20
		37	Striker					
		38	Slider					
		39	VSU/BSO corner drive					
dependent on FB		0...1	MV LM RB/SF	(FB > 1251 mm)	894316	1	303917	20
		40	Striker					
		41	Locking cam					
		42	Eccentric rivet					
Accessories		0...1	Handle support LM	Only use in combination with H1/H2	-	-		200
		43	Adjusting piece AV	For compression + 0.5 m	MXBS0100-100010	1	MXBS0100-100030	20



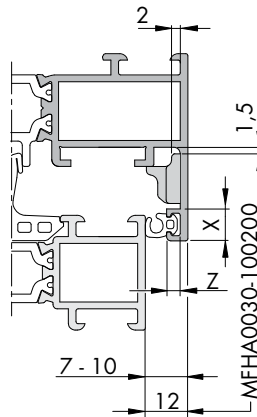
**Observe installation sequence**



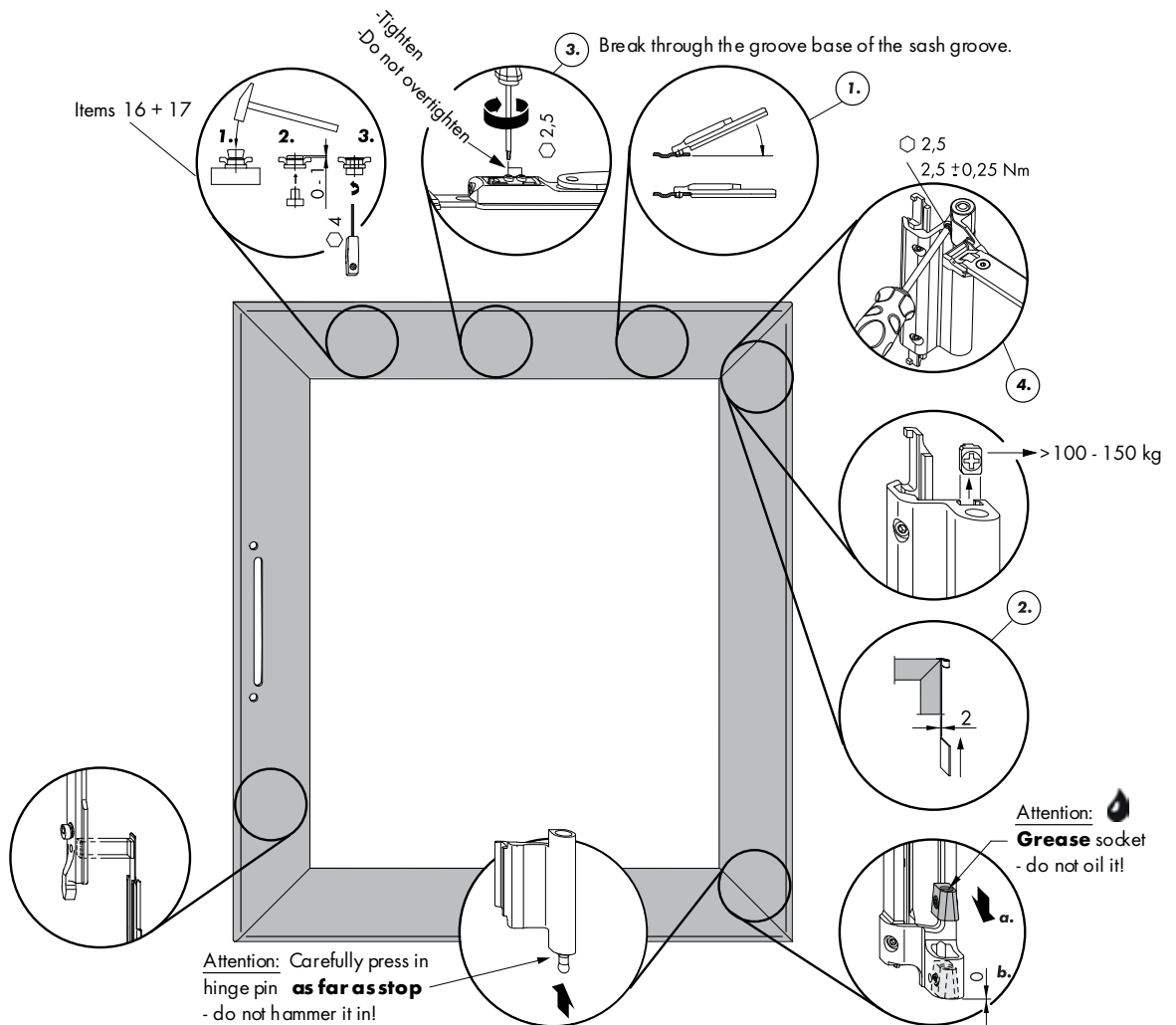
Sequence of installation in sash  
 - without centre lock (2. - 3. - 4. - 5.)  
 - with centre lock (1. - 2. - 3. - 4. - 5.)

**Design variants of the handle support LM (item 42) (H1/H2)**

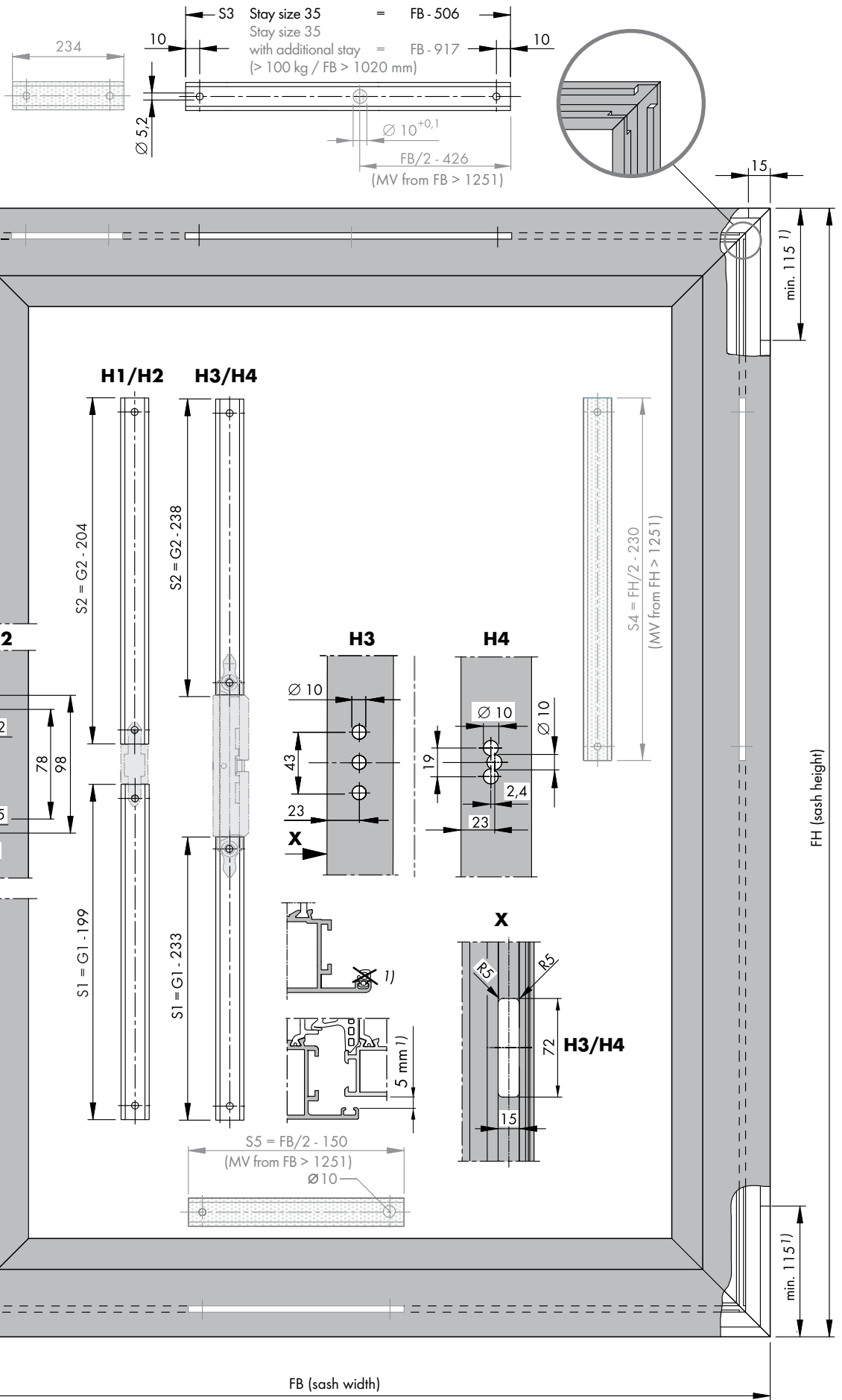
USH	Z	X < 7 mm	X 7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-



**Assembly settings and installation sequence ① to ④**

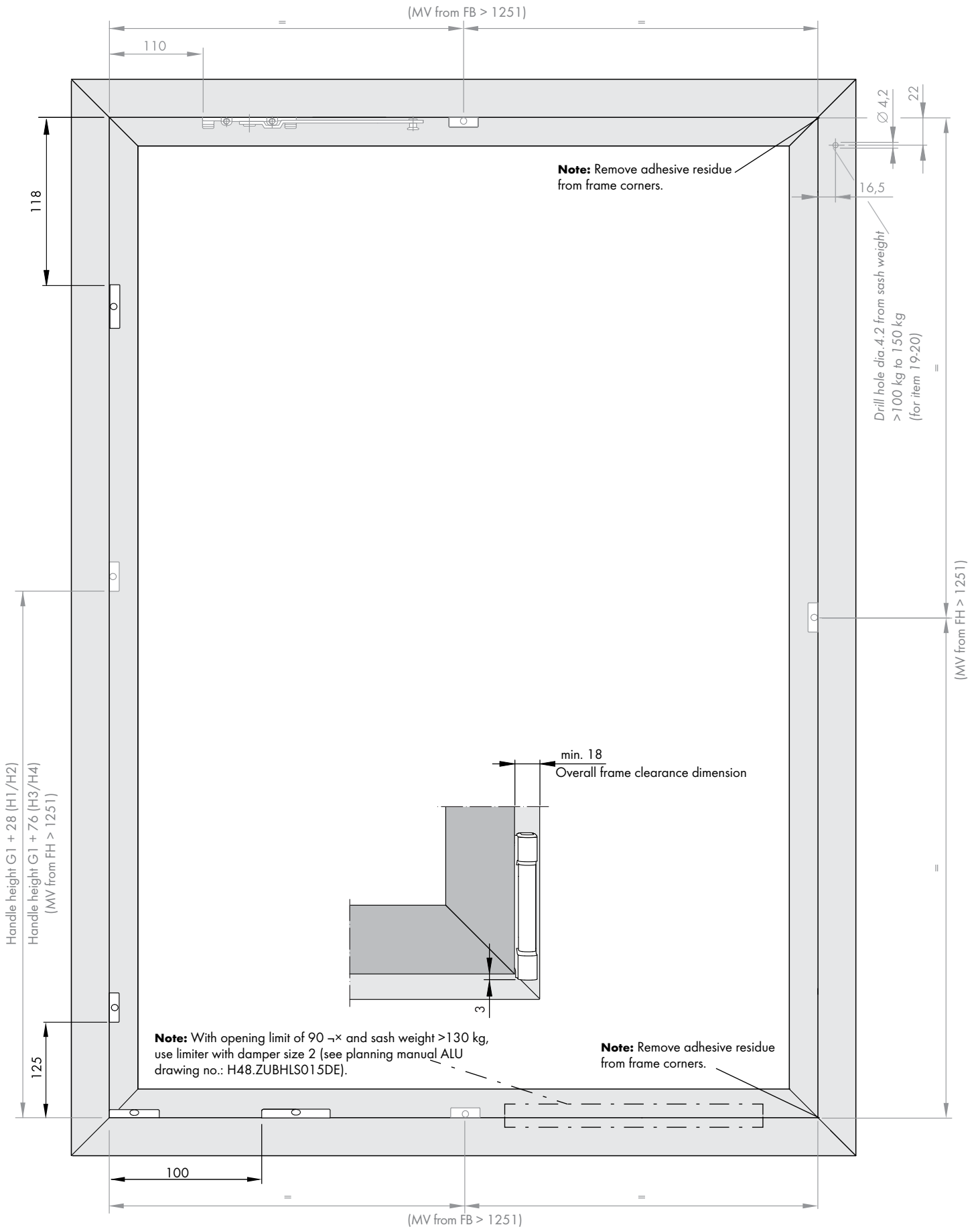


# ALU 5200-TBT BD 5 KPW (FBS-EUL) sash dimensions



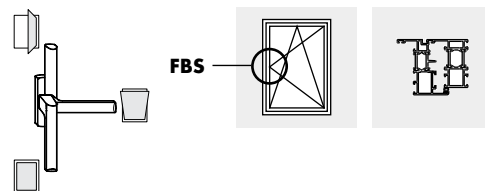
1) Remove the rebate seal in the hinge gap area.  
 Minimum gap 5 mm.

# ALU 5200-TBT BD 5 KPW (FBS-EUL) frame dimensions



# ALU 5200-TBT

## Tilt-before-turn hardware for hinge clearance (BD) 5 mm with mishandling device (FBS) on the gear (G)



### Size range (depends on hardware)

		Windows		French doors
		min.	max.	max.
Sash width	(mm)	365 to 1600		1300
Sash height	(mm)	550 to 2000		2400
Sash weight	(kg)	<b>max. 100/130</b>		<b>max. 100/130</b>

### The following information from the aluminium planning manual must be observed:

Guidelines of the Gütegemeinschaft Schlösser und Beschläge e. V.  
(German quality association for locks and hardware)

- Document no. H45.4200LS001EN

Application diagrams:

- Sash weight up to max. 100 kg: Document no. H58.AWDLMS003EN

- Sash weight up to max. 150 kg: Document no. H58.AWDLMS005EN

Basic safety notes:

- Document no. H45.5200LS001EN

Abbreviations:

- Document no. H45.5200LS002EN

Adjustment options:

- Document no. H45.5200LS004EN

Profile recommendation:

- Document no. H48.ZubhLS008EN

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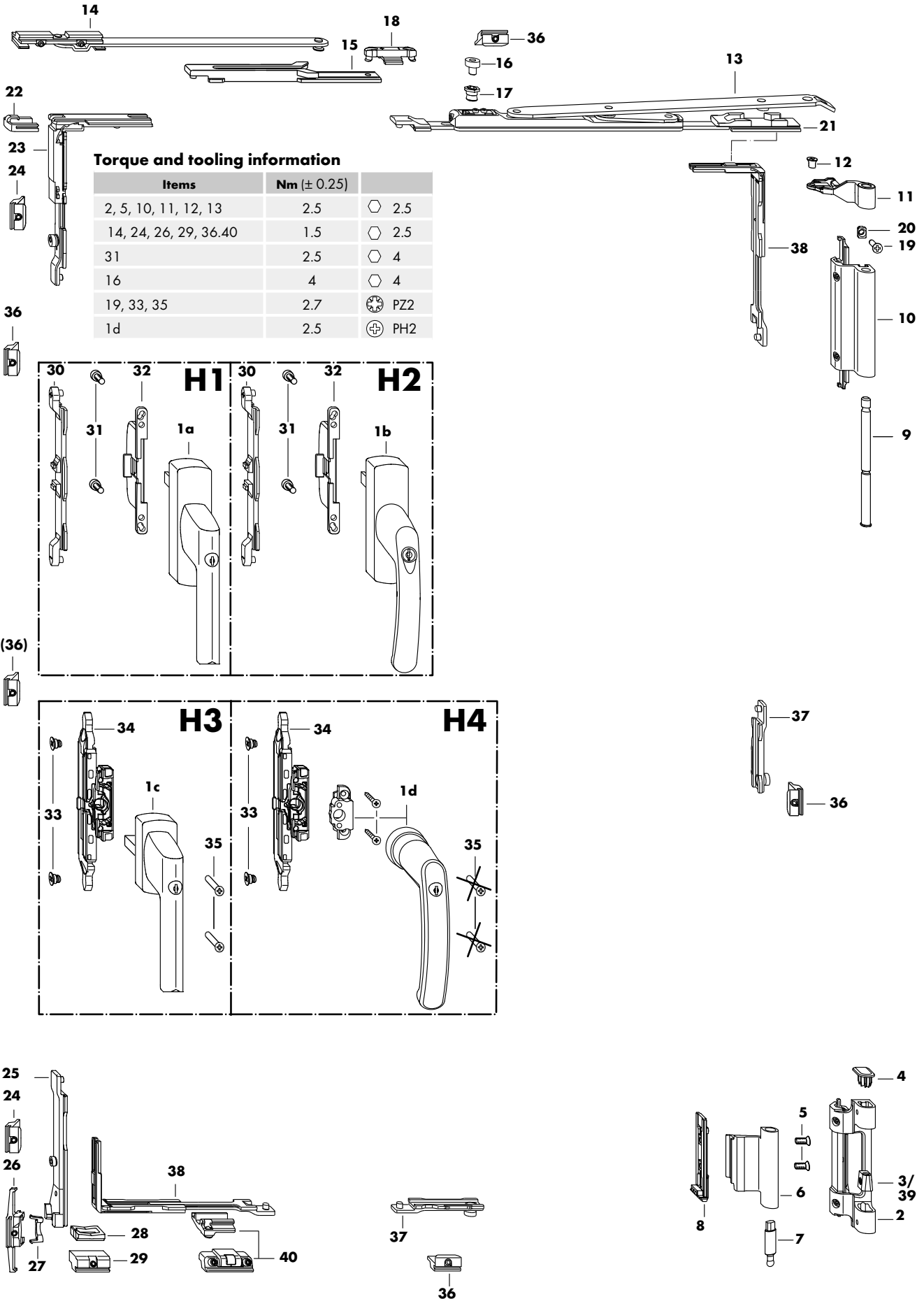
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**Assembly instructions**  
 H48.5200LS015en

Technical specifications and colours are subject to change

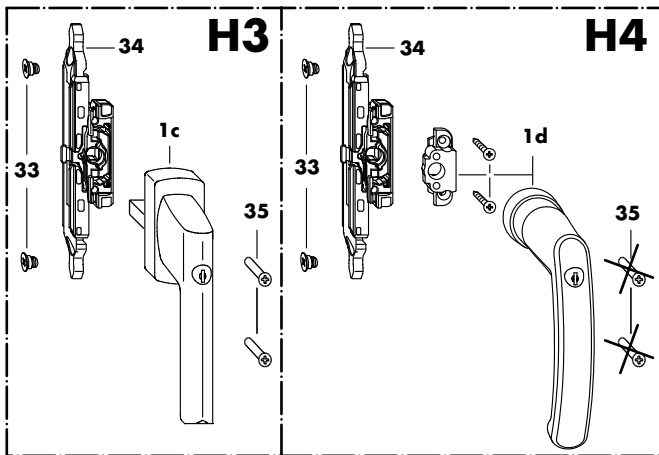
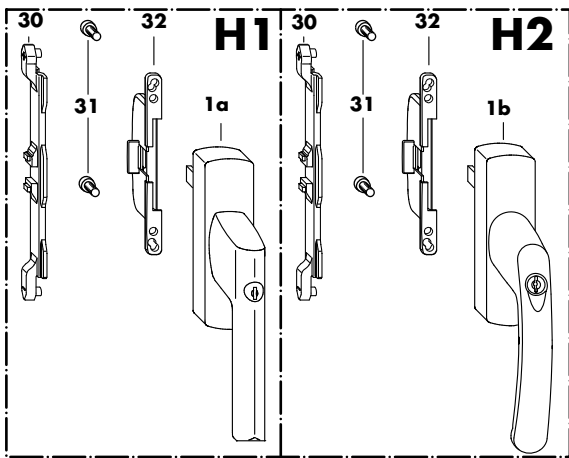
H48.5200LS015en/0

# ALU 5200-TBT BD 5 (FBS-G) Hardware overview



**Torque and tooling information**

Items	Nm (± 0.25)	Tool
2, 5, 10, 11, 12, 13	2.5	⬡ 2.5
14, 24, 26, 29, 36.40	1.5	⬡ 2.5
31	2.5	⬡ 4
16	4	⬡ 4
19, 33, 35	2.7	⊕ PZ2
1d	2.5	⊕ PH2

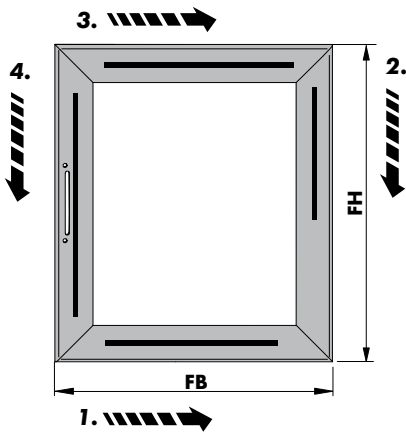


# ALU 5200-TBT BD 5 (FBS-G) Hardware list

	Item	Quantity	Description		VE		VE		
H1	1a	1	Handle LM Si-line lockable/TBT	Only use in combination with coupling set	See ALU handle overview, document no.: H48.ZubhLS007en in ALU planning manual				
H2	1b		Handle LM Globe lockable/TBT						
H3	1c		Handle TITAN lockable /TBT		(□ 7 mm x 25, cam dia. 10 mm)				
H4	1d	1	Handle LM round rose lockable/TBT	Only use in combination with gear set	See Handle Globe RR, document no.: H48.ZubhLS006en in ALU planning manual				
			Hinge side LM 5200 BD 5		Silver	MMBS0230-525010	1	MMBS0230-525020	10
					White RAL 9016	MMBS0230-504010	1	MMBS0230-504020	10
					Black RAL 9005	MMBS0230-523010	1	MMBS0230-523020	10
					EV1	MMBS0230-524010	1	MMBS0230-524020	10
			Mill finish	-	-	MMBS0230-500120	5		
	2	1	Hinge						
	3	1	Adjusting piece						
	4	1	Cover cap						
	5	2	M5 x 8.5 countersunk screw						
	6	1	Corner hinge						
	7	1	Bottom hinge pin						
	8	1	Clamping piece E						
	9	1	Top hinge pin						
	10	1	Top hinge						
	11	1	Stay hinge bearing						
	12	1	M5 x 7.5 countersunk screw						
	13	1	Stay LM	Size 20      FB (mm) 365 to 600      Weight < 100 kg	884805	1	273 098	20	
				35      601 to 1600	884782	1	314 203	20	
		0...1	Additional stay LM	From FB 1251 with stay size 35 < 100 kg From FB 1020 with stay size 35 > 100 kg to 130 kg	857076	1	247006	10	
According to FB/kg	14	1	Additional stay						
	15	1	Striker plate						
	16	1	Locking cam						
	17	1	Eccentric rivet						
	18	0...1	Stay striker MV	(> 100 kg FB > 1021 mm) (< 100 kg FB > 1251)	MXSK0010-100010	1	MXSK0010-100030	20	
According to kg		0...1	Accessories set LM for 130 kg	> 100 kg to 130 kg	-	1	247037	20	
	19	1	M5 x 13 countersunk screw						
	20	1	Support bracket						
		1	Locking side LM-TBT (for FBS on gear) KPS		MMV50270-100010	1	MMV50270-100030	20	
	21	1	Locking bolt TBT						
	22	1	Clamping piece EUL						
	23	1	VSO corner drive						
	24	2	Striker						
	25	1	Tilt lock TBT						
	26	1	Tilt locking part TBT						
	27	1	Spring	Grey from FH 550 - 1100 mm Black from FH 1101 - 2400 mm					
	28	1	Run-up block						
	29	1	Run-up block TBT						
		0...1	Coupling set LM (with FBS on gear)	(9 mm) Only use in combination with H1/H2 (For notes see page 4)	MMKL0030-100010	1	MMKL0030-100030	20	
				(10 mm)	MMKL0010-100010	1	MMKL0010-100030	20	
				(USH 12 mm)	MMKL0040-100010	1	MMKL0040-100030	20	
H1 H2	30	1	Coupling bracket						
	31	2	M5 x 12 cheese head screw						
	32	1	Mishandling device						
		0...1	Gear set LM FBS (for FBS on gear)	Only use in combination with H3/H4 (see drawing no. H48.ZubhLS005en)	MMGI0080-100010	1	MMGI0080-100030	20	
H3 H4	33	2	M6 coupling screw						
	34	1	M6 ESG FBS						
	35	2	M5 x 35 countersunk screw						
According to FB/FH		0...2	MVLM-DK/TBT	(FB/FH > 1251 mm)	857045	1	246979	20	
	36	2	Striker						
	37	1	Slider						
	38	1	VSU/BSO corner drive						
Accessories	39	0...1	Adjusting piece AV	For compression + 0.5 mm	MXBS0100-100010	1	MXBS0100-100030	20	
	40	0...1	Sash lift LM	(see drawing no. H48.ZubhLS014en)	MMFH0010-100010	1	MMFH0010-100030	20	

# ALU 5200-TBT BD 5 (FBS-G) Assembly and design variants for coupling set

## Observe installation sequence

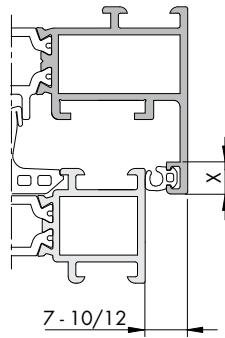


Sequence of installation in sash

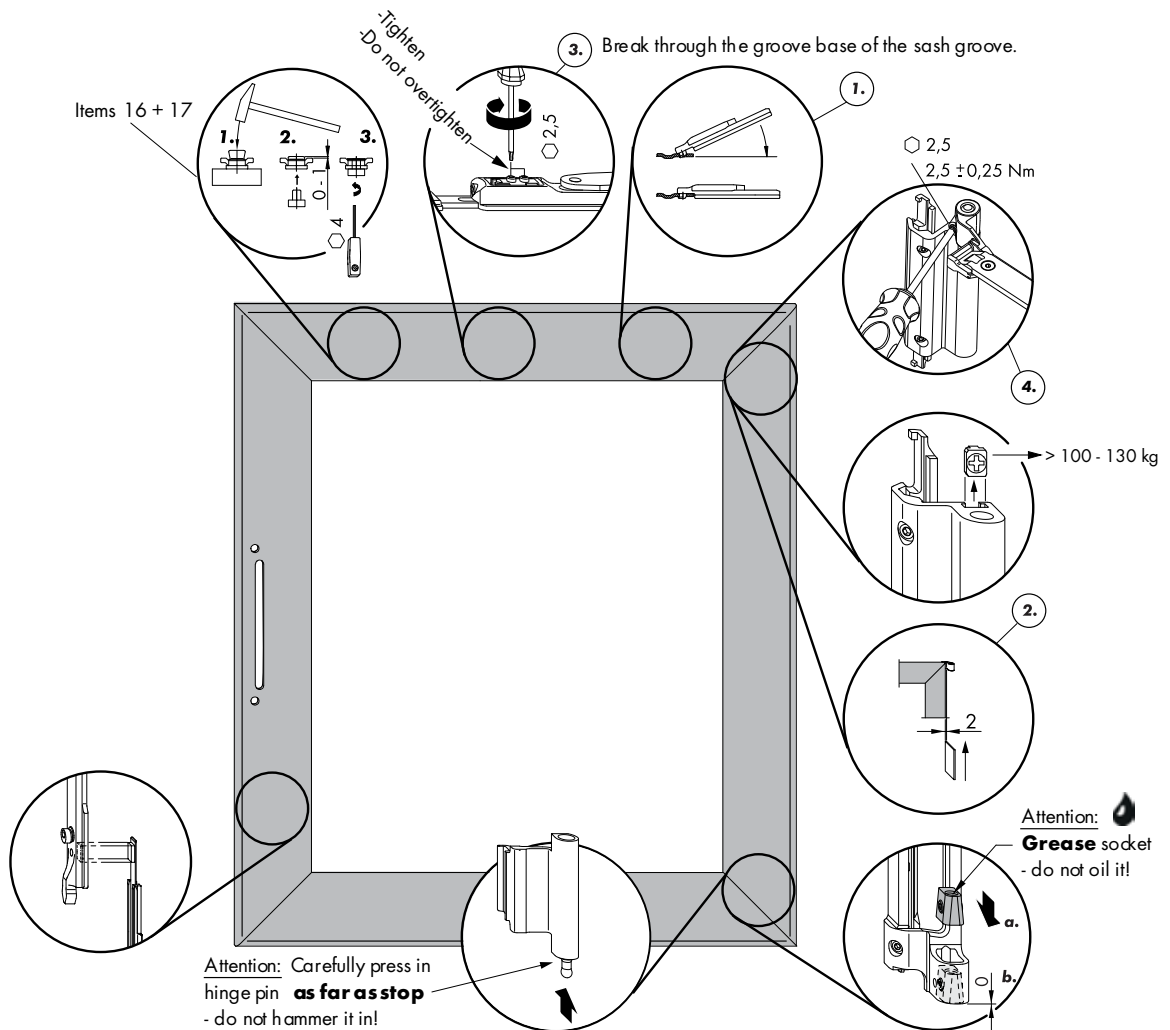
- without centre lock (3. - 4.)
- with centre lock (1. - 2. - 3. - 4.)

## Design variants for coupling set (items 30-32) (H1/H2)

USH	X	Material no.
7 - 10 mm	≤ 8.5 mm	MMKL0030-100030
7 - 10 mm	≤ 7.5 mm	MMKL0010-100030
12 mm	≤ 7 mm	MMKL0040-100030



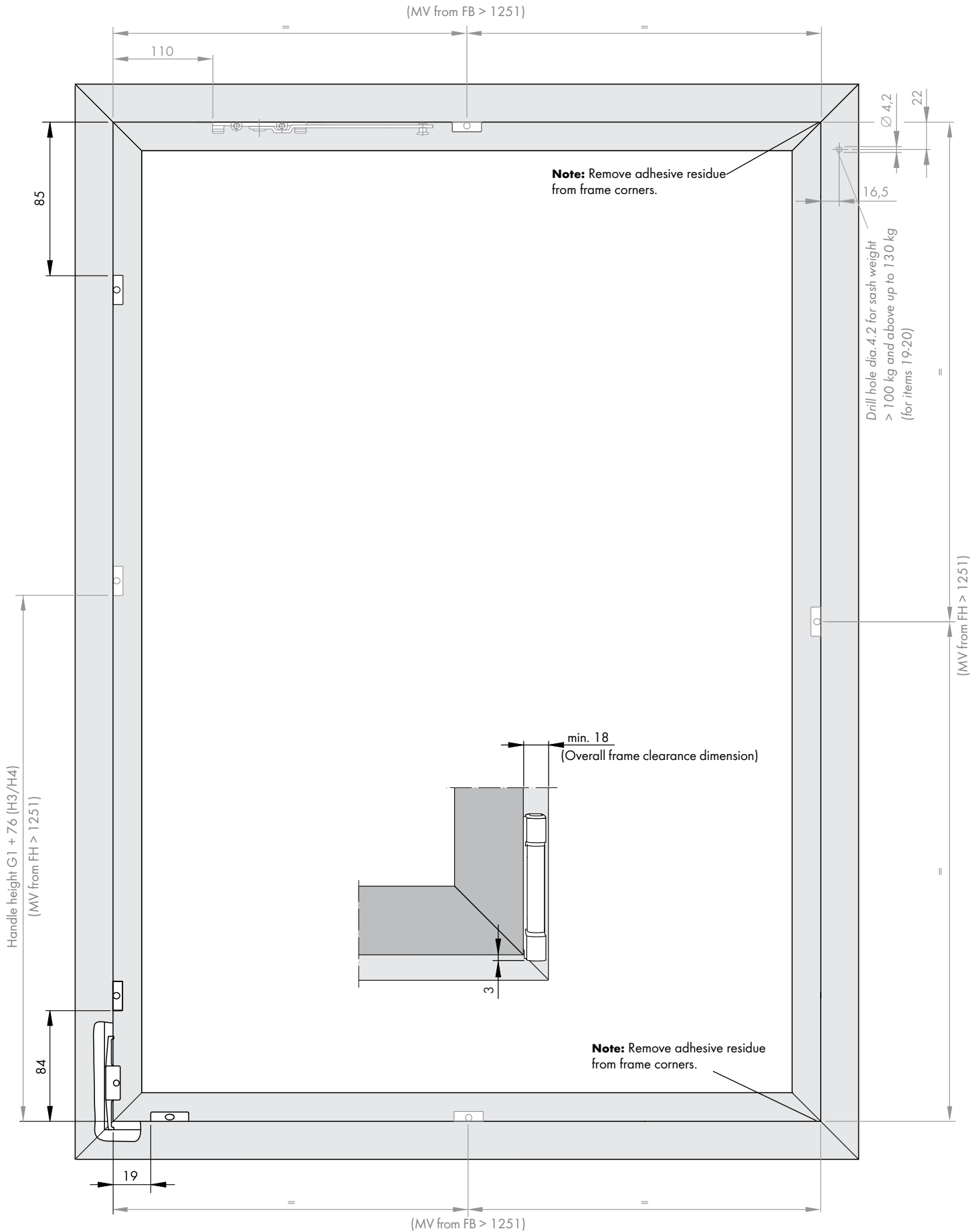
## Assembly settings and installation sequence ① to ④





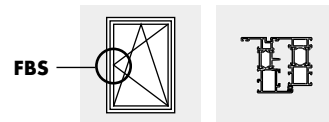


# ALU 5200-TBT BD 5 (FBS-G) Frame dimensions



# ALU 5200-TBT KPW

Tilt-before-turn hardware for  
hinge clearance (BD) 5 mm  
with mishandling device (FBS) on the gear (G)  
and horizontal tilt point (KPW)



**Size range** (depends on hardware)

		Windows		French doors
		min.	max.	max.
Sash width	(mm)	600 to 1600		1300
Sash height	(mm)	600 to 2000		2600
Sash weight	(kg)	<b>max. 100/150</b>		<b>max. 100/150</b>

**The following information from the aluminium planning manual must be observed:**

*Guidelines of the Gütegemeinschaft Schlösser und Beschläge e. V.  
(German quality association for locks and hardware)*

- Document no. H45.4200LS001EN

*Application diagrams:*

- Sash weight up to max. 100 kg: Document no. H58.AWDLMS003EN

- Sash weight up to max. 150 kg: Document no. H58.AWDLMS005EN

*Basic safety notes:*

- Document no. H45.5200LS001EN

*Abbreviations:*

- Document no. H45.5200LS002EN

*Adjustment options:*

- Document no. H45.5200LS004EN

*Profile recommendation:*

- Document no. H48.ZubhLS008EN

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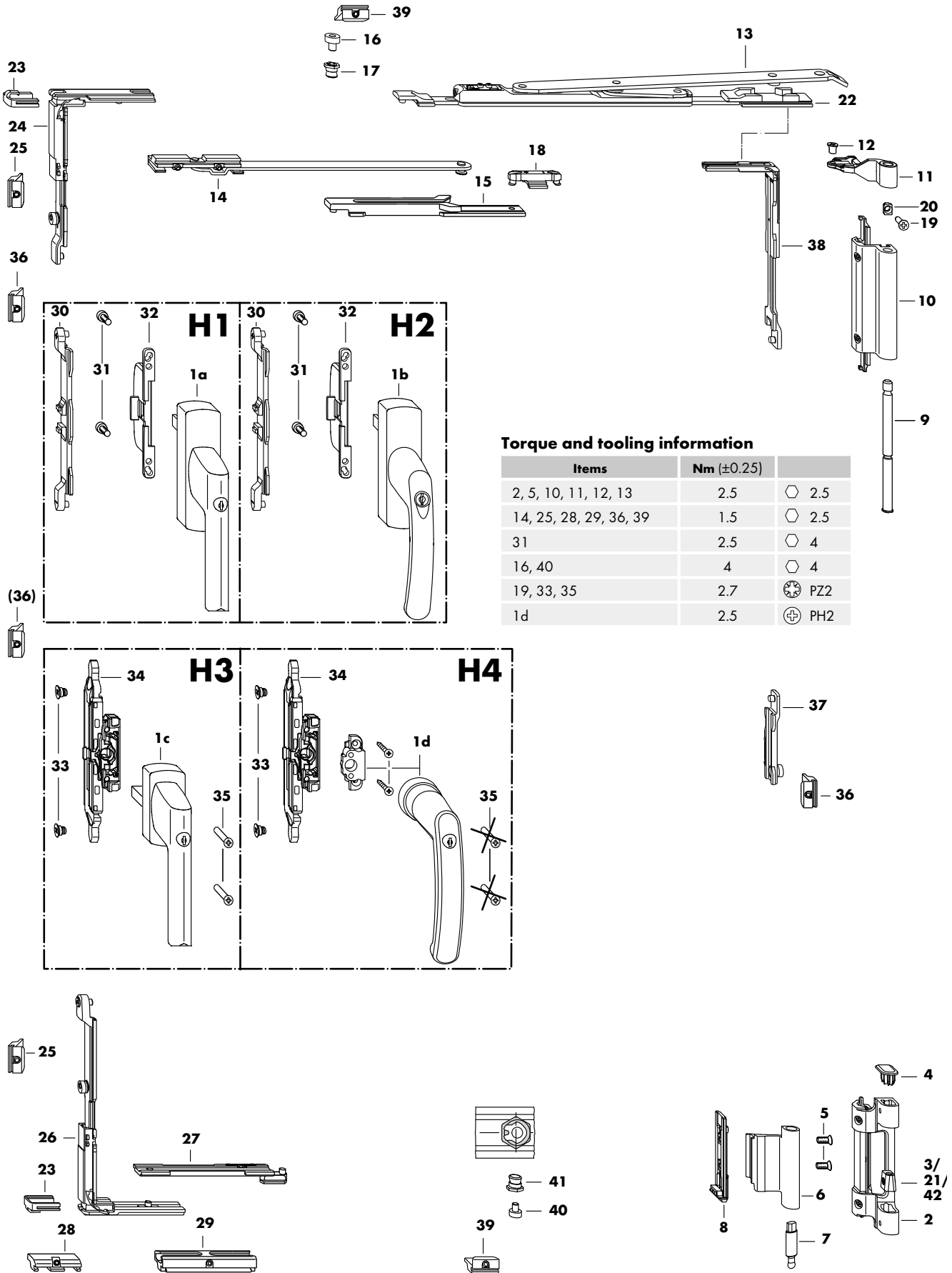
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Assembly instructions  
H48.5200LS008en

Technical specifications and colours are subject to change

H48.5200LS008en/0

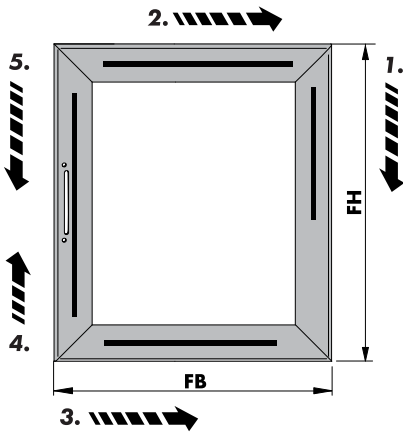
# ALU 5200-TBT BD 5 KPW (FBS-G) Hardware overview



## ALU 5200-TBT BD 5 KPW (FBS-G) Hardware list

	Item	Quantity	Description		VE		VE	
	H1	1a	<b>Handle LM Si-line lockable/TBT</b>	Only use in combination with coupling set	See ALU handle overview, document no.: H48.ZubhLS007en in ALU planning manual			
	H2	1b	<b>Handle LM Globe lockable/TBT</b>					
	H3	1c	<b>Handle TITAN lockable /TBT</b>		(□ 7 mm x 25, cam dia.10 mm)			
	H4	1d	<b>Handle LM round rose lockable/TBT</b>	Only use in combination with gear set	See Handle Globe RR, document no.: H48.ZubhLS006en in ALU planning manual			
		1	<b>Hinge side LM 5200 BD 5</b>	<b>Silver</b> <b>White</b> RAL 9016 <b>Black</b> RAL 9005 <b>EV1</b> <b>Mill finish</b>	<b>MMBS0230-525010</b> <b>MMBS0230-504010</b> <b>MMBS0230-523010</b> <b>MMBS0230-524010</b> -	<b>1</b> <b>1</b> <b>1</b> <b>1</b> -	<b>MMBS0230-525020</b> <b>MMBS0230-504020</b> <b>MMBS0230-523020</b> <b>MMBS0230-524020</b> <b>MMBS0230-500120</b>	<b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>5</b>
		2	Bottom hinge					
		3	Adjusting piece	(replaced by item 21 with sash weight >100 kg)				
		4	Cover cap					
		5	M5 x 8.5 countersunk screw					
		6	Corner hinge					
		7	Bottom hinge pin					
		8	Clamping piece E					
		9	Top hinge pin					
		10	Top hinge					
		11	Stay hinge bearing					
		12	M5 x 7.5 countersunk screw					
		13	<b>Stay LM</b>	Size 35      FB (mm) 600 to 1600      Weight	<b>884782</b>	<b>1</b>	<b>314 203</b>	<b>20</b>
According to FB/kg		0...1	<b>Additional stay LM</b>	From FB 1251 with stay size 35 <100 kg From FB 1020 with stay size 35>100 kg to 150 kg	<b>857076</b>	<b>1</b>	<b>247006</b>	<b>10</b>
		14	Additional stay					
		15	Striker plate					
		16	Locking cam					
		17	Eccentric rivet					
		18	<b>Stay striker MV</b>	(> 100 kg FB > 1021 mm) (< 100 kg FB > 1251)	<b>MXSK0010-100010</b>	<b>1</b>	<b>MXSK0010-100030</b>	<b>20</b>
According to sash weight		0...1	<b>Accessories set LM 5200 BD 5 150 kg</b>	> 100 kg to 150 kg	-	-	<b>MZBS0110-000030</b>	<b>20</b>
		19	M5 x 13 countersunk screw					
		20	Support bracket					
		21	Adjusting piece S					
		1	<b>Locking side LM-DK/TBT (horizontal tilt point) (for FBS on gear)</b>		<b>MMVS0400-100010</b>	<b>1</b>	<b>MMVS0400-100030</b>	<b>20</b>
		1	Locking bolt DK	(not used for TBT)				
		1	Locking bolt TBT					
		2	Clamping piece EUL					
		1	VSO corner drive					
		2	Striker					
		1	VSU corner drive					
		1	Tilt lock					
		1	Run-up block					
		1	Tilt lock					
H1 H2		0...1	<b>Coupling set LM (with FBS on gear)</b>	(9 mm) (10 mm) Only use in combination with H1/H2 (For notes on overlaps (USH) see page 4) (USH 12 mm)	<b>MMKL0030-100010</b> <b>MMKL0010-100010</b> <b>MMKL0040-100010</b>	<b>1</b> <b>1</b> <b>1</b>	<b>MMKL0030-100030</b> <b>MMKL0010-100030</b> <b>MMKL0040-100030</b>	<b>20</b> <b>20</b> <b>20</b>
		30	Coupling bracket					
		31	M5 x 12 cheese head screw					
		32	Mishandling device					
		0...1	<b>Gear set LM FBS (with FBS on gear)</b>	Only use in combination with H3/H4 (see drawing no. H48.ZubhLS005en)	<b>MMGI0080-100010</b>	<b>1</b>	<b>MMGI0080-100030</b>	<b>20</b>
		33	M6 coupling screw					
		34	M6 ESG FBS					
	35	M5 x 35 countersunk screw						
According to FH		0...1	<b>MV-LM DK/TBT</b>	FH > 1251 mm	<b>857045</b>	<b>1</b>	<b>246979</b>	<b>20</b>
		36	Striker					
		37	Slider					
		38	VSU/BSO corner drive					
According to FB		0...1	<b>MV LM RB/SF</b>	FB > 1251 mm	<b>894316</b>	<b>1</b>	<b>303917</b>	<b>20</b>
		39	Striker					
		40	Locking cam					
		41	Eccentric rivet					
Accessories		0...1	<b>Adjusting piece AV</b>	For compression + 0.5 mm	<b>MXBS0100-100010</b>	<b>1</b>	<b>MXBS0100-100030</b>	<b>20</b>

**Observe installation sequence**



Sequence of installation in sash

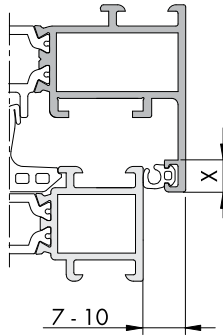
- without centre lock (2. - 3. - 4. - 5.)

- with centre lock (1. - 2. - 3. - 4. - 5.)

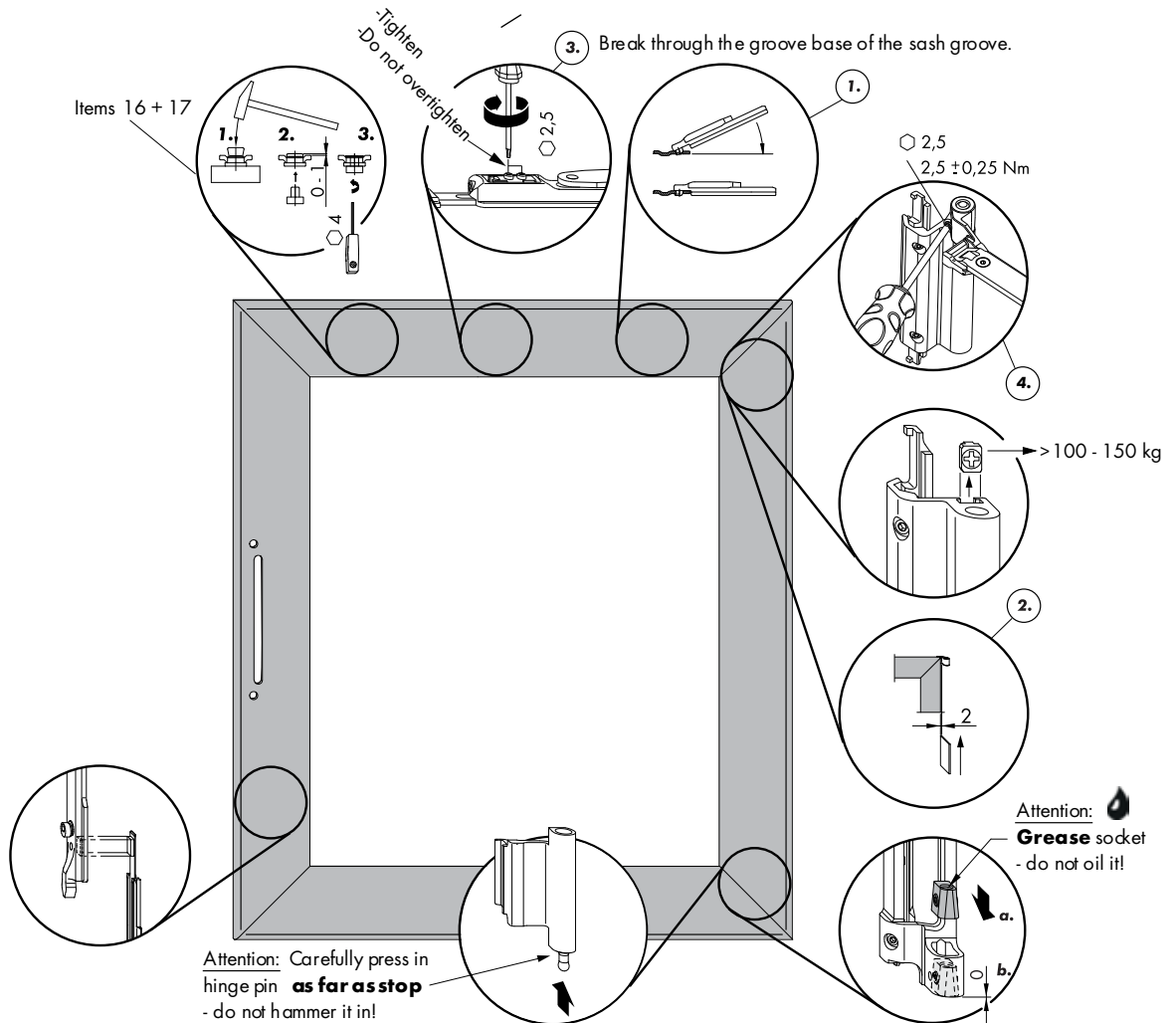
**Design variants for coupling set (items 30-32) (H1/H2)**

1) Overlap height (USH)

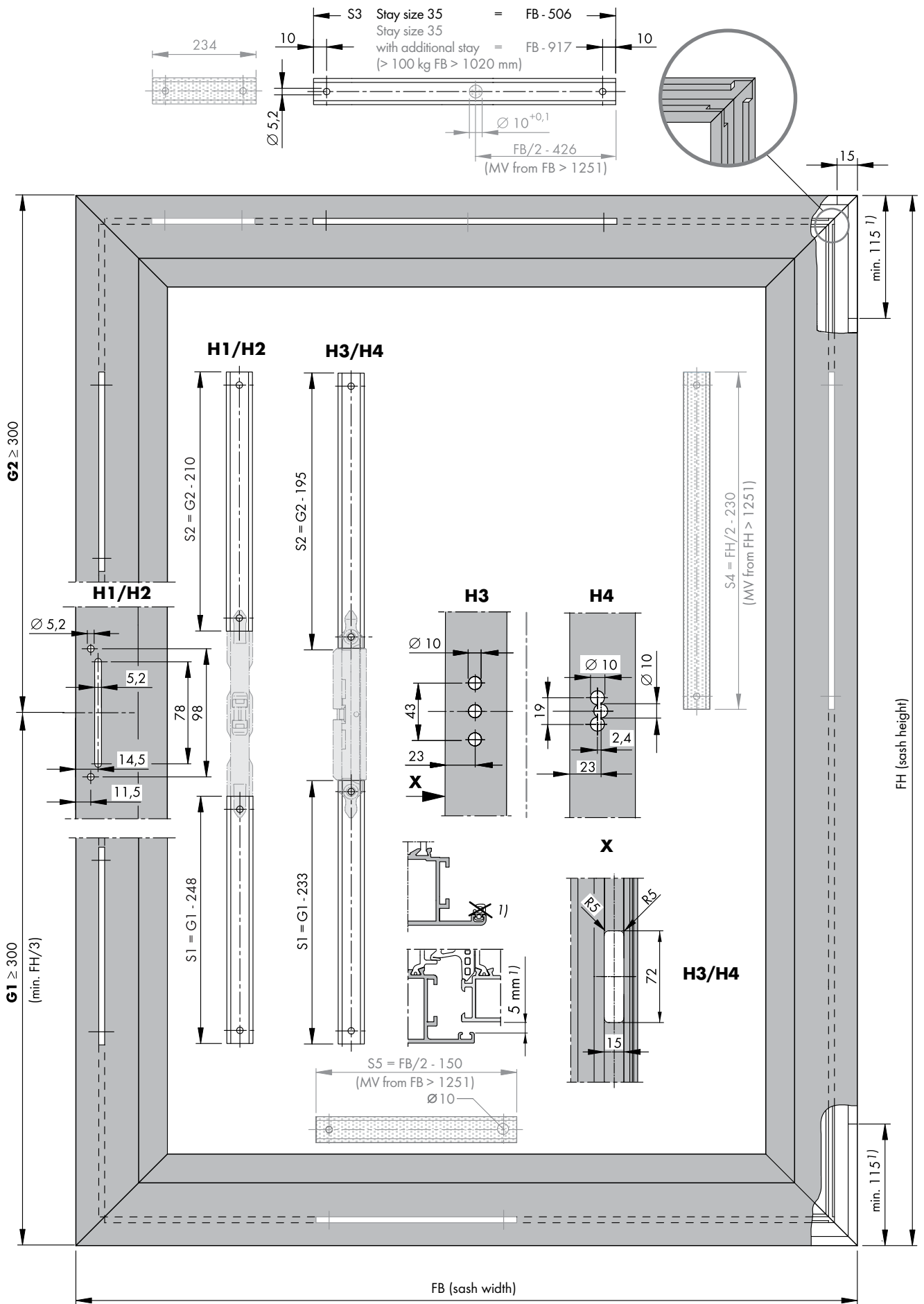
USH <sup>1)</sup>	X	Material no.
7 - 10 mm	≤ 8.5 mm	MMKL0030-100030
7 - 10 mm	≤ 7.5 mm	MMKL0010-100030
12 mm	≤ 7 mm	MMKL0040-100030



**Assembly settings and installation sequence (1.) to (4.)**

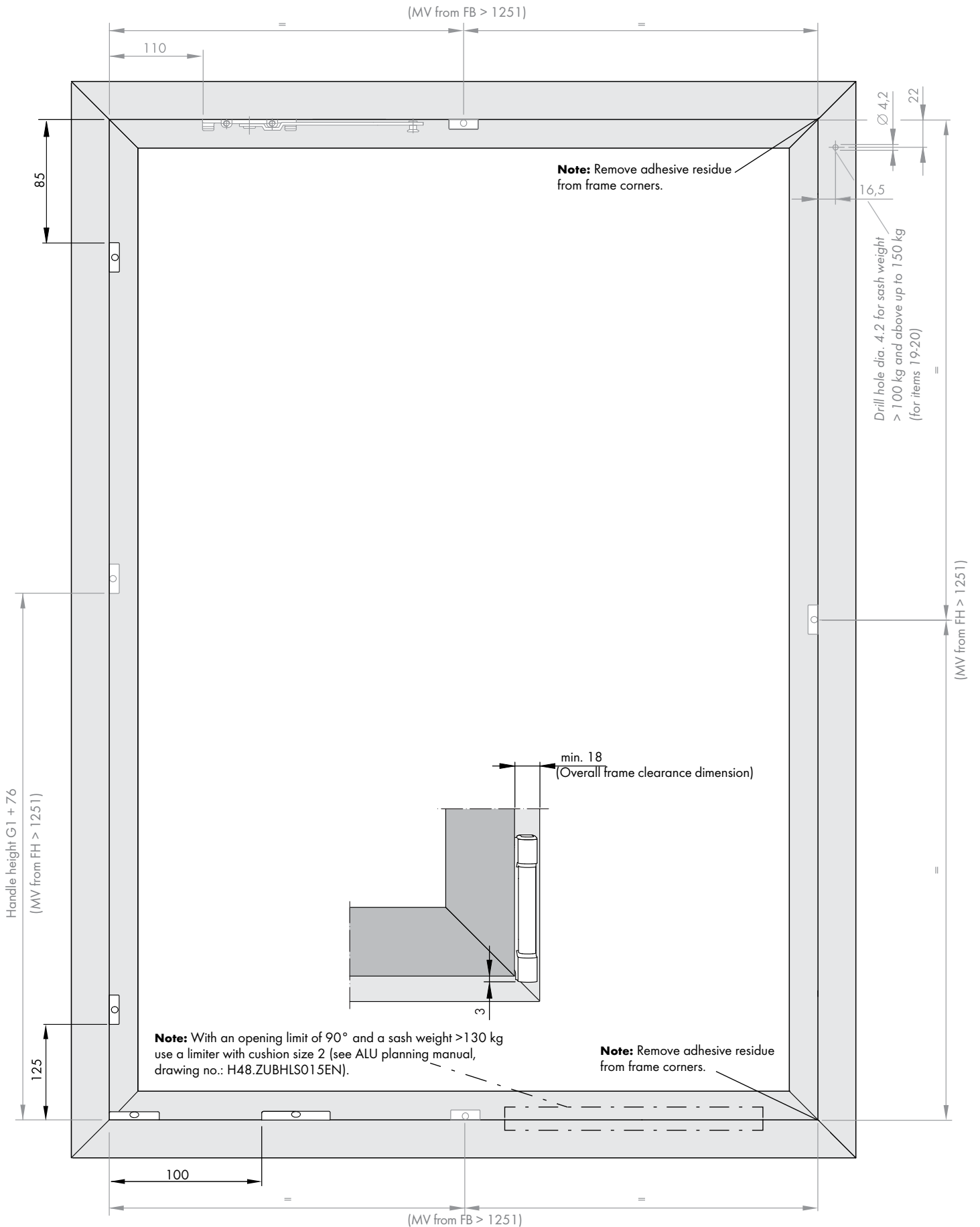


# ALU 5200-TBT BD 5 KPW (FBS-G) Sash dimensions



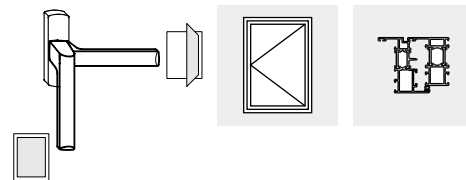
1) Remove the rebate seal in the hinge gap area.  
 Minimum gap 5 mm.

# ALU 5200-TBT BD 5 KPW (FBS-G) Frame dimensions



# ALU 5200-D

## Turning hardware for hinge clearance (BD) 5 mm



Technical specifications and colours are subject to change

### Size range (depends on hardware)

		Windows		French doors
		min.	max.	max.
Sash width	(mm)	365 to 1600		1300
Sash height	(mm)	550 to 2000		2600
Sash weight	(kg)	<b>max. 100/150</b>		<b>max. 100/150</b>

### The following information from the aluminium planning manual must be observed:

Guidelines of the Gütegemeinschaft Schlösser und Beschläge e. V.  
(German quality association for locks and hardware)

- Document no. H45.4200LS001EN

Application diagrams:

- Sash weight up to max. 100 kg: Document no. H58.AWDLMS003EN

- Sash weight up to max. 150 kg: Document no. H58.AWDLMS005EN

Basic safety notes:

- Document no. H45.5200LS001EN

Abbreviations:

- Document no. H45.5200LS002EN

Adjustment options:

- Document no. H45.5200LS004EN

Profile recommendation:

- Document no. H48.ZubhLS008EN

### Table of Contents

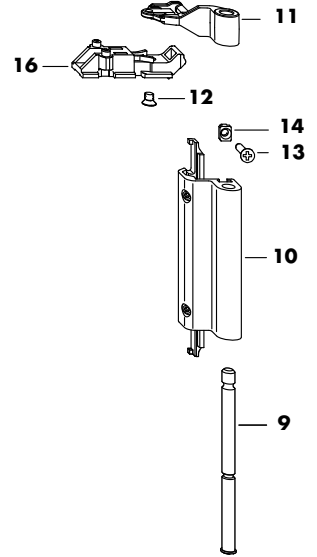
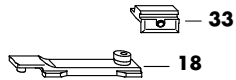
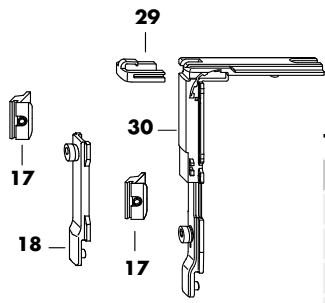
Size ranges .....	1
Hardware overview .....	2
Hardware list .....	3
Assembly and design variants .....	4
Sash dimensions .....	5
Frame dimensions .....	6

Assembly instructions  
H48.5200LS010en

H48.5200LS010en/0

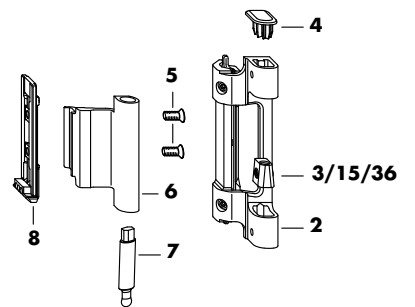
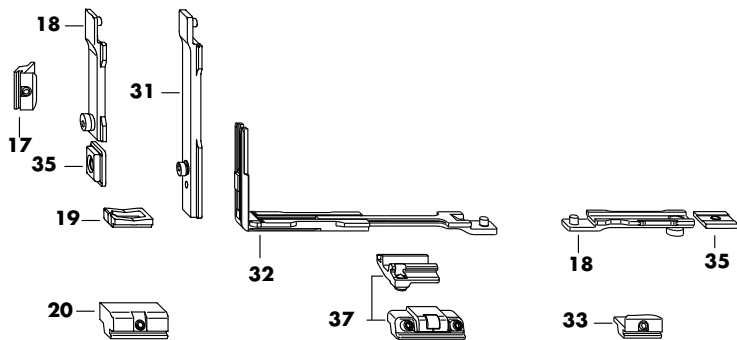
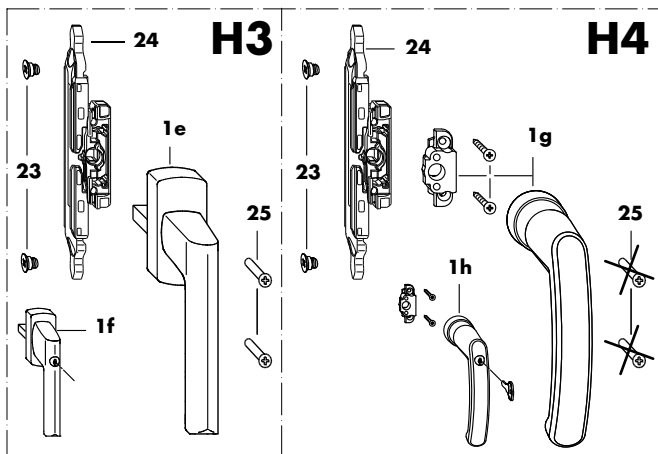
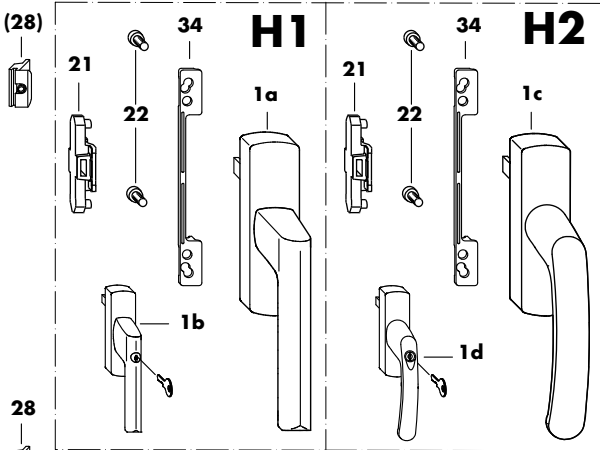


# ALU 5200-D BD5 Hardware overview



## Torque and tooling information

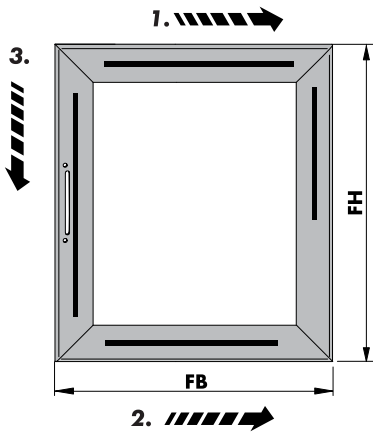
Items	Nm (±0.25)	
2, 5, 10, 11, 12	2.5	⬡ 2.5
17, 20, 26, 27, 28, 33.37	1.5	⬡ 2.5
22, 35	2.5	⬡ 4
13, 23, 25	2.7	⊕ PZ2
1g, 1h	2.5	⊕ PH2



## ALU 5200-D BD 5 Hardware list

	Item	Quantity	Description		VE		VE	
H1	1a	1	<b>Handle LM Si-line</b>	Only use in combination with coupling set	See ALU handle overview, document no.: H48.ZubhLS007en in ALU planning manual			
	1b		<b>Handle LM Si-line lockable</b>					
H2	1c		<b>Handle LM Globe</b>					
	1d		<b>Handle LM Globe lockable</b>					
H3	1e		<b>Handle TITAN</b>	Only use in combination with gear set				(□ 7 mm x 25, cam dia. 10 mm)
	1f		<b>Handle TITAN lockable</b>					
H4	1g		<b>Handle LM round rose</b>	See Handle Globe RR, document no.: H48.ZubhLS006en in ALU planning manual				
	1h		<b>Handle LM round rose lockable</b>					
	1	1	<b>Hinge side LM 5200 BD 5</b>	<b>Silver</b>	<b>MMBS0230-525010</b>	<b>1</b>	<b>MMBS0230-525020</b>	<b>10</b>
			<b>White</b> RAL 9016	<b>MMBS0230-504010</b>	<b>1</b>	<b>MMBS0230-504020</b>	<b>10</b>	
			<b>Black</b> RAL 9005	<b>MMBS0230-523010</b>	<b>1</b>	<b>MMBS0230-523020</b>	<b>10</b>	
			<b>EV1</b>	<b>MMBS0230-524010</b>	<b>1</b>	<b>MMBS0230-524020</b>	<b>10</b>	
			<b>Mill finish</b>	-	-	<b>MMBS0230-500120</b>	<b>5</b>	
	2	1	Bottom hinge					
	3	1	Adjusting piece S					
	4	1	Cover cap					
	5	2	M5 x 8.5 countersunk screw					
	6	1	Corner hinge					
	7	1	Bottom hinge pin					
	8	1	Clamping piece E					
9	1	Top hinge pin						
10	1	Top hinge						
11	1	Stay hinge						
12	1	M5 x 7.5 countersunk screw						
According to sash weight	0...1	0...1	<b>Accessories set LM 5200 BD 5 150 kg</b>	> 100 kg to 150 kg	-	-	<b>MZBS0110-000030</b>	<b>20</b>
	13	1	M5 x 13 countersunk screw					
	14	1	Support bracket					
	15	1	Adjusting piece S					
	1	1	<b>Locking side LM-D SDF</b>		<b>MMVS0280-100010</b>	<b>1</b>	<b>MMVS0280-100030</b>	<b>20</b>
	16	1	Stay LM-D					
	17	2	Striker					
	18	2	Slider					
	19	1	Run-up block					
	20	1	Run-up block TBT					
H1 H2	0...1	0...1	<b>Coupling set LM (without FBS on gear)</b>	Only use in combination with H1/H2	<b>MMKL0060-100010</b>	<b>1</b>	<b>MMKL0060-100030</b>	<b>20</b>
	21	1	Coupling bracket					
	22	2	M5 x 12 cheese head screw					
H3 H4	0...1	0...1	<b>Gear set LM (without FBS on gear)</b>	Only use in combination with H3/H4 (see drawing no. H48.ZubhLS005en)	<b>MMGI0090-100010</b>	<b>1</b>	<b>MMGI0090-100030</b>	<b>20</b>
	23	2	M6 coupling screw					
	24	1	M6 ESG					
	25	2	M5 x 3.5 countersunk screw					
According to FH	0...1	0...1	<b>MV LM-D (VS/BS)</b>	(FH > 1251 mm)	<b>857052</b>	<b>1</b>	<b>246986</b>	<b>20</b>
	26	1	Striker MV					
	27	1	Locking bolt					
	28	1	Striker					
According to FB	0...1	0...1	<b>MV LM-D (VSU/VSO)</b>	(FB > 1251 mm)	<b>MMMV0040-100010</b>	<b>1</b>	<b>MMMV0040-100030</b>	<b>20</b>
	29	1	Clamping piece EUL					
	30	1	VSO corner drive					
	31	1	Locking bolt					
	32	1	VSU/BSO corner drive					
	33	2	Striker					
Accessories	0...1	0...1	<b>Handle support LM</b>	Only use in combination with H1/H2	-	-	(see table on page 4)	<b>200</b>
	35	0...1	<b>Stop</b>		<b>820544</b>	<b>1</b>	<b>222805</b>	<b>10</b>
	36	0...1	<b>Adjusting piece AV</b>	For compression + 0.5 mm	<b>MXBS0100-100010</b>	<b>1</b>	<b>MXBS0100-100030</b>	<b>20</b>
	37	0...1	<b>Sash lift LM</b>	(see drawing no. H48.ZubhLS014en)	<b>MMFH0010-100010</b>	<b>1</b>	<b>MMFH0010-100030</b>	<b>20</b>

**Observe installation sequence**

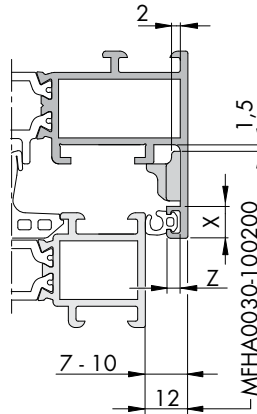


Sequence of installation in sash

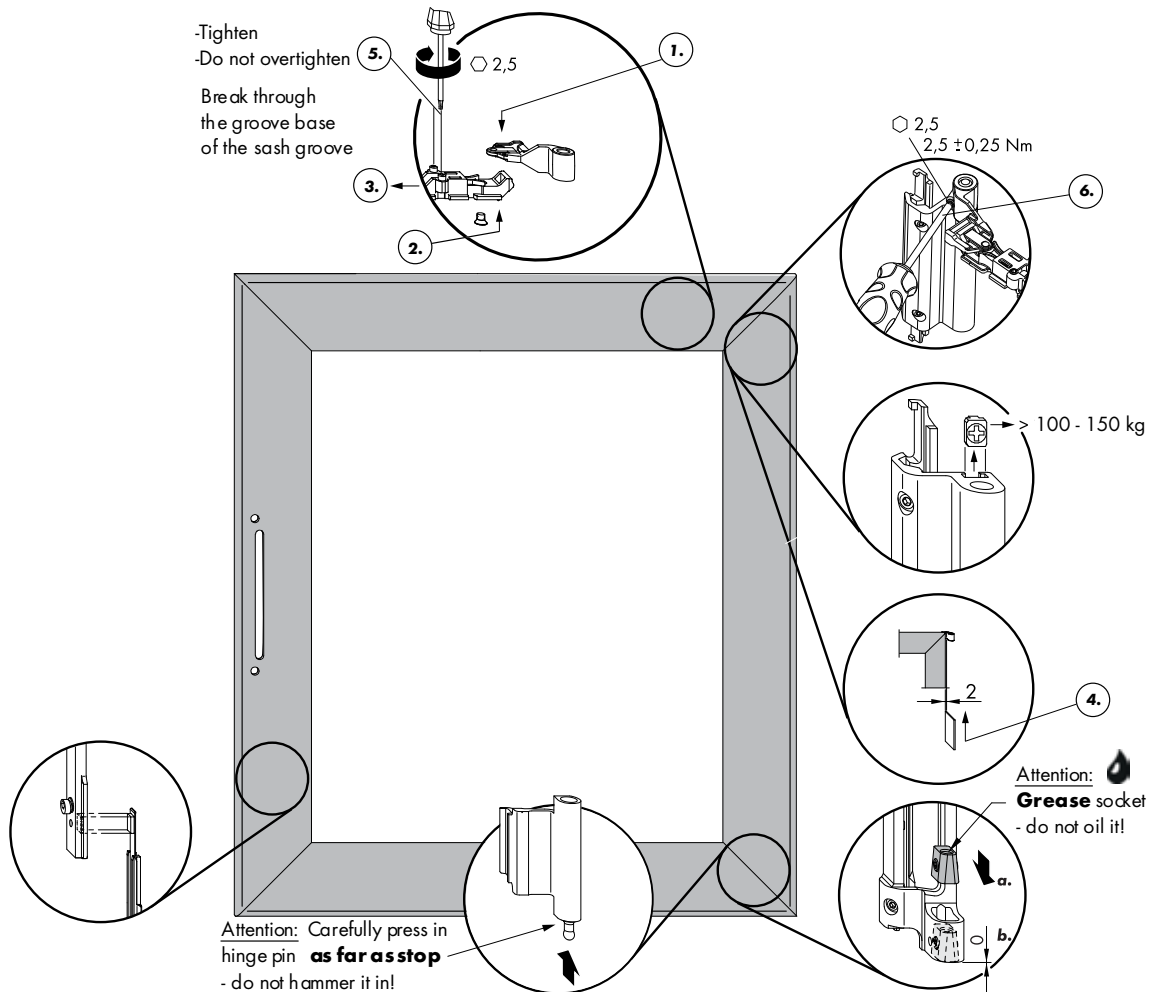
- without centre lock (3.)
- with centre lock (1. - 2. - 3.)

**Design variants for the handle support (item 34) (H1/H2)**

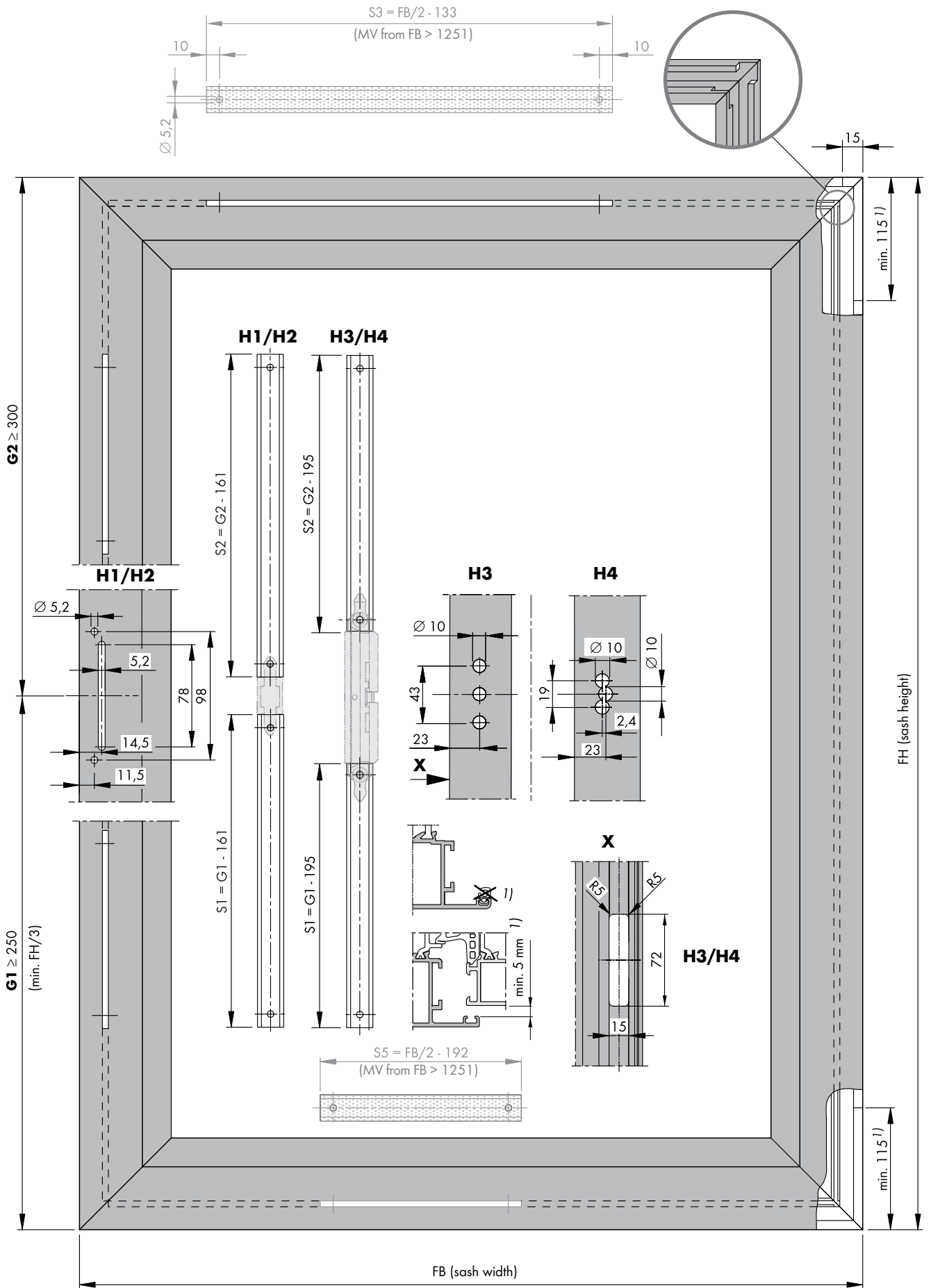
USH	Z	X < 7 mm	X 7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-



**Assembly settings and installation sequence (1.) to (6.)**

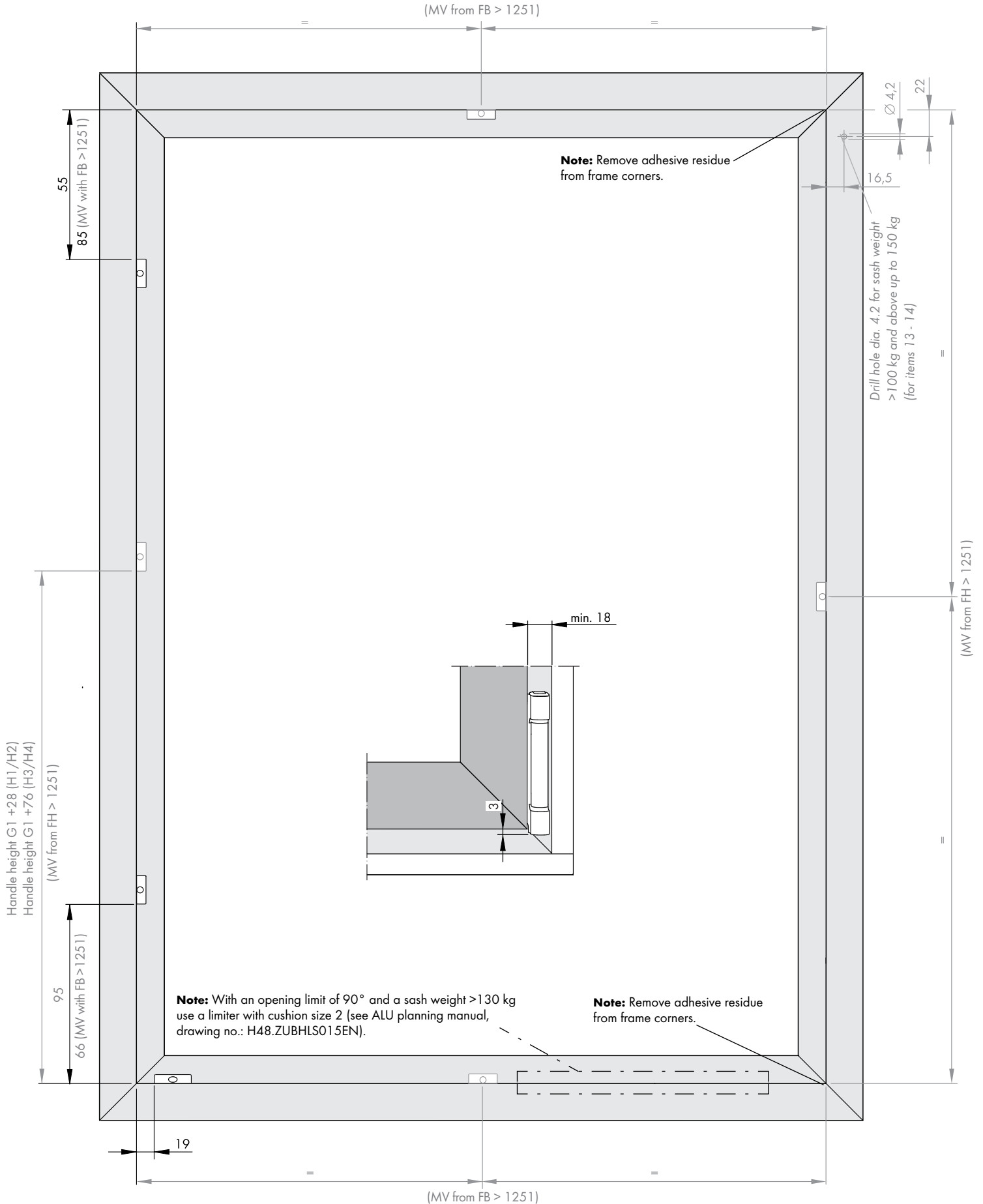


# ALU 5200-D BD 5 Sash dimensions



1) Remove the rebate seal in the hinge gap area.  
Minimum gap 5 mm.

# ALU 5200-D BD 5 Frame dimensions



# LM 4200-DK

Clampable rotating tilt fitting for aluminium windows and portal doors

Hardware certified in accordance with **QM 328**



Further details and specifications/information regarding the product and liability (guidelines: VHBH, TBDK and VHBE) can be found in the aluminium planning manual (H4006.0125EN) and **must** be observed.

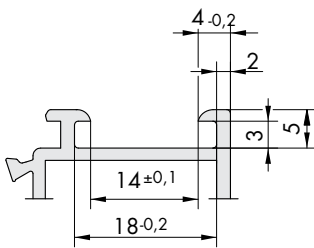
All dimensions given are final dimensions after the surface of the sections has been treated (painted, power coated etc.).

## Correct use

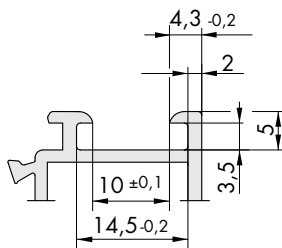
### Profile selection/alignment

#### Frame designs

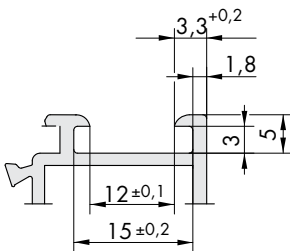
##### A0004



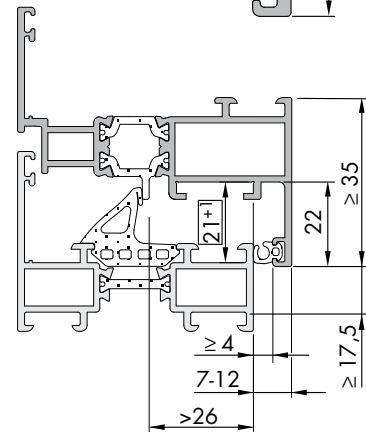
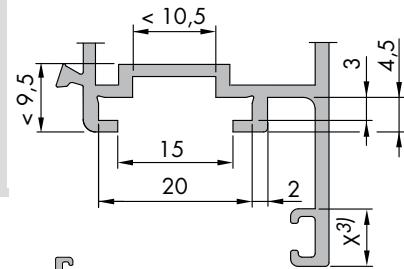
##### A0006



##### A0022

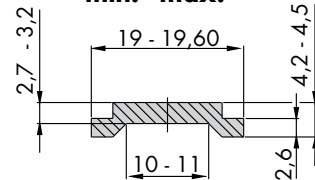


## Sash and frame dimensions



## Operating rod dimensions

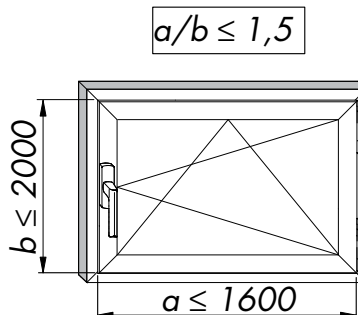
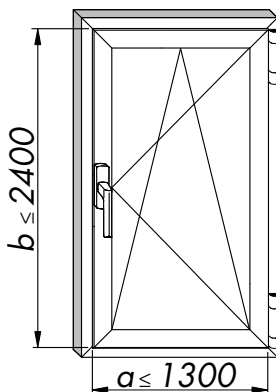
min. - max.



## All dimensions in mm

Sash width <sup>1)</sup>	(a)	min. 365 - max. 1600
Sash height <sup>1)</sup>	(b)	min. 550 - max. 2400
Sash weight <sup>1)</sup>	(c)	max. 100/130 kg <sup>2)</sup>

- 1) See diagram on page 4.
- 2) Using bag "accessory LM 4200 130 kg" and "additional stay LM", a ≥ 1,020 mm.
- 3) See table on page 3.



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Jig, abbreviations, pressure adjustment and diagram.....	Page 4
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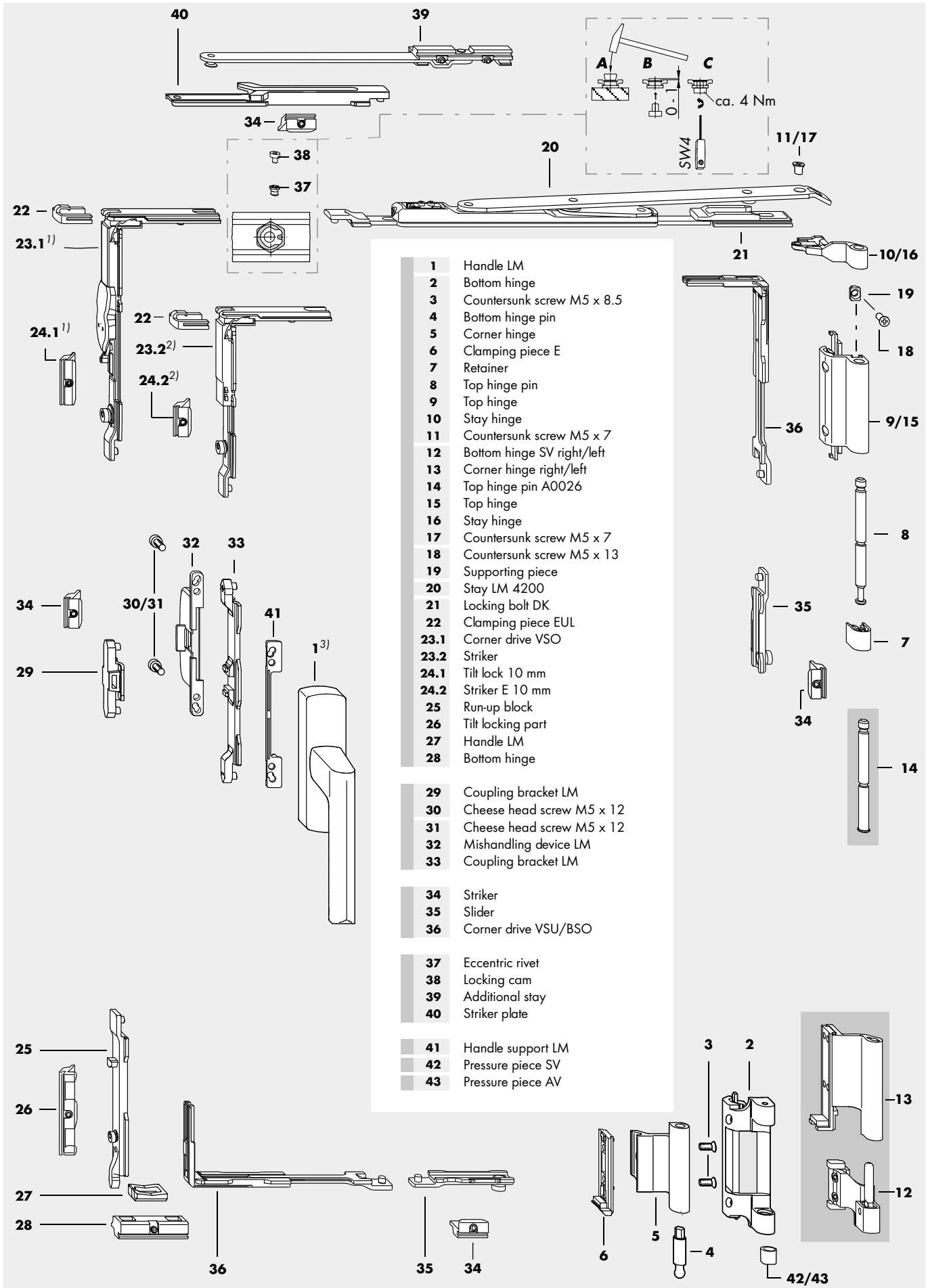
# Assembly Instructions

LMen1362

Technical specifications and colours are subject to change

LMen1362\_3\_2011-11/0

# LM 4200-DK Hardware layout



- 1 Handle LM
- 2 Bottom hinge
- 3 Countersunk screw M5 x 8.5
- 4 Bottom hinge pin
- 5 Corner hinge
- 6 Clamping piece E
- 7 Retainer
- 8 Top hinge pin
- 9 Top hinge
- 10 Stay hinge
- 11 Countersunk screw M5 x 7
- 12 Bottom hinge SV right/left
- 13 Corner hinge right/left
- 14 Top hinge pin A0026
- 15 Top hinge
- 16 Stay hinge
- 17 Countersunk screw M5 x 7
- 18 Countersunk screw M5 x 13
- 19 Supporting piece
- 20 Stay LM 4200
- 21 Locking bolt DK
- 22 Clamping piece EUL
- 23.1 Corner drive VSO
- 23.2 Striker
- 24.1 Tilt lock 10 mm
- 24.2 Striker E 10 mm
- 25 Run-up block
- 26 Tilt locking part
- 27 Handle LM
- 28 Bottom hinge
- 29 Coupling bracket LM
- 30 Cheese head screw M5 x 12
- 31 Cheese head screw M5 x 12
- 32 Mishandling device LM
- 33 Coupling bracket LM
- 34 Striker
- 35 Slider
- 36 Corner drive VSU/BSO
- 37 Eccentric rivet
- 38 Locking cam
- 39 Additional stay
- 40 Striker plate
- 41 Handle support LM
- 42 Pressure piece SV
- 43 Pressure piece AV

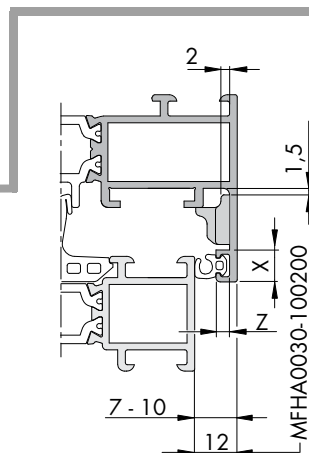
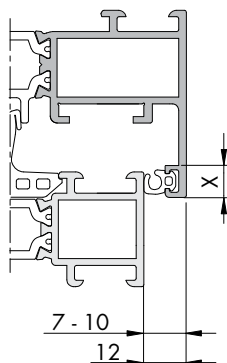
# LM 4200-DK Hardware list

Item	Design		Description	Image	Material no.	Image	Material no.		
	Left	Right							
1	1		<b>Handle LM</b>		See handle overview LM	Drawing no.: LMen1337			
2-11	1		<b>BS LM 4200</b>	<b>Silver</b>	1	<b>MMBS0010-525010</b>	<b>10</b> <b>MMBS0010-525020</b>		
	1			<b>Brown</b>	1	<b>MMBS0010-533010</b>	<b>10</b> <b>MMBS0010-533020</b>		
	1			<b>White RAL 9010</b>	1	<b>MMBS0010-503010</b>	<b>10</b> <b>MMBS0010-503020</b>		
	1			<b>White RAL 9016</b>	1	<b>MMBS0010-504010</b>	<b>10</b> <b>MMBS0010-504020</b>		
	1			<b>Black RAL 9005</b>	1	<b>MMBS0010-523010</b>	<b>10</b> <b>MMBS0010-523020</b>		
	1			<b>EV1</b>	1	<b>MMBS0010-524010</b>	<b>10</b> <b>MMBS0010-524020</b>		
	1			<b>Mill finish</b>	-	-	<b>5</b> <b>246887</b>		
	12-17	-	1	<b>BS LM 4200/SV right</b>	<b>Silver</b>	1	<b>MMBS0031-525011</b>	<b>10</b> <b>MMBS0031-525021</b>	
		-	1		<b>Brown</b>	1	<b>MMBS0031-533011</b>	<b>10</b> <b>MMBS0031-533021</b>	
		-	1		<b>White RAL 9016</b>	1	<b>MMBS0031-504011</b>	<b>10</b> <b>MMBS0031-504021</b>	
-		1		<b>Black RAL 9005</b>	1	<b>MMBS0031-523011</b>	<b>10</b> <b>MMBS0031-523021</b>		
1		-	<b>BS LM 4200/SV left</b>	<b>Silver</b>	1	<b>MMBS0032-525011</b>	<b>10</b> <b>MMBS0032-525021</b>		
1	-		<b>Brown</b>	1	<b>MMBS0032-533011</b>	<b>10</b> <b>MMBS0032-533021</b>			
1	-		<b>White RAL 9016</b>	1	<b>MMBS0032-504011</b>	<b>10</b> <b>MMBS0032-504021</b>			
1	-		<b>Black RAL 9005</b>	1	<b>MMBS0032-523011</b>	<b>10</b> <b>MMBS0032-523021</b>			
18-19	0...1		<b>Accessories LM 4200 130 kg</b>	Sash weight 100 kg and up	1	-	<b>20</b> <b>247037</b>		
20	1		<b>Stay LM 4200</b> 1) up to max. 100 kg sash weight	Size	a (in mm)	1	884805	20	273098
				20 <sup>1)</sup>	365 to 600				
				35	601 to 1,250				
				35 <sup>2)</sup>	1,251 to 1,600				
			2) with additional stay LM	35 <sup>2)</sup>	1,251 to 1,600	1	884782	20	314203
			3) 100 - 130 kg with additional stay LM	35 <sup>3)</sup>	1,020 to 1,600	1	884782	20	314203
21-28	0...1		<b>VS LM-DK FBS-EUL KPS</b>		1	<b>MMV50310-100010</b>	<b>20</b> <b>MMV50310-100030</b>		
	0...1		<b>VS LM-DK KPS</b>		1	<b>MMV50250-100010</b>	<b>20</b> <b>MMV50250-100030</b>		
29-30	1		<b>Coupling set LM A0156</b>		1	<b>MMKL0060-100010</b>	<b>20</b> <b>MMKL0060-100030</b>		
31-33	0...1		<b>Coupling set FBS-G</b>	<b>9 mm</b>	1	<b>MMKL0030-100010</b>	<b>20</b> <b>MMKL0030-100030</b>		
	0...1			<b>10 mm</b>	1	<b>MMKL0010-100010</b>	<b>20</b> <b>MMKL0010-100030</b>		
	0...1			<b>USH 12 mm</b>	1	<b>MMKL0040-100010</b>	<b>20</b> <b>MMKL0040-100030</b>		
34-36	0...2		<b>MV LM 4200-DK</b>	a/b ≥ 1,250 mm	1	<b>857045</b>	<b>20</b> <b>246979</b>		
37-40	0...1		<b>Additional stay LM 4200</b>	a ≥ 1,251 mm with stay SZ 35 (> 100 kg a ≥ 1,020 mm)	1	<b>857076</b>	<b>10</b> <b>247006</b>		
<b>Accessories</b>									
41	0...1		<b>Handle support LM</b>	Only for use with VS LM-DK FBS-EUL KPS	-	-	<b>200</b> See table		
42	0...1		<b>Pressure piece SV (only for BS LM 4200)</b>	For width adjustment ± 0.8 mm	1	<b>818138</b>	<b>20</b> <b>222041</b>		
43	0...1		<b>Pressure piece AV (only for BS LM 4200)</b>	For width pressure adjustment ± 0.5 mm	1	<b>855133</b>	<b>20</b> <b>249796</b>		

## Design variations for coupling set

### FBS-G (31 - 33)

USH	X	Material no.
7 - 10 mm	≤ 8.5 mm	MMKL0030-100030
7 - 10 mm	≤ 7.5 mm	MMKL0010-100030
12 mm	≤ 7 mm	MMKL0040-100030

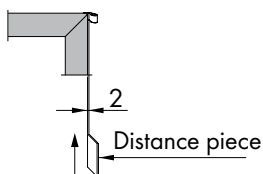


## Design variations for handle support (41)

USH	Z	X	
		< 7 mm	7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-



# LM 4200-DK Jig, abbreviations, pressure adjustment and diagram

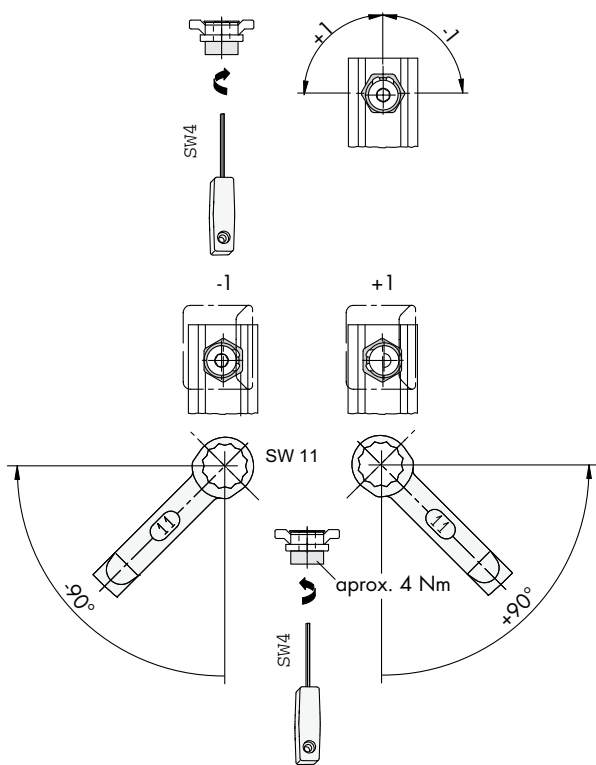


## Abbreviations

The following abbreviations are used in these assembly instructions:

a	Sash width
AV	Pressure adjustment
b	Sash height
b1	Handle height, bottom
b2	Handle height, top
BS	Hinge side
BSO	Hinge side, top
BSU	Hinge side, bottom
EV1	Anodised
ESLG	Brushed stainless steel-look
FBS-G	Mishandling device on handle
FBS-EUL	Mishandling device in corner drive
KPS	Tilt point vertical
MV	Centre lock
Nm	Torque in Nm
SV	Side adjustment
SW	Key dimension
VS	Locking side
VSO	Locking side, top
VSU	Locking side, bottom
USH	Rebate height
S1	Operating rod, locking side bottom
S2	Operating rod, locking side top
S3	Operating rod, top horizontal
S4	Operating rod, hinge side
S5	Operating rod, bottom horizontal

Description	
<b>Assembly device for mounting stays</b>	Manufacture own suitable distance piece with 2 mm thickness and insert between sash frames and stay hinge. Fasten stay.
<b>Required tools</b>	See assembly instructions LMen1200
<b>Pressure adjustment approx. ±1</b>	For eccentric rivet (37) and locking cam (38)



<b>Further adjustment options</b>	See maintenance/care instructions Order no. 19748
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## Diagram for determining allowable sash size

For glass thicknesses less than 12 mm, all sash sizes which are within the size range and do not exceed a width to height ratio FB/FH of 1.5 are allowed.

Maximum allowable sash weight: 130 kg

Glass thickness (mm)	Weight (kg/m <sup>2</sup> )
28	70
24	60
20	50
16	40
12	30

Example (---):  
 Sash height = 1,800 mm  
 Glass thickness = 24 mm  
 Maximum allowable sash width = **1,205 mm**

**All text passages marked with ">" are for sash width and sash height  $\geq 1,250$  mm.**

### Preparation

- A** Make punch out for handle LM (1).
- B** Open the operating rod guiding groove.
- C** Remove the rebate seal in the area through which the hinges pass and rework the sash profile according to the specifications on page 6.
- D** Rework operating rods S1 - S5 according to the specifications on page 6.
- > E** Install eccentric rivet (37) and locking cam (38) on S3 as shown (see page 2).

### Sash

- > A** Insert slider (page 2: 35) with operating rod S4 and corner drive VSU/BSO (36) vertically on the BSO.
- B** Insert slider DK (21), stay LM 4200 (20) and operating rod S3 horizontally on the VSO.
- > C** Insert locking bolt DK (21), stay LM 4200 (20), operating rod S3 and striker plate (40) horizontally on the VSO.
- > D** Couple locking bolt DK (21) with corner drive VSU/BSO (36). Make sure positioning of the coupling piece for corner drive VSU/BSO (36) is correct.
- E** Attach stay hinge (10/16) and stay LM 4200 (20) using countersunk screw M5 x 7 (11/17) (torque  $2.5 \pm 0.25$  Nm).
- F** Position stay hinge (10/16) according to specifications on page 4 and fasten stay LM 4200 (20) with punching screws.
- > G** Insert slider (35) with operating rod S5 and corner drive VSU/BSO (36) vertically on the VSU.
- H** Insert tilt lock 10 mm (25), operating rod S1, coupling bracket LM (29/33), operating rod S2 and corner drive VSO (23.1/23.2) vertically on the VSO.
- > I** Couple tilt lock 10 mm (25) with corner drive VSU/BSO (36). Make sure positioning of coupling piece for corner drive VSU/BSO (36) is correct (Figure 1).
- J** Couple corner drive VSO (23.1/23.2) with operating rod S3 "striking plate (40)" and secure with clamping piece EUL (22).
- K** Insert run-up block (27) horizontally on the VSU.
- L** Attach handle LM (1) with cheese head screws M5 x 12 (30) (torque  $2.5 \pm 0.25$  Nm).  
Make sure the handle catch closes into the coupling bracket LM (29).
- L** Attach mishandling device LM on rebate (32) with cheese head screws M5 x 12 (31) to handle LM (1) (torque  $2.5 \pm 0.25$  Nm). Make sure the handle catch closes into the coupling bracket LM (33).
- L** Press bottom hinge pin (4) into corner hinge (5) DIN right or DIN left.
- M** Insert clamping piece E (6) vertically on the BSU and attach corner hinge (5) using countersunk screws M5 x 8.5 (3) (torque  $2.5 \pm 0.25$  Nm).
- N** Insert corner hinge right/left (13) into the sash groove and fasten with the pre-installed countersunk screws M5 x 8.5 (torque  $2.5 \pm 0.25$  Nm).

FBS-EUL



FBS-G

BS LM 4200

BS LM 4200

BS LM 4200/SV

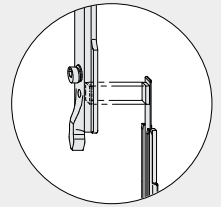


Figure 1

### Frame

- A** For sashes weighing more than 100 kg, fasten the supporting piece (19) to the frame using countersunk screws M5 x 13 (18) (torque  $2.5 \pm 0.25$  Nm) (see page 7).
- B** Position bottom hinge (2) and top hinge (9) and fix both in place by tightening the cheese head screws (torque  $2.5 \pm 0.25$  Nm).
- B** Position bottom hinge SV right/left (12) and top hinge (15) and fix both in place by tightening the cheese head screws (torque  $2.5 \pm 0.25$  Nm).
- C** Connect top hinge pin (8) with retainer (7) and insert into the top hinge (9) from underneath.
- C** Insert top hinge pin A0026 (14) into top hinge (15) from below.
- D** Position striker EUL/FBS (24.1)/striker (24.2), striker E 10 mm (26) and tilt locking part (28) according to specifications on page 7 and fix each in place using grub screws (torque  $1.5 \pm 0.25$  Nm).
- > E** Position strikers (34) on the BS and VS according to specifications on page 7 and fix each in place with grub screws (torque  $1.5 \pm 0.25$  Nm).
- > F** Position strikers (34) on the VSU and VSO according to specifications on page 7 and fix each in place with grub screws (torque  $1.5 \pm 0.25$  Nm).
- > G** For sash widths from 1,251 mm to 1,600 mm and/or sash weights in excess of 100 kg (sash width min. 1,020 mm), use additional stay LM 4200 (39) and position according to specifications on page 7 (torque  $2.5 \pm 0.25$  Nm).

### Final installation

- A** Hinge the sash. Push top hinge pin (8/14) through and snap into place.
- B** Top hinge pin (8/14) must be secured in the stay hinge (10/16) with a grub screw (torque  $2.5 \pm 0.25$  Nm) (see Figure 2).
- C** Check that the window works correctly.

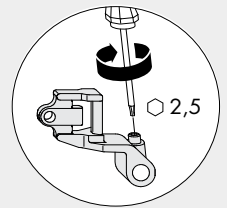


Figure 2

### Making adjustments

BS LM 4200  
BS LM 4200/SV

- A** Width adjustment:
  - continuous using stay LM 4200 (20) +2 mm / - 3 mm
  - continuous using pressure piece SV (42)  $\pm 0.8$  mm
  - continuous using bottom hinge SV right/left (12)  $\pm 1$  mm (make adjustment after glazing, under load and with the sash open)
- B** Height adjustment:
  - after removal of the top pressure piece from the bottom hinge (2) using 4 mm hexagon socket screw in corner hinge (5) +1.5 / - 1 mm for FH  $\leq 1,600$  mm in tilt position, for FH  $\geq 1,600$  mm in turn position using 4 mm hexagon socket screw in corner hinge right/left (13) +2 / -1 mm
- C** Pressure adjustment:
  - using eccentric locking cam
  - pressure piece AV (43)  $\pm 0.5$  mm

BS LM 4200  
BS LM 4200

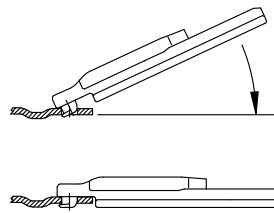
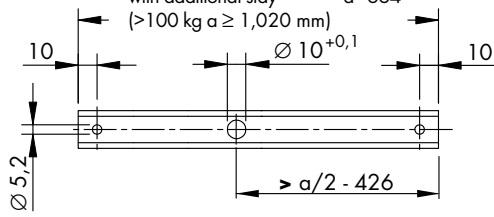
BS LM 4200/SV

BS LM 4200

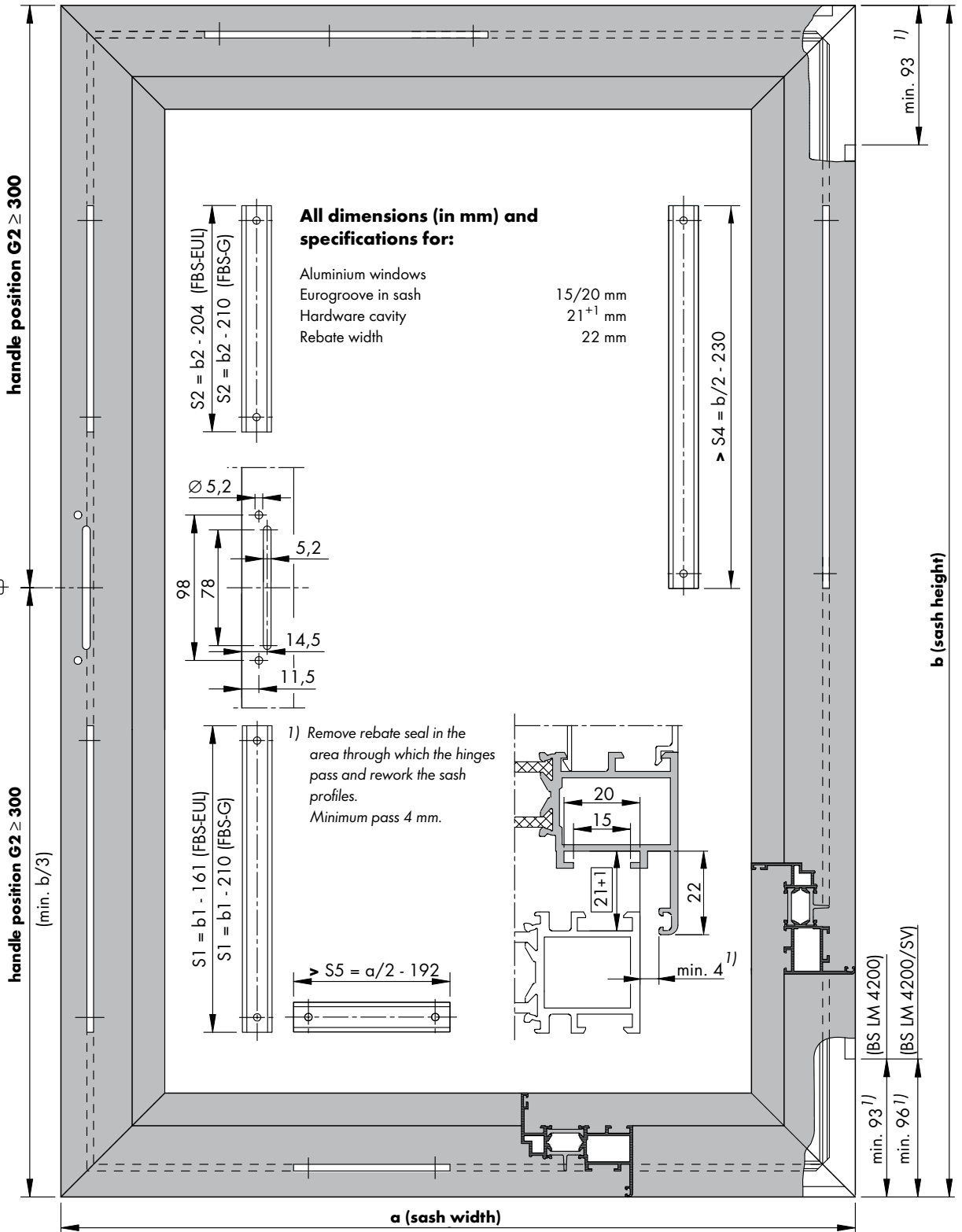
# LM 4200-DK Sash dimensions

- S3 stay SZ 20 = a - 338
- Stay SZ 35 = a - 506
- > Stay SZ 35 with additional stay = a - 664 (>100 kg a ≥ 1,020 mm)

All text passages marked with "1)" are for sash width and sash height ≥ 1,250 mm.



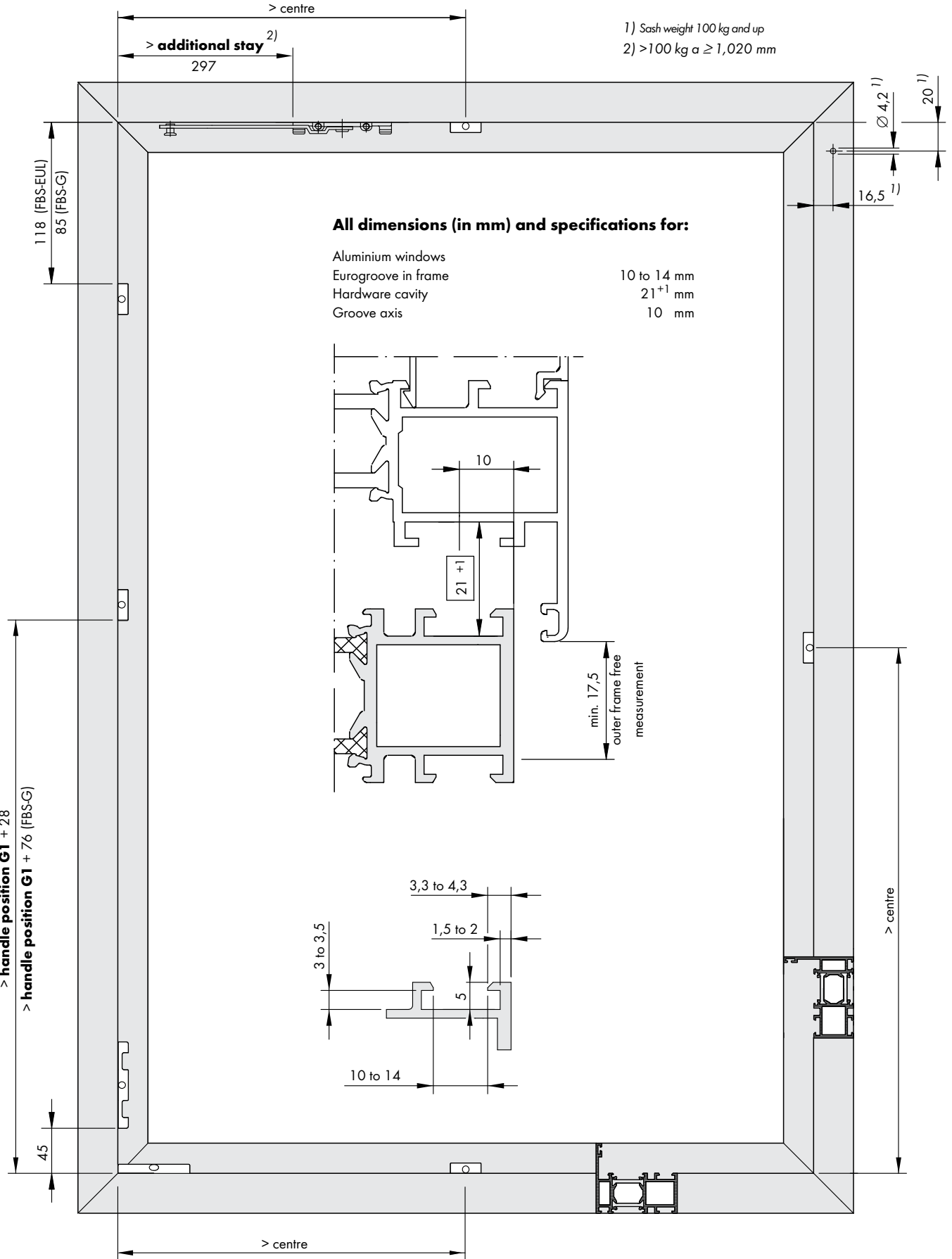
Hinge locking bolt DK (21) to the stay operating rod.



# LM 4200-DK Frame dimensions

All text passages marked with ">" are for sash width and sash height  $\geq 1,250$  mm.

- 1) Sash weight 100 kg and up
- 2)  $>100$  kg  $a \geq 1,020$  mm



## **Basic safety instructions**

### **Correct use**

The hardware described in this document is intended to be installed in an aluminium window frame by a certified window construction specialist in accordance with these instructions. The windows may only be installed vertically plumb.

The certified window construction specialist must ensure that the hardware is suitable for the application based on the specifications in these instructions and in other documents that are cited.

### **Avoid excessive strain.**

Hinge parts may break if they are subject to excessive strain. This can cause the window sash to fall out, which may lead to serious injuries.

- If you anticipate that the hinge parts will be subject to excessive strain, limit the opening angle with an LM limit stay with friction. For example, excessive strain is to be expected in schools and kindergartens.

### **Do not mix hardware.**

The hardware is technically matched. When you mix hardware from different systems or manufacturers in one window, the safe functioning of the hardware is not guaranteed. The hardware can break and cause accidents.

- Use only the hardware that is named in these instructions in combination in one window.

### **Treat the window surface before installation only.**

- Treating the surface of the window after the hardware has been installed can reduce the functional capacity of the hardware.

### **Prevent damage caused by rust and deposits.**

Corrosive substances, dirt and moisture can damage the hardware and cause hazards.

- Do **not** use acetic or acid cure sealants.
- Do **not** use the hardware in environments where the air contains aggressive or corrosive components.
- Keep the rebates free from deposits and dirt, especially from remnants of cement and plaster.
- Keep the hardware dry.

### **Always clean the hardware gently.**

- Clean the hardware only with a soft cloth and mild, diluted pH-neutral cleaning agents.
- Keep the hardware from coming into contact with scouring agents or aggressive, acidic cleaning agents.
- Dry the hardware after cleaning it.

### **Pass the information on to the user of the window.**

- Affix the user information (order no. 05083) to the installed window or door element in a place that can be seen easily.
- Provide the user with the following documents:
  - Maintenance/care instructions SI-AU order no. 19748
  - Operating instructions SI-AU order no. 05766

### **Disclaimer of liability**

- We assume no liability for loss of function and damage to the hardware (and to the windows and portal doors that are equipped with these) resulting from insufficient tendering, failure to follow these assembly instructions or which result from force being applied to the hardware (e.g. through improper use).

# LM 4200-TBT

Clampable rotating tilt hardware for aluminium windows and portal doors  
(Operating sequence: tilt before turn)

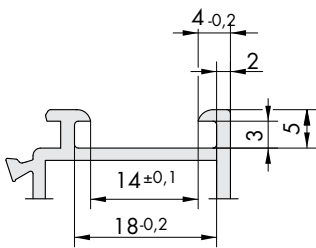


Further details and specifications/information regarding the product and liability (guidelines: VHBH, TDK and VHE) can be found in the aluminium planning manual (H4006.0125EN) and **must** be observed.

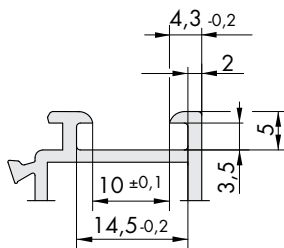
All dimensions given are final dimensions after the surface of the sections has been treated (painted, power coated etc.).

## Correct use Profile selection/alignment Frame designs

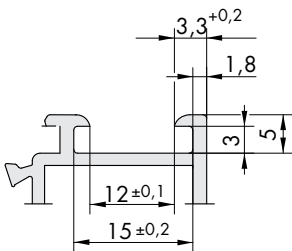
### A0004



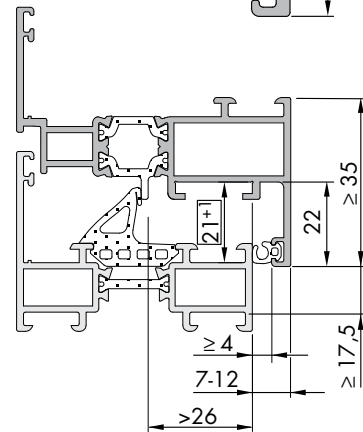
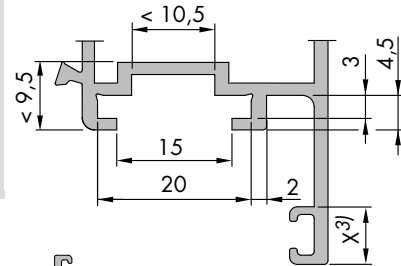
### A0006



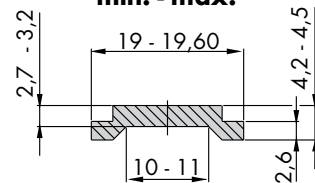
### A0022



## Sash and frame dimensions



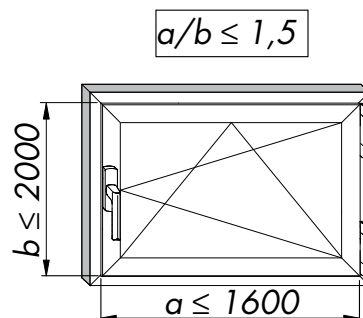
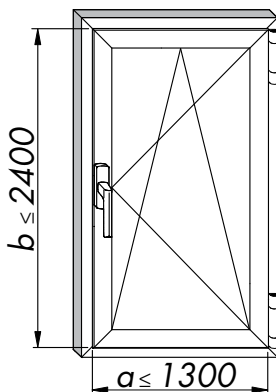
## Operating rod dimensions min. - max.



## All dimensions in mm

Sash width <sup>1)</sup>	(a)	min. 365 - max. 1600
Sash height <sup>1)</sup>	(b)	min. 550 - max. 2400
Sash weight <sup>1)</sup>	(c)	max. 100/130 kg <sup>2)</sup>

- 1) See diagram on page 4.
- 2) With "Accessories Bag LM 4200 130 kg" and "Additional Stay LM",  $a \geq 1020$  mm.
- 3) See table on page 3.



## Contents

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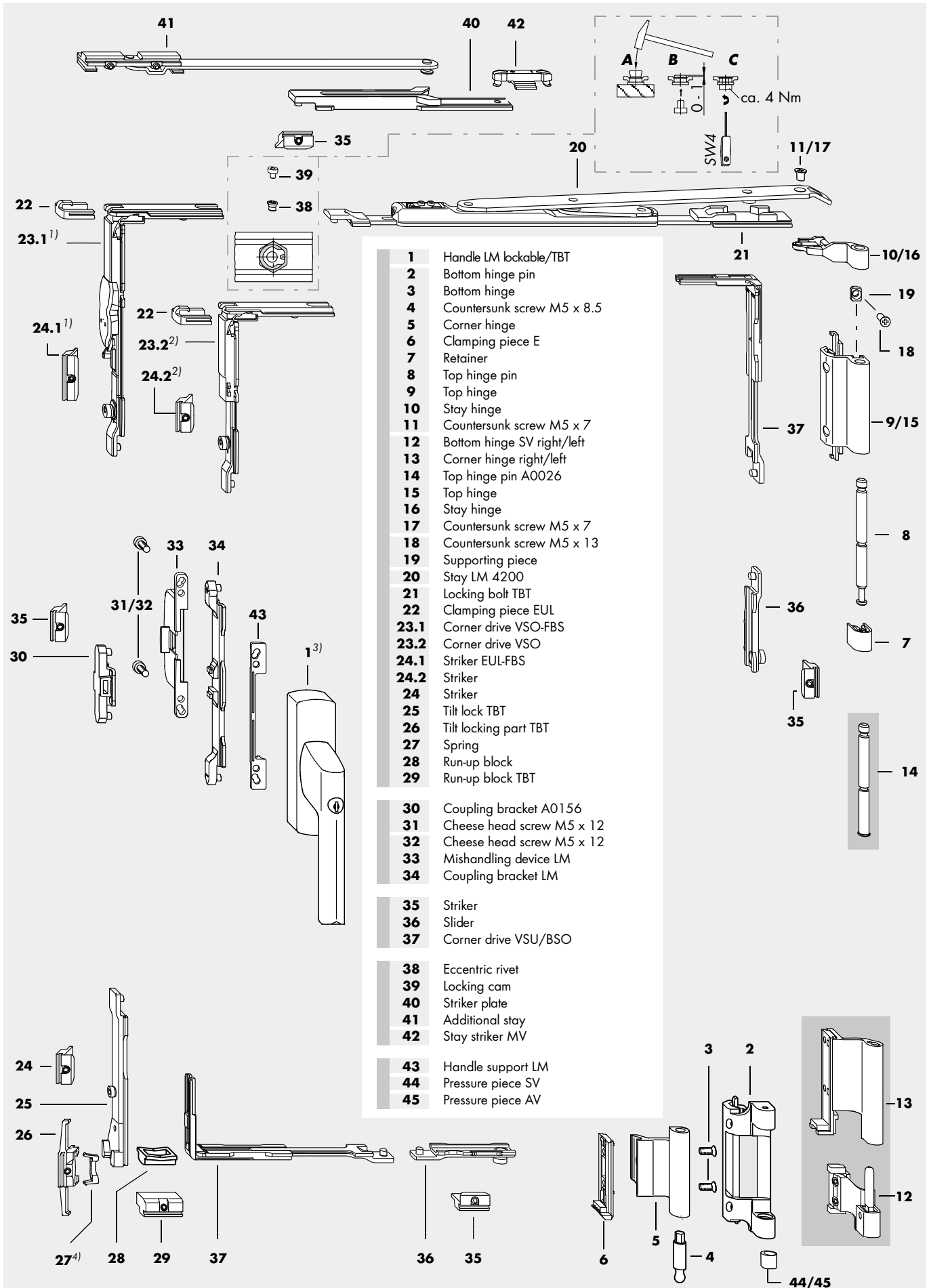
# Assembly Instructions

LMen1363

Technical specifications and colours are subject to change

LMen1363\_3\_2011-11/0

# LM 4200-TBT Hardware layout



1) VS LM-TBT FBS-EUL KPS

2) VS LM-TBT KPS

3) Window handle □ 7 mm see LMen1361

4) Spring (27) grey, from b 550 to 1,100

Spring (27) black, from b 1,101 to 2,400

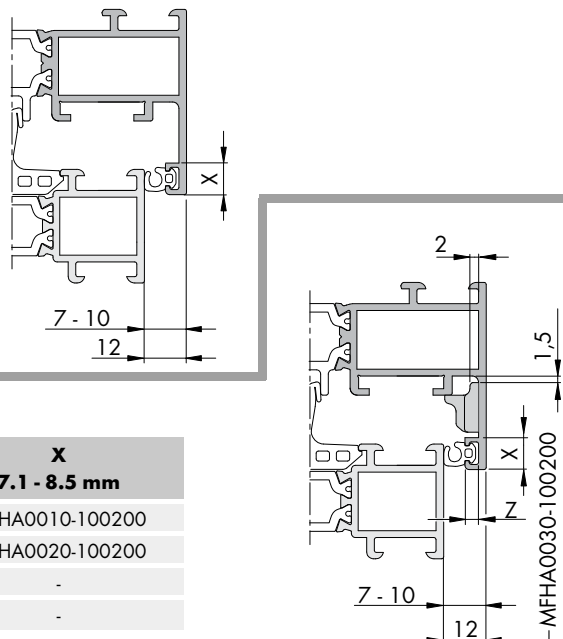
# LM 4200-TBT Hardware List

Item	Design		Description	Image	Material no.		Material no.			
	Left	Right								
Generally required	1	1	<b>Handle LM lockable/TBT</b>		See handle overview LM Drawing no.: LMen1337 in aluminium planning manual					
	2-11	1		<b>BS LM 4200</b>	<b>Silver</b>	1	<b>MMBS0010-525010</b>	<b>10</b>	<b>MMBS0010-525020</b>	
		1			<b>Brown</b>	1	<b>MMBS0010-533010</b>	<b>10</b>	<b>MMBS0010-533020</b>	
		1			<b>White RAL 9010</b>	1	<b>MMBS0010-503010</b>	<b>10</b>	<b>MMBS0010-503020</b>	
		1			<b>White RAL 9016</b>	1	<b>MMBS0010-504010</b>	<b>10</b>	<b>MMBS0010-504020</b>	
		1			<b>Black RAL 9005</b>	1	<b>MMBS0010-523010</b>	<b>10</b>	<b>MMBS0010-523020</b>	
		1			<b>EV1</b>	1	<b>MMBS0010-524010</b>	<b>10</b>	<b>MMBS0010-524020</b>	
		1			<b>Mill finish</b>	-	-	<b>5</b>	<b>246887</b>	
	12-17	-	1	<b>BS LM 4200/SV right</b>	<b>Silver</b>	1	<b>MMBS0031-525011</b>	<b>10</b>	<b>MMBS0031-525021</b>	
		-	1		<b>Brown</b>	1	<b>MMBS0031-533011</b>	<b>10</b>	<b>MMBS0031-533021</b>	
		-	1		<b>White RAL 9016</b>	1	<b>MMBS0031-504011</b>	<b>10</b>	<b>MMBS0031-504021</b>	
		-	1		<b>Black RAL 9005</b>	1	<b>MMBS0031-523011</b>	<b>10</b>	<b>MMBS0031-523021</b>	
		1	-	<b>BS LM 4200/SV left</b>	<b>Silver</b>	1	<b>MMBS0032-525011</b>	<b>10</b>	<b>MMBS0032-525021</b>	
		1	-		<b>Brown</b>	1	<b>MMBS0032-533011</b>	<b>10</b>	<b>MMBS0032-533021</b>	
		1	-		<b>White RAL 9016</b>	1	<b>MMBS0032-504011</b>	<b>10</b>	<b>MMBS0032-504021</b>	
	1	-		<b>Black RAL 9005</b>	1	<b>MMBS0032-523011</b>	<b>10</b>	<b>MMBS0032-523021</b>		
	18-19	0...1		<b>Accessories LM 4200 130 kg</b>	Sash weight 100 kg and up	1	-	<b>20</b>	<b>247037</b>	
	20	1		<b>Stay LM 4200</b> 1) up to max. 100 kg sash weight	Size	a (in mm)	1	<b>884805</b>	<b>20</b>	<b>273098</b>
					20 <sup>1)</sup>	365 to 600				
					35	601 to 1,250				
					35 <sup>2)</sup>	1,251 to 1,600				
			2) with additional stay LM	35 <sup>2)</sup>	1,251 to 1,600	1	<b>884782</b>	<b>20</b>	<b>314203</b>	
			3) 100 - 130 kg with additional stay LM	35 <sup>3)</sup>	1,020 to 1,600	1	<b>884782</b>	<b>20</b>	<b>314203</b>	
21-29	0...1		<b>VS LM-TBT FBS-EUL KPS</b>		1	<b>MMV50320-100010</b>	<b>20</b>	<b>MMV50320-100030</b>		
	0...1		<b>VS LM-TBT KPS</b>		1	<b>MMV50270-100010</b>	<b>20</b>	<b>MMV50270-100030</b>		
30-31	1		<b>Coupling set LM A0156</b>		1	<b>MMKL0060-100010</b>	<b>20</b>	<b>MMKL0060-100030</b>		
32-34	0...1		<b>Coupling set FBS-G</b>	<b>9 mm</b>	1	<b>MMKL0030-100010</b>	<b>20</b>	<b>MMKL0030-100030</b>		
	0...1			<b>10 mm</b>	1	<b>MMKL0010-100010</b>	<b>20</b>	<b>MMKL0010-100030</b>		
	0...1			<b>USH 12 mm</b>	1	<b>MMKL0040-100010</b>	<b>20</b>	<b>MMKL0040-100030</b>		
35-37	0...2		<b>MV LM 4200-DK</b>	a/b ≥ 1,250 mm	1	<b>857045</b>	<b>20</b>	<b>246979</b>		
38-41	0...1		<b>Additional stay LM 4200</b>	a ≥ 1,250 mm with stay SZ 35 (> 100 kg a ≥ 1,020 mm)	1	<b>857076</b>	<b>10</b>	<b>247006</b>		
42	0...1		<b>Stay striker MV</b>	a ≥ 1,250 mm (> 100 kg a ≥ 1,020 mm)	1	<b>MXSK0010-100010</b>	<b>20</b>	<b>MXSK0010-100030</b>		
<b>Accessories</b>										
43	0...1		<b>Handle support LM</b>	Only for use with VS LM-TBT FBS-EUL KPS	-	-	<b>200</b>	See table		
44	0...1		<b>Pressure piece SV (BS LM 4200)</b>	For width adjustment ± 0.8 mm	1	<b>818138</b>	<b>20</b>	<b>222041</b>		
45	0...1		<b>Pressure piece AV (BS LM 4200)</b>	For width pressure adjustment ± 0.5 mm	1	<b>855133</b>	<b>20</b>	<b>249796</b>		

## Design variations for coupling set

### FBS-G (32 - 34)

USH	X	Material no.
7 - 10 mm	≤ 8.5 mm	MMKL0030-100030
7 - 10 mm	≤ 7.5 mm	MMKL0010-100030
12 mm	≤ 7 mm	MMKL0040-100030

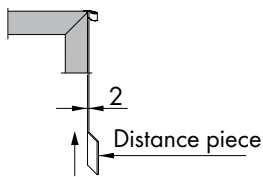


## Design variations for handle support (43)

USH	Z	X	
		≤ 7 mm	7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-



# LM 4200-TBT Jig, abbreviations, pressure adjustment and diagram



## Abbreviations

The following abbreviations are used in these assembly instructions:

a	Sash width
AV	Pressure adjustment
b	Sash height
b1	Handle height, bottom
b2	Handle height, top
BS	Hinge side
BSO	Hinge side, top
BSU	Hinge side, bottom
EV1	Anodised
ESLG	Brushed stainless steel-look
FBS-G	Mishandling device on handle
FBS-EUL	Mishandling device in corner drive
KPS	Tilt point vertical
MV	Centre lock
Nm	Torque in Nm
SV	Side adjustment
SW	Key dimension
TBT	Tilt before turn
VS	Locking side
VSO	Locking side, top
VSU	Locking side, bottom
USH	Rebate height
S1	Operating rod, locking side bottom
S2	Operating rod, locking side top
S3	Operating rod, top horizontal
S4	Operating rod, hinge side
S5	Operating rod, bottom horizontal

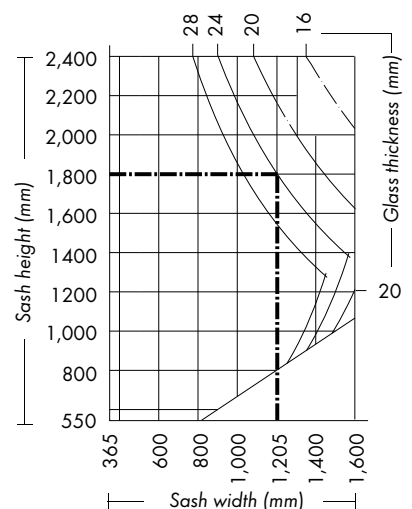
## Diagram for determining allowable sash size

For glass thicknesses less than 12 mm, all sash sizes which are within the size range and do not exceed a width to height ratio FB/FH of 1.5 are allowed.

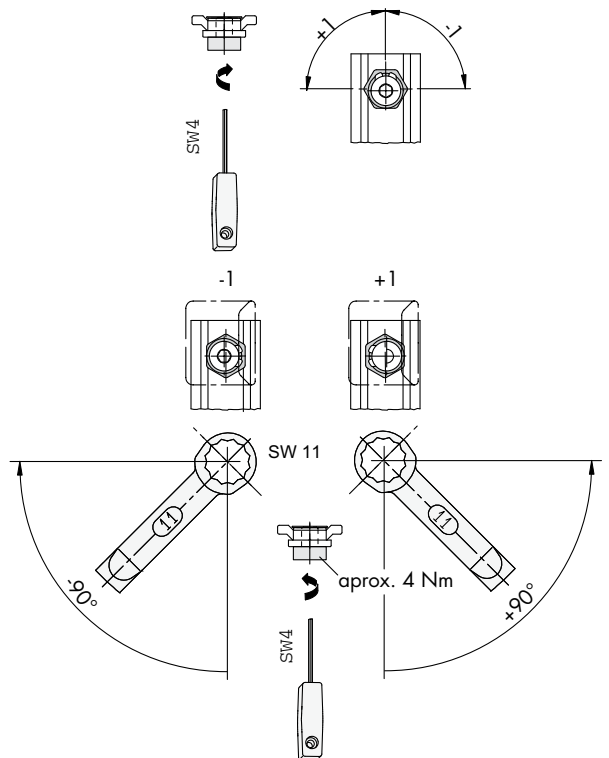
Maximum allowable sash weight: 130 kg

Example (---):  
 Sash height = 1,800 mm  
 Glass thickness = 24 mm  
 Maximum allowable sash width = **1,205 mm**

Glass thickness (mm)	Weight (kg/m <sup>2</sup> )
28	70
24	60
20	50
16	40
12	30



Description	
<b>Assembly device for mounting stays</b>	Manufacture own suitable distance piece with 2 mm thickness and insert between sash frames and stay hinge. Fasten stay.
<b>Required tools</b>	See assembly instructions LMen 1 200
<b>Pressure adjustment approx. ±1</b>	For eccentric rivet (38) and locking cam (39)



<b>Further adjustment options</b>	See maintenance/care instructions Order no. 19748
-----------------------------------	--

## Assembly instructions

**All text passages marked with ">" are for sash width and sash height ≥ 1,250 mm.**

### Preparation

- A** Make punch out for handle LM lockable/TBT (1).
- B** Open the operating rod guiding groove.
- C** Remove the rebate seal in the area through which the hinges pass and rework the sash profile according to the specifications on page 6.
- D** Rework operating rods S1 - S5 according to the specifications on page 6.
- > E** Install eccentric rivet (38) and locking cam (39) on S3 as shown (see page 2).

### Sash

(>100 kg)

- > A** Insert slider (page 2: 36) with operating rod S4 and corner drive VSU/BSO (37) vertically on the BSO.
- B** Insert locking bolt TBT (21), stay LM 4200 (20) and operating rod S3 horizontally on the VSO.
- > C** Insert locking bolt TBT (21), stay LM 4200 (20) and operating rod S3, stay striker MV (42), striker plate (40) and >operating rod (length 234 mm) horizontally on the VSO.
- > D** Couple locking bolt TBT (21) with corner drive VSU/BSO (37). Make sure positioning of coupling piece for corner drive VSU/BSO (37) is correct.
- E** Attach stay hinge (10/16) to stay LM 4200 (20) using countersunk screw M5 x 7 (11/17) (torque 2.5 ± 0.25 Nm).
- > F** Position stay hinge (10/16) according to specifications on page 4 and fasten stay LM 4200 (20) with punching screws.
- > G** Insert slider (36) with operating rod S5 and corner drive VSU/BSO (37) vertically on the VSU.
- H** Insert tilt lock TBT (25), operating rod S1, coupling bracket LM (30/34), operating rod S2 and corner drive VSO (23.1/23.2) vertically on the VSO.
- > I** Couple tilt lock TBT (25) with corner drive VSU/BSO (37). Make sure positioning of coupling piece for corner drive VSU/BSO (37) is correct (Figure 1).
- J** Couple corner drive VSO (23.1/23.2) with operating rod S3 ">operating rod 234" and secure with clamping piece EUL (22).
- K** Insert run-up block (28) horizontally on the VSU (not applicable for MV on the VSU).
- L** Attach handle LM lockable/TBT (1) with cheese head screws M5 x 12 (31) (torque 2.5 ± 0.25 Nm). Make sure the handle catch closes into the coupling bracket (30).
- L** Attach mishandling device LM on rebate (33) with cheese head screws M5 x 12 (312) to the handle LM (1) (torque 2.5 ± 0.25 Nm). Make sure the handle catch closes into the coupling bracket (34).
- M** Press bottom hinge pin (4) into corner hinge (5) DIN right or DIN left.
- N** Insert clamping piece E (6) vertically on the BSU and attach corner hinge (5) using countersunk screws M5 x 8.5 (3) (torque 2.5 ± 0.25 Nm).
- O** Insert corner hinge right/left (13) in the sash groove and fasten with the pre-installed countersunk screws M5 x 8.5 (torque 2.5 ± 0.25 Nm).

FBS-EUL



FBS-G

BS LM 4200

BS LM 4200

BS LM 4200/SV

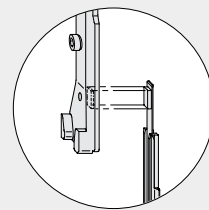


Figure 1

### Frame

BS LM 4200

BS LM 4200/SV

BS LM 4200

BS LM 4200/SV

- A** For sashes weighing more than 100 kg, fasten the supporting piece (19) to the frame using countersunk screws M5 x 13 (18) (torque 2.5 ± 0.25 Nm) (see page 7).
- B** Position bottom hinge (2) and top hinge (9) and fix both in place by tightening the cheese head screws (torque 2.5 ± 0.25 Nm).
- B** Position bottom hinge SV right/left (12) and top hinge (15) and fix both in place by tightening the cheese head screws (torque 2.5 ± 0.25 Nm).
- C** Connect top hinge pin (8) with retainer (7) and insert into the top hinge (9) from below.
- C** Insert top hinge pin A0026 (14) into top hinge (15) from below.
- D** Position striker EUL-FBS (24.1)/striker (24.2) (24), tilt locking part TBT (26) and run-up block TBT (29) according to specifications on page 7 and fix in place with grub screws (torque 1.5 ± 0.25 Nm).
- E** Press suitable spring (27) according to specifications on page 2 into tilt locking part TBT (26).
- > F** Position strikers (35) on the BS and VS according to specifications on page 7 and fix each in place with grub screws (torque 1.5 ± 0.25 Nm).
- > G** Position strikers (35) on the VSU and the VSO according to the specification on page 7 and fix in place with grub screws (torque 1.5 ± 0.25 Nm).
- > H** For sash widths from 1,250 mm to 1,600 mm and/or sash weights in excess of 100 kg (min. sash width 1,020 mm), use additional stay LM 4200.

### Final

#### installation

- A** Hinge the sash. Push top hinge pin (8/14) through and snap into place.
- B** Top hinge pin (8/14) must be secured in the stay hinge (10/15) (see Figure 2).
- C** Check that the window works correctly.

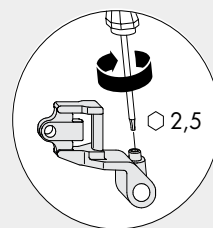


Figure 2

### Making adjustments

BS LM 4200

BS LM 4200/SV

BS LM 4200

BS LM 4200

BS LM 4200/SV

BS LM 4200

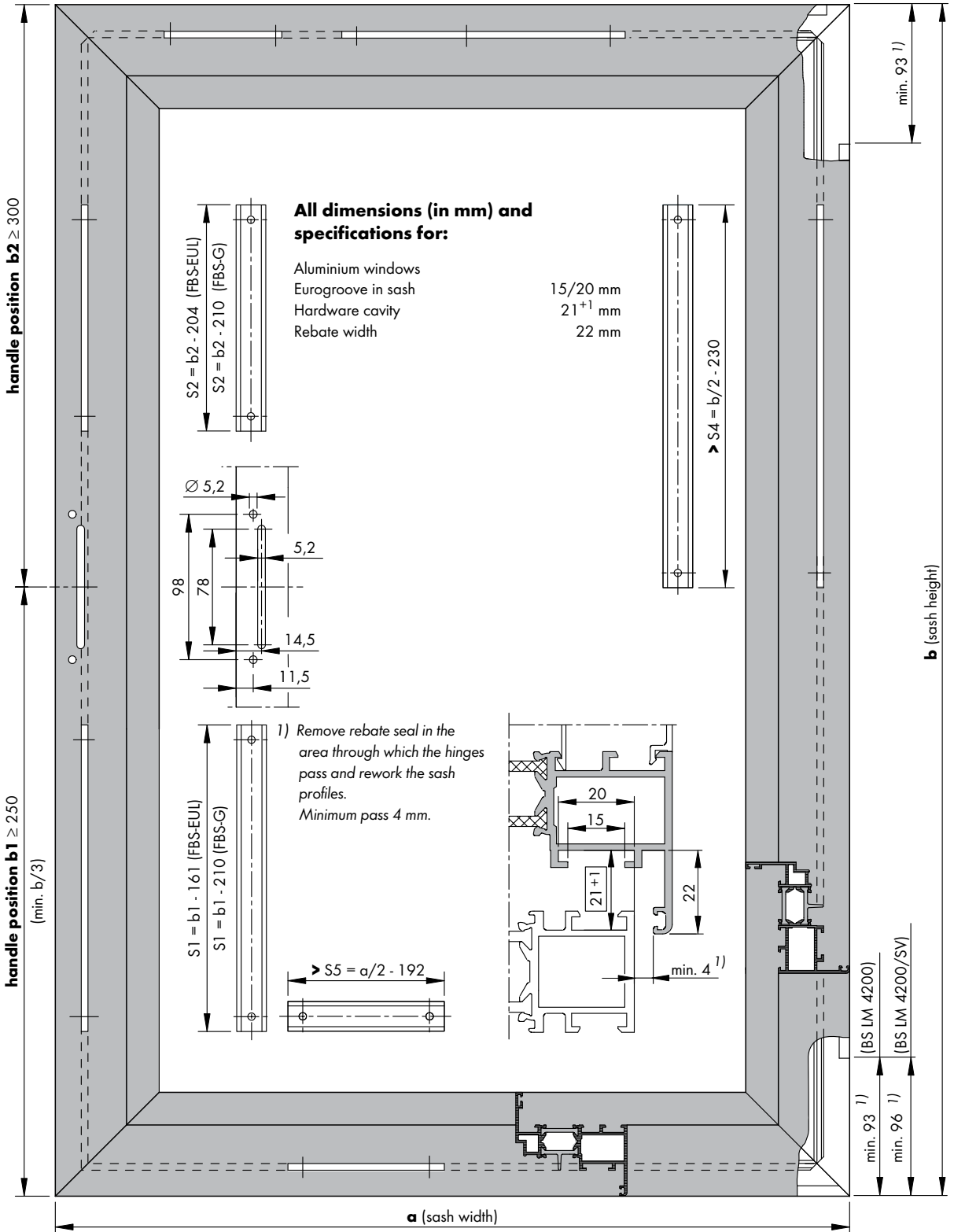
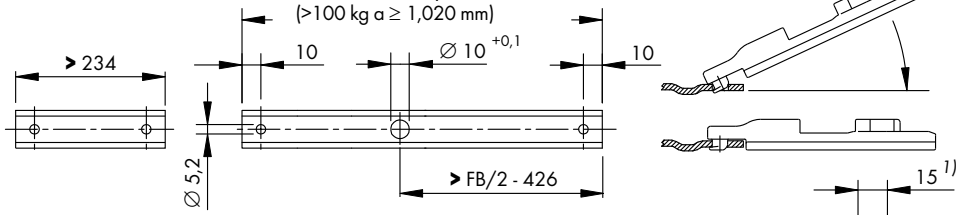
- A** Width adjustment:
  - continuous using stay LM 4200 (20)
  - continuous using pressure piece SV (44)
  - continuous using bottom hinge SV right/left (12) ± 1 mm (make adjustment after glazing, under load and with the sash open)
- B** Height adjustment:
  - after removal of the top pressure piece from the bottom hinge (2) using 4 mm hexagon socket screw in corner hinge (5) +1.5 / - 1 mm for FH ≤ 1,600 mm in tilt position/for FH ≥ 1,600 mm in turn position
  - using 4 mm hexagon socket screw in corner hinge right/left (13) +2 / - 1 mm
- C** Pressure adjustment:
  - using eccentric locking cam
  - for pressure piece AV (45) ± 0.5 mm

# LM 4200-TBT Sash dimensions

All text passages marked with ">" are for sash width and sash height  $\geq 1,250$  mm.

- S3 stay SZ 20 = a - 338
- Stay SZ 35 = a - 506
- > Stay SZ 35 with additional stay = a - 917 (>100 kg a  $\geq 1,020$  mm)

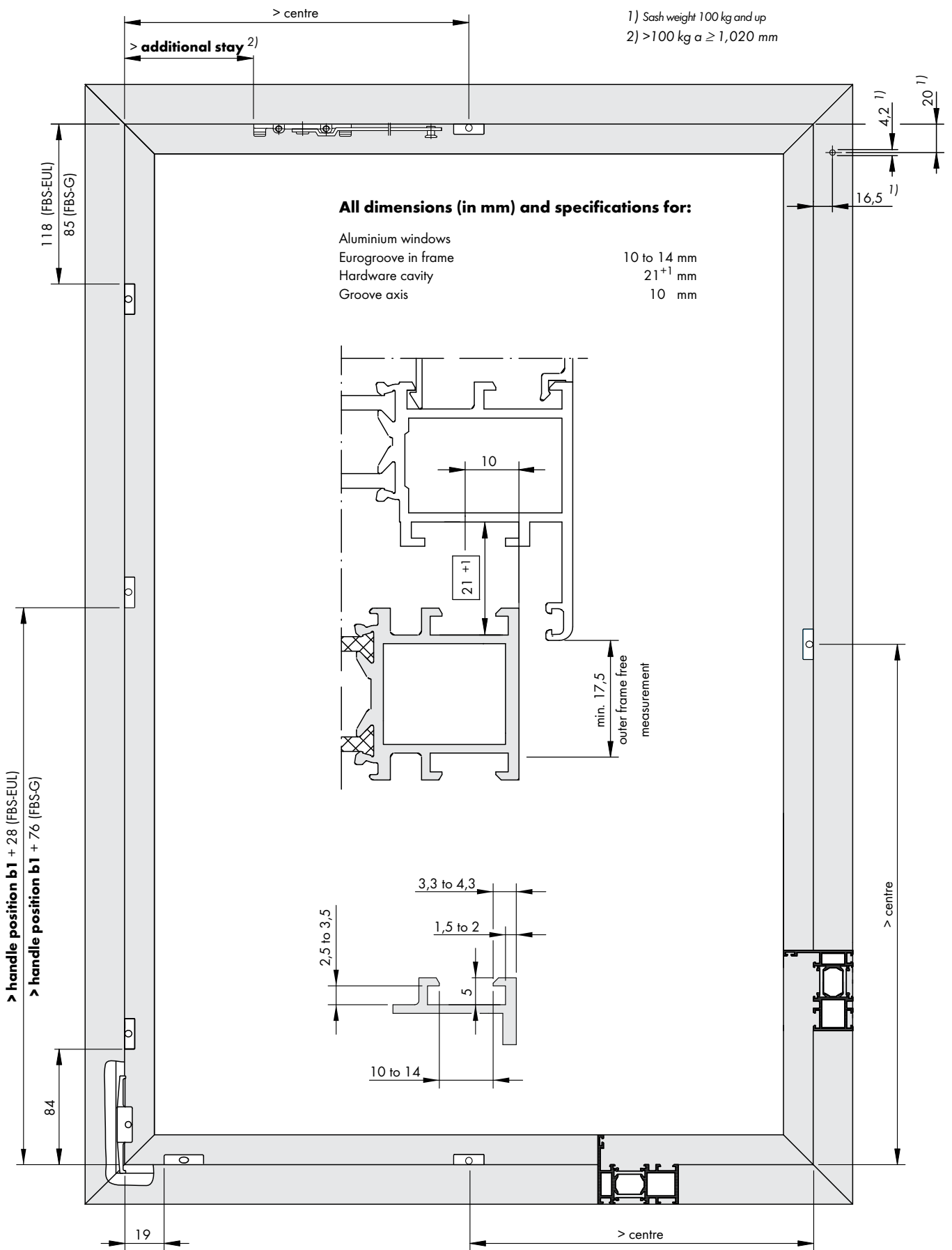
Hinge locking bolt TBT (21) to the stay operating rod.



# LM 4200-TBT Frame dimensions

All text passages marked with ">" are for sash width and sash height  $\geq 1,250$  mm.

- 1) Sash weight 100 kg and up
- 2)  $>100$  kg  $a \geq 1,020$  mm



## **Basic safety instructions**

### **Correct use**

The hardware described in this document is intended to be installed in an aluminium window frame by a certified window construction specialist in accordance with these instructions. The windows may only be installed vertically plumb.

The certified window construction specialist must ensure that the hardware is suitable for the application based on the specifications in these instructions and in other documents that are cited.

### **Avoid excessive strain.**

Hinge parts may break if they are subject to excessive strain. This can cause the window sash to fall out, which may lead to serious injuries.

- If you anticipate that the hinge parts will be subject to excessive strain, limit the opening angle with an LM limit stay with friction. For example, excessive strain is to be expected in schools and kindergartens.

### **Do not mix hardware.**

The hardware is technically matched. When you mix hardware from different systems or manufacturers in one window, the safe functioning of the hardware is not guaranteed. The hardware can break and cause accidents.

- Use only the hardware that is named in these instructions in combination in one window.

### **Treat the window surface before installation only.**

- Treating the surface of the window after the hardware has been installed can reduce the functional capacity of the hardware.

### **Prevent damage caused by rust and deposits.**

Corrosive substances, dirt and moisture can damage the hardware and cause hazards.

- Do **not** use acetic or acid cure sealants.
- Do **not** use the hardware in environments where the air contains aggressive or corrosive components.
- Keep the rebates free from deposits and dirt, especially from remnants of cement and plaster.
- Keep the hardware dry.

### **Always clean the hardware gently.**

- Clean the hardware only with a soft cloth and mild, diluted pH-neutral cleaning agents.
- Keep the hardware from coming into contact with scouring agents or aggressive, acidic cleaning agents.
- Dry the hardware after cleaning it.

### **Pass the information on to the user of the window.**

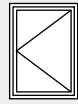
- Affix the user information (order no. 05083) to the installed window or door element in a place that can be seen easily.
- Provide the user with the following documents:
  - Maintenance/care instructions SI-AU order no. 19748
  - Operating instructions SI-AU order no. 05766

### **Disclaimer of liability**

- We assume no liability for loss of function and damage to the hardware (and to the windows and portal doors that are equipped with these) resulting from insufficient tendering, failure to follow these assembly instructions or which result from force being applied to the hardware (e.g. through improper use).

# LM 4200-D

Clampable turning sash hardware for aluminium windows and portal doors



Further details and specifications/information regarding the product and liability (guidelines: VHBH, TBDK and VHBE) can be found in the aluminium planning manual (H4006.0125EN) and **must** be observed.

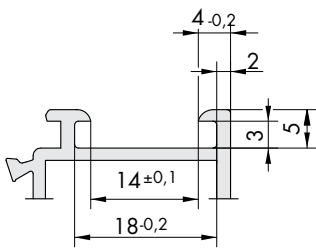
All dimensions given are final dimensions after the surface of the sections has been treated (painted, power coated etc.).

## Correct use

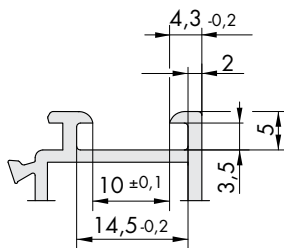
### Profile selection/alignment

#### Frame designs

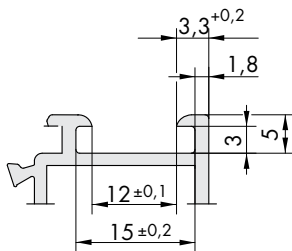
##### A0004



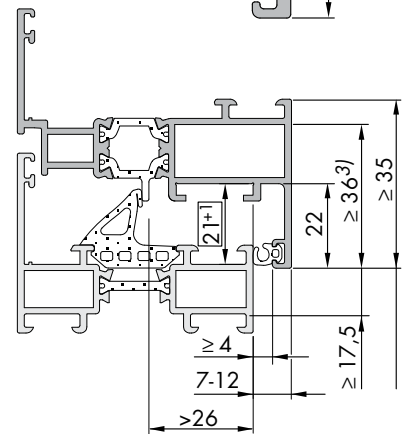
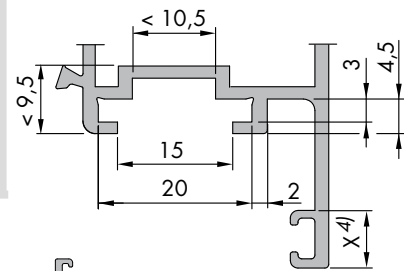
##### A0006



##### A0022

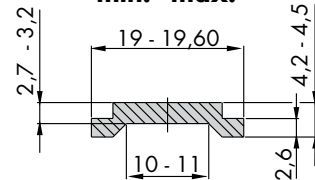


## Sash and frame dimensions



## Operating rod dimensions

min. - max.

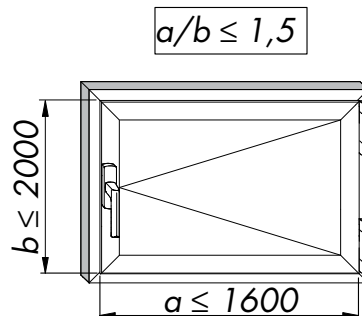
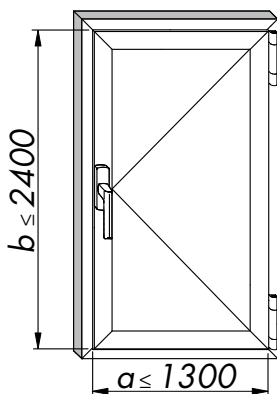


Technical specifications and colours are subject to change

## All dimensions in mm

Sash width <sup>1)</sup>	(a)	min. 350 - max. 1600
Sash height <sup>1)</sup>	(b)	min. 500 - max. 2400
Sash weight <sup>1)</sup>	(c)	max. 100/130 kg <sup>2)</sup>

- 1) See diagram on page 4.
- 2) With "Accessories Bag LM 4200 130 kg".
- 3) For gear set M6.
- 4) See table on page 3.



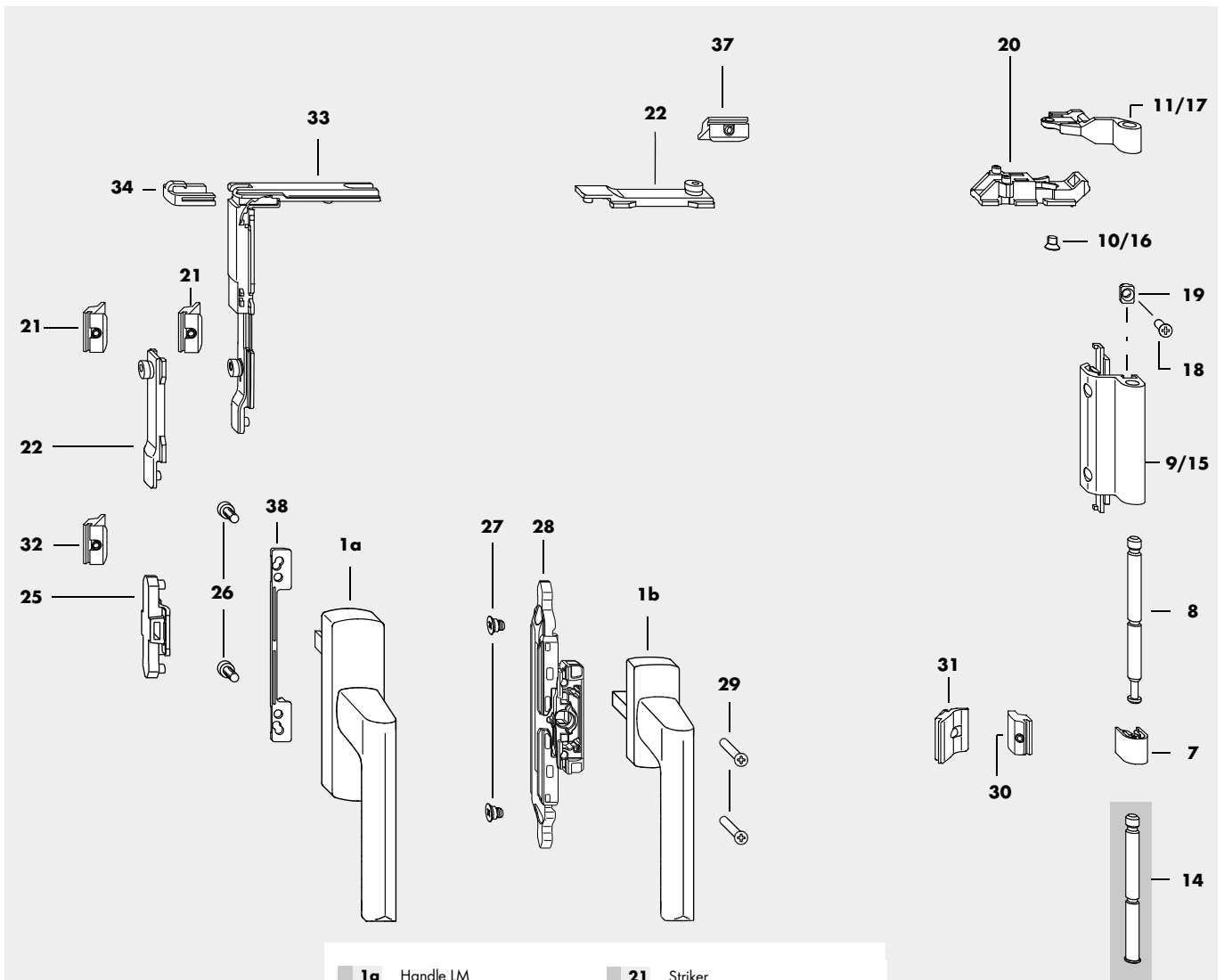
## Contents

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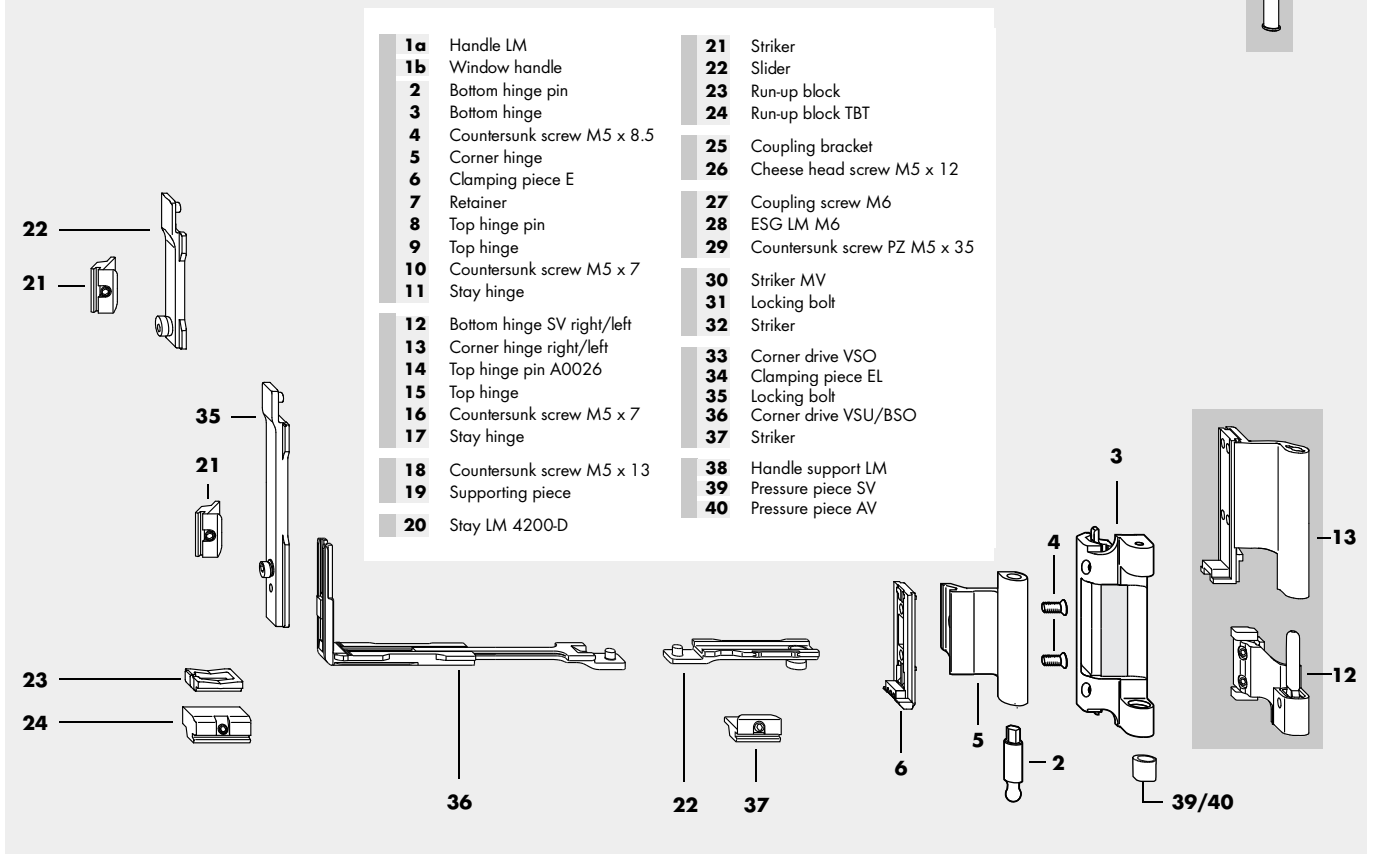
**Assembly Instructions**  
LMen1364

LMen1364\_3\_2013:02/1



# LM 4200-D Hardware layout



- |           |                            |           |                              |
|-----------|----------------------------|-----------|------------------------------|
| <b>1a</b> | Handle LM                  | <b>21</b> | Striker                      |
| <b>1b</b> | Window handle              | <b>22</b> | Slider                       |
| <b>2</b>  | Bottom hinge pin           | <b>23</b> | Run-up block                 |
| <b>3</b>  | Bottom hinge               | <b>24</b> | Run-up block TBT             |
| <b>4</b>  | Countersunk screw M5 x 8.5 | <b>25</b> | Coupling bracket             |
| <b>5</b>  | Corner hinge               | <b>26</b> | Cheese head screw M5 x 12    |
| <b>6</b>  | Clamping piece E           | <b>27</b> | Coupling screw M6            |
| <b>7</b>  | Retainer                   | <b>28</b> | ESG LM M6                    |
| <b>8</b>  | Top hinge pin              | <b>29</b> | Countersunk screw PZ M5 x 35 |
| <b>9</b>  | Top hinge                  | <b>30</b> | Striker MV                   |
| <b>10</b> | Countersunk screw M5 x 7   | <b>31</b> | Locking bolt                 |
| <b>11</b> | Stay hinge                 | <b>32</b> | Striker                      |
| <b>12</b> | Bottom hinge SV right/left | <b>33</b> | Corner drive VSO             |
| <b>13</b> | Corner hinge right/left    | <b>34</b> | Clamping piece EL            |
| <b>14</b> | Top hinge pin A0026        | <b>35</b> | Locking bolt                 |
| <b>15</b> | Top hinge                  | <b>36</b> | Corner drive VSU/BSO         |
| <b>16</b> | Countersunk screw M5 x 7   | <b>37</b> | Striker                      |
| <b>17</b> | Stay hinge                 | <b>38</b> | Handle support LM            |
| <b>18</b> | Countersunk screw M5 x 13  | <b>39</b> | Pressure piece SV            |
| <b>19</b> | Supporting piece           | <b>40</b> | Pressure piece AV            |
| <b>20</b> | Stay LM 4200-D             |           |                              |

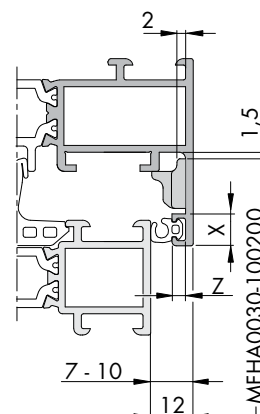


# LM 4200-D Hardware list

Item	Design		Description		Material no.			Material no.	
	Left	Right							
Generally required	1a	0...1	Handle LM		See handle overview LM Drawing no.: LMen1337 in aluminium planning manual				
	1b	0...1	Window handle (□ 7 mm x 25, cam ∅ 10 mm)						
	2-11	1		BS LM 4200	Silver	1	MMBS0010-525010	10	MMBS0010-525020
					Brown	1	MMBS0010-533010	10	MMBS0010-533020
					White RAL 9010	1	MMBS0010-503010	10	MMBS0010-503020
					White RAL 9016	1	MMBS0010-504010	10	MMBS0010-504020
					Black RAL 9005	1	MMBS0010-523010	10	MMBS0010-523020
					EV1	1	MMBS0010-524010	10	MMBS0010-524020
					Mill finish	-	-	5	246887
	12-17	-	1	BS LM 4200/SV right	Silver	1	MMBS0031-525011	10	MMBS0031-525021
					Brown	1	MMBS0031-533011	10	MMBS0031-533021
					White RAL 9016	1	MMBS0031-504011	10	MMBS0031-504021
					Black RAL 9005	1	MMBS0031-523011	10	MMBS0031-523021
	1	1	-	BS LM 4200/SV left	Silver	1	MMBS0032-525011	10	MMBS0032-525021
					Brown	1	MMBS0032-533011	10	MMBS0032-533021
					White RAL 9016	1	MMBS0032-504011	10	MMBS0032-504021
					Black RAL 9005	1	MMBS0032-523011	10	MMBS0032-523021
	18-19	0...1		Accessories LM 4200 130 kg	Sash weight 100 kg and up	1	-	20	247037
	20-24	1		VS LM-D SDF		1	MMV50280-100010	20	MMV50280-100030
	25-26	1		Coupling set LM A0156	For handle LM (1a)	1	MMKL0060-100010	20	MMKL0060-100030
27-29	1		Gear set M6 Trial/RR	For window handle □7 x 25 /10 mm cam (1b)	1	MMGI0090-100010	20	MMGI0090-100030	
30-32	0...1		MV LM 4200-D VS/BS	$b \geq 1,250 \text{ mm}$	1	857052	20	246986	
33-37	0...1		MV LM 4200/2200-D VSU/VSO	$a \geq 1,250 \text{ mm}$	1	MMMV0040-100010	20	MMMV0040-100030	
<b>Accessories</b>									
38	0...1		Handle support LM	For handle LM (1a)	-	-	200	See table	
39	0...1		Pressure piece SV (BS LM 4200)	For width adjustment $\pm 0.8 \text{ mm}$	1	818138	20	222041	
40	0...1		Pressure piece AV (BS LM 4200)	For width pressure adjustment $\pm 0.5 \text{ mm}$	1	855133	20	249796	

## Design variations for handle support (38)

USH	Z	X	
		< 7 mm	7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-





## LM 4200-D Jig, abbreviations and diagram

Description	
<b>Required tools</b>	See assembly instructions LMen1200
<b>Further adjustment options</b>	See maintenance/care instructions Order no. 19748

### Abbreviations

The following abbreviations are used in these assembly instructions:

a	Sash width
AV	Pressure adjustment
b	Sash height
b1	Handle height, bottom
b2	Handle height, top
BS	Hinge side
BSO	Hinge side, top
EV1	Anodised
ESLG	Brushed stainless steel-look
KPS	Tilt point vertical
MV	Centre lock
Nm	Torque in Nm
SV	Side adjustment
SW	Key dimension
VS	Locking side
VSO	Locking side, top
VSU	Locking side, bottom
USH	Rebate height
SDF	Stay turning sash
S1	Operating rod, locking side bottom
S2	Operating rod, locking side top
S3	Operating rod, top horizontal
S5	Operating rod, bottom horizontal

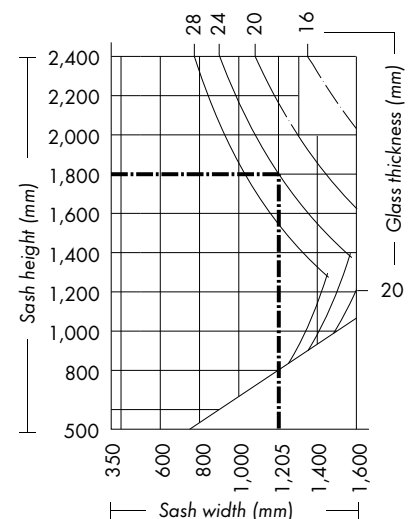
### Diagram for determining allowable sash size

For glass thicknesses less than 12 mm, all sash sizes which are within the size range and do not exceed a width to height ratio FB/FH of 1.5 are allowed.

Maximum allowable sash weight: 130 kg

Example (---): Sash height = 1,800 mm  
Glass thickness = 24 mm  
Maximum allowable sash width = **1,205 mm**

Glass thickness (mm)	Weight (kg/m <sup>2</sup> )
28	70
24	60
20	50
16	40
12	30



## Assembly instructions

All text passages marked with ">" are for sash width and sash height  $\geq 1,250$  mm.

### Preparation

- A** Make punch out for handle LM (1), window handle (1b).
- B** Open the operating rod guiding groove.
- C** Remove the rebate seal in the area through which the hinges pass and rework the sash profiles according to the specifications on page 6.
- D** Rework operating rods S1 - S5 according to the specifications on page 6.

### Sash

- > A** Insert slider (page 2: 22) with operating rod S5 and corner drive VSU/BSO (36) vertically on the VSU.
- > B** Insert slider (22) with operating rod S3 horizontally on the VSO.
- C** Insert slider (22), operating rod S1, coupling bracket (25), operating rod S2 and slider (22) vertically on the VSO.
- C** Insert slider (22), operating rod S1, operating rod S2 and slider (22) vertically on the VSO.
- > D** Insert slider (35), operating rod S1, coupling bracket (25), operating rod S2 and corner drive VSO (33) vertically on the VSO.
- > D** Insert slider (35), operating rod S1, operating rod S2 and corner drive VSO (33) vertically on the VSO.
- E** Connect ESG LM M6 (28) operating rods and place in opening provided (see page 6, Figure 3).
- F** Screw ESG LM M6 (28) and operating rods S1 and S2 together using coupling screw M6 (27) (PZ 2, torque  $2.75 \pm 0.25$  Nm).
- > G** Couple corner drive VSU/BSO (36) with locking bolt (35). Make sure positioning of coupling piece for corner drive VSU/BSO (36) is correct (Figure 1).
- > H** Couple VSO (33) with operating rod S3 and secure using clamping piece EUL (34).
- I** Attach handle LM (1a) and handle support LM (38) with cheese head screw M5 x 12 (26) (torque  $2.5 \pm 0.25$  Nm). Make sure the handle catch closes into the coupling bracket (25).
- J** Attach window handle (1b) to ESG LM M6 (28) using countersunk screw PZ M5 x 35 (29) (PZ 2, torque  $2.5 \pm 0.25$  Nm).
- K** Screw stay hinge (11/17) and stay LM 4200-D (20) together using countersunk screw M5 x 7 (10/16) (torque  $2.5 \pm 0.25$  Nm), press stay LM 4200-D (20) horizontally onto the BSO as far as it will go and fasten with punching screws (torque  $2.5 \pm 0.25$  Nm).
- L** Press bottom hinge pin (2) into corner hinge (5) DIN right or DIN left.
- M** Insert clamping piece E (6) vertically on the BSU and attach corner hinge (5) using countersunk screws M5 x 8.5 (4) (torque  $2.5 \pm 0.25$  Nm).
- N** Insert corner hinge right/left (13) in the sash groove and fasten with the pre-installed countersunk screws M5 x 8.5 (torque  $2.5 \pm 0.25$  Nm).
- > O** Insert locking bolt (31) centrally on the BS and fix in place with grub screw (torque  $1.5 \pm 0.25$  Nm).

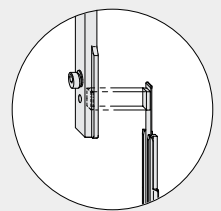


Figure 1

### Frame

- A** For sashes weighing more than 100 kg, fasten the supporting piece (19) to the frame using countersunk screws M5 x 13 (18) (torque  $2.5 \pm 0.25$  Nm) (see page 7).
- B** Position bottom hinge (3) and top hinge (9) and fix both in place by tightening the cheese head screws (torque  $2.5 \pm 0.25$  Nm).
- B** Position bottom hinge SV right/left (12) and top hinge (15) and fix both in place by tightening the cheese head screws (torque  $2.5 \pm 0.25$  Nm).
- C** Connect top hinge pin (8) with retainer (7) and insert into the top hinge (9) from below.
- C** Insert top hinge pin A0026 (14) into top hinge (15) from below.
- D** Position strikers (21) and run-up block TBT (24) according to specifications on page 7 and fix each in place with grub screws (torque  $1.5 \pm 0.25$  Nm).
- > E** Position striker MV (30) on the BS and striker (32) on the VS according to the specification on page 7 and fix in place with grub screws (torque  $1.5 \pm 0.25$  Nm).
- > F** Position striker (37) on the VSU and VSO according to specifications on page 7 and fix each in place with grub screws (torque  $1.5 \pm 0.25$  Nm).
- A** Hinge the sash. Push top hinge pin (8/14) through and snap into place.
- B** Top hinge pin (8/14) must be secured in the stay hinge (11/17) (torque  $2.5 \pm 0.25$  Nm) (see Figure 2).
- C** Check that the window works correctly.

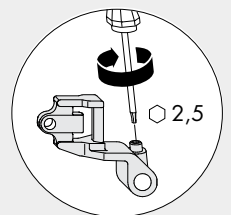
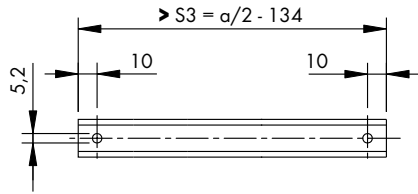


Figure 2

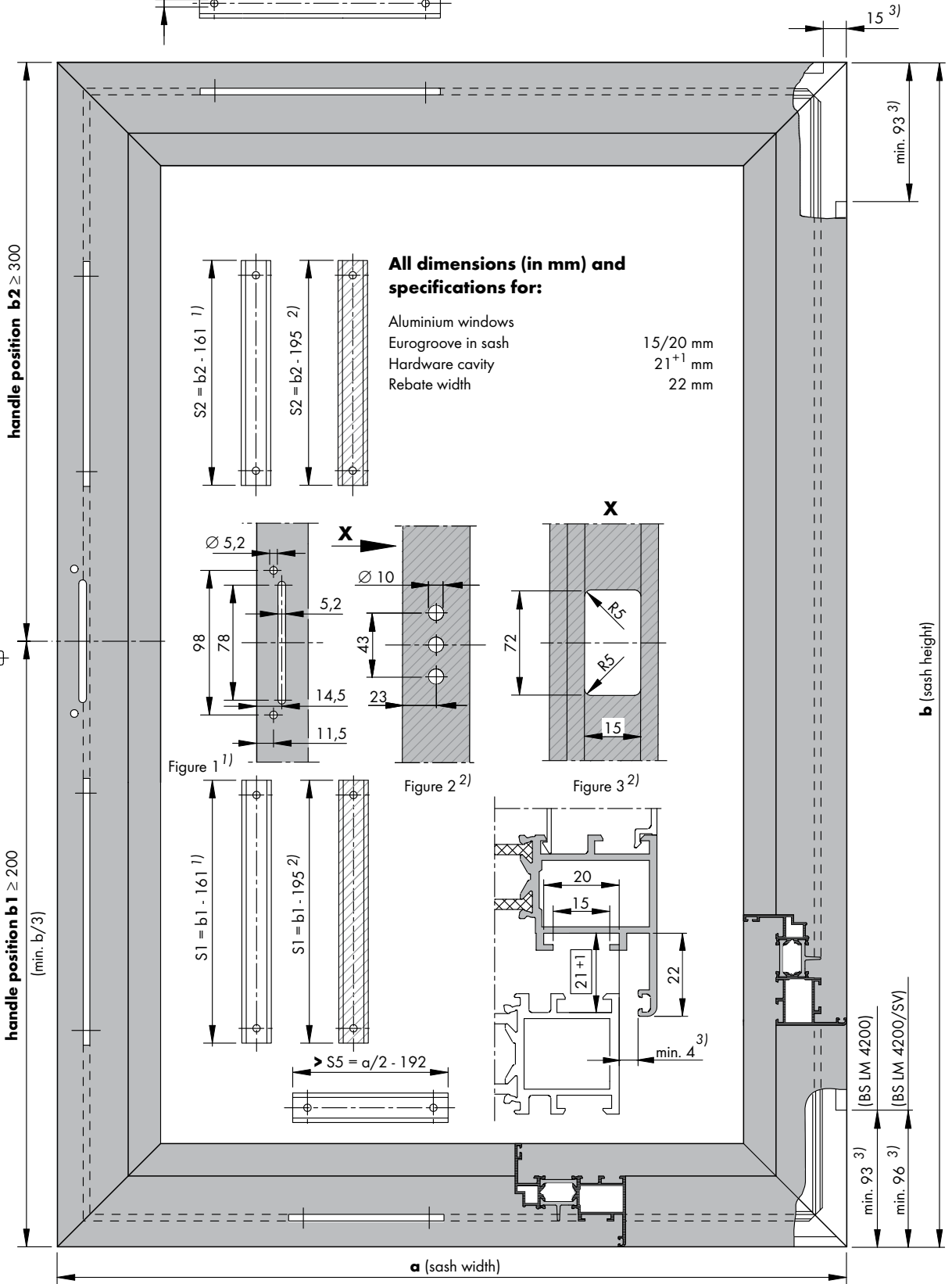
### Making adjustments

- A** Width adjustment:
  - continuous using stay LM 4200-D (20) +2 mm - 3 mm
  - BS LM 4200 using pressure piece SV (39)  $\pm 0.8$  mm
  - BS LM 4200/SV continuous using bottom hinge SV right/left (12)  $\pm 1$  mm (make adjustment after glazing, under load and with the sash open)
- B** Height adjustment:
  - BS LM 4200 after removal of the top pressure piece from the bottom hinge (3)
  - BS LM 4200 using 4 mm hexagon socket screw in corner hinge (5) +1.5 / - 1 mm
  - BS LM 4200/SV using 4 mm hexagon socket screw in corner hinge right/left (13) +2/-1 mm
- D** Pressure adjustment:
  - BS LM 4200 using eccentric locking cam pressure piece AV (40)  $\pm 0.5$  mm

# LM 4200-D Sash dimensions



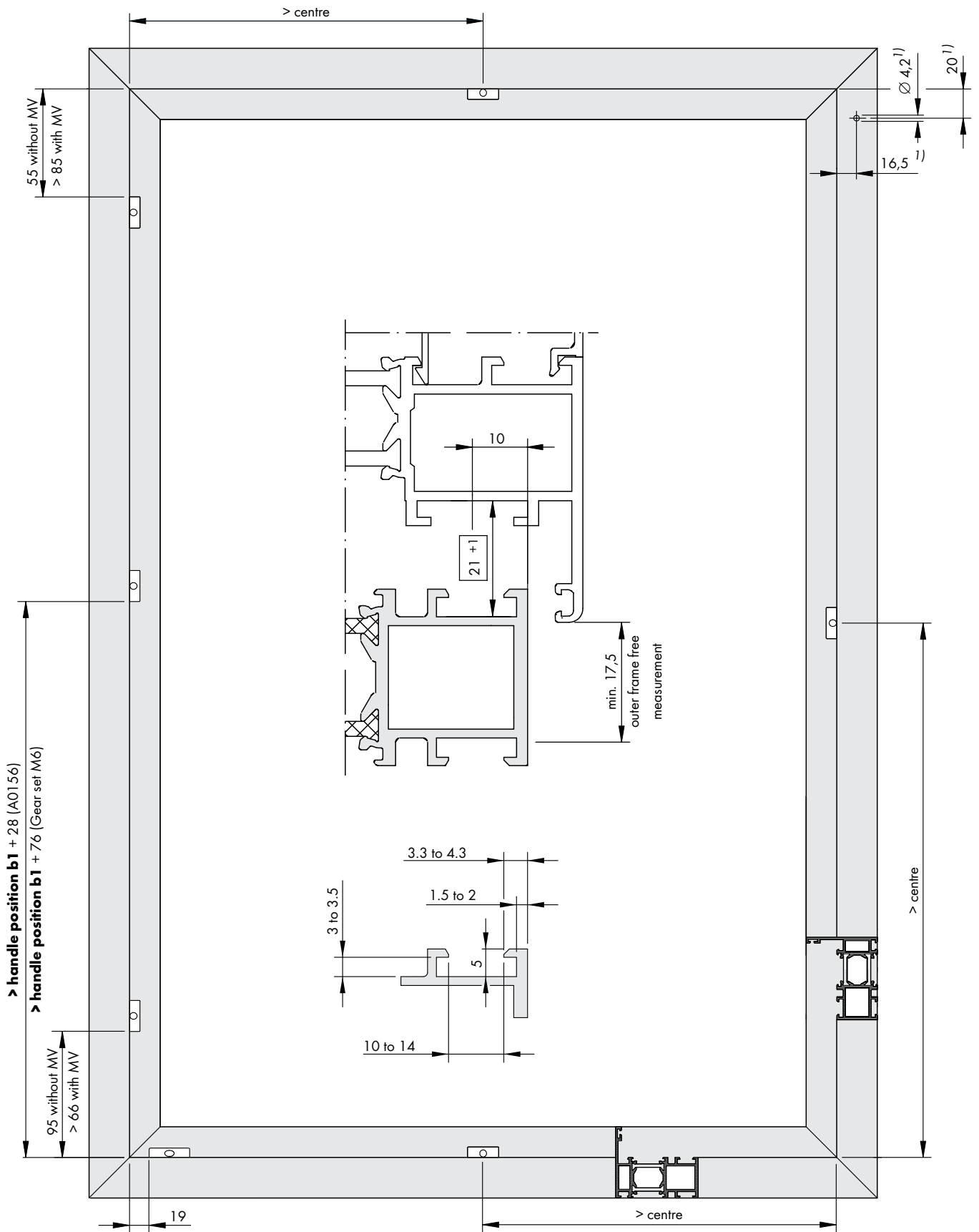
All text passages marked with ">" are for sash width and sash height  $\geq 1,250$  mm.



- 1) Processing dimensions for handle LM (1a) see Figure 1
- 2) Processing dimensions for window handle (1b) figures 2 and 3
- 3) Remove the rebate seal in the area through which the hinges pass and rework the sash profiles. Minimum pass 4 mm.

# LM 4200-D Frame dimensions

All text passages marked with ">"  
are for sash width and sash height  $\geq 1,250$  mm.



1) Sash weight 100 kg and up

## **Basic safety instructions**

### **Correct use**

The hardware described in this document is intended to be installed in an aluminium window frame by a certified window construction specialist in accordance with these instructions. The windows may only be installed vertically plumb.

The certified window construction specialist must ensure that the hardware is suitable for the application based on the specifications in these instructions and in other documents that are cited.

### **Avoid excessive strain.**

Hinge parts may break if they are subject to excessive strain. This can cause the window sash to fall out, which may lead to serious injuries.

- If you anticipate that the hinge parts will be subject to excessive strain, limit the opening angle with an LM limit stay with friction. For example, excessive strain is to be expected in schools and kindergartens.

### **Do not mix hardware.**

The hardware is technically matched. When you mix hardware from different systems or manufacturers in one window, the safe functioning of the hardware is not guaranteed. The hardware can break and cause accidents.

- Use only the hardware that is named in these instructions in combination in one window.

### **Treat the window surface before installation only.**

- Treating the surface of the window after the hardware has been installed can reduce the functional capacity of the hardware.

### **Prevent damage caused by rust and deposits.**

Corrosive substances, dirt and moisture can damage the hardware and cause hazards.

- Do **not** use acetic or acid cure sealants.
- Do **not** use the hardware in environments where the air contains aggressive or corrosive components.
- Keep the rebates free from deposits and dirt, especially from remnants of cement and plaster.
- Keep the hardware dry.

### **Always clean the hardware gently.**

- Clean the hardware only with a soft cloth and mild, diluted pH-neutral cleaning agents.
- Keep the hardware from coming into contact with scouring agents or aggressive, acidic cleaning agents.
- Dry the hardware after cleaning it.

### **Pass the information on to the user of the window.**

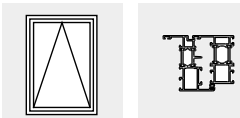
- Affix the user information (order no. 05083) to the installed window or door element in a place that can be seen easily.
- Provide the user with the following documents:
  - Maintenance/care instructions SI-AU order no. 19748
  - Operating instructions SI-AU order no. 05766

### **Disclaimer of liability**

- We assume no liability for loss of function and damage to the hardware (and to the windows and portal doors that are equipped with these) resulting from insufficient tendering, failure to follow these assembly instructions or which result from force being applied to the hardware (e.g. through improper use).

# LM 4200-K

Clampable tilt sash hardware for aluminium windows



Further details and specifications/information regarding the product and liability (guidelines: VHBH, TBDK and VHBE) can be found in the aluminium planning manual (H4006.0125EN) and **must** be observed.

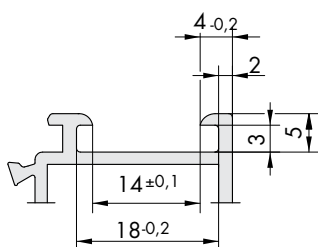
All dimensions given are final dimensions after the surface of the sections has been treated (painted, power coated etc.).

## Correct use

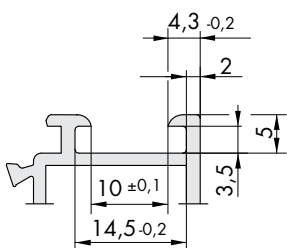
### Profile selection/alignment

#### Frame designs

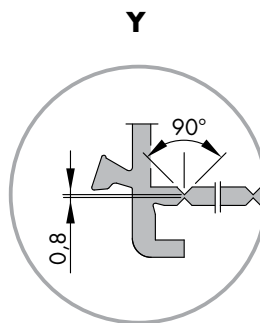
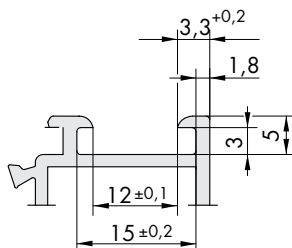
#### A0004



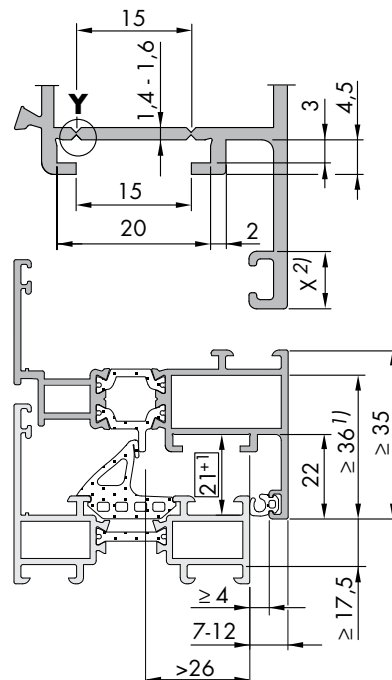
#### A0006



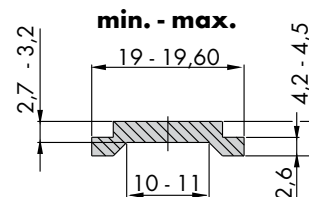
#### A0022



## Sash and frame dimensions



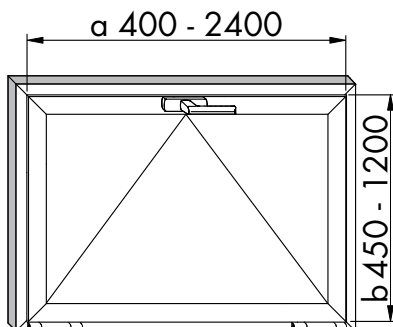
## Operating rod dimensions



- 1) For gear set M6.
- 2) See table on page 3.

## All dimensions in mm

		1 Tilt only stay	2 Tilt only stays
Sash width	(a)	min. 400 - max. 1,020	min. 1021 - max. 2,400
Sash height	(b)	min. 450 - max. 1,200	min. 450 - max. 1,200
Sash weight	(i)	max. 30 kg	max. 50 kg



## Contents

- Size ranges..... Page 1
- Hardware layout..... Page 2
- Hardware list..... Page 3
- Jigs, abbreviations..... Page 4
- Assembly instructions..... Page 5
- Assembly instructions for tilt only security stay..... Page 6
- Installing the jigs LM EL/EB LM-FP..... Page 7
- Sash dimensions..... Page 8
- Frame dimensions..... Page 9
- Important information..... Page 10

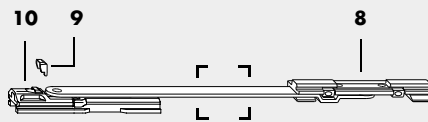
**Assembly Instructions**  
 LMen1367

Technical specifications and colours are subject to change

LMen1367\_3\_2011-11/0

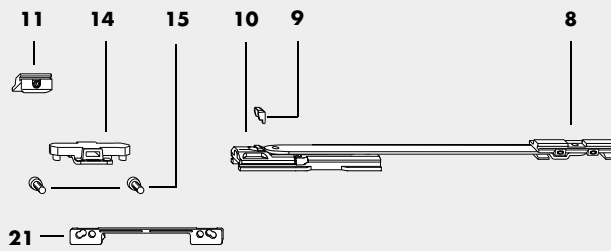
# LM 4200-K Hardware layout

a from 400 mm to 750 mm

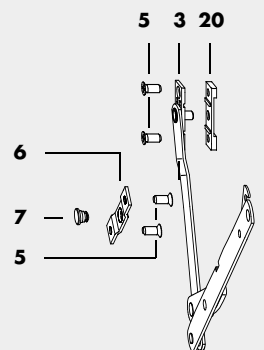
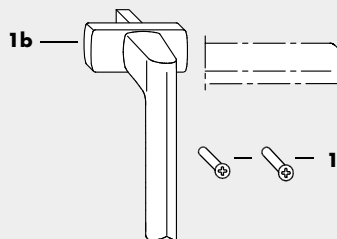
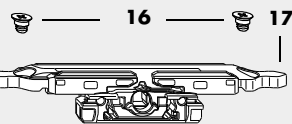
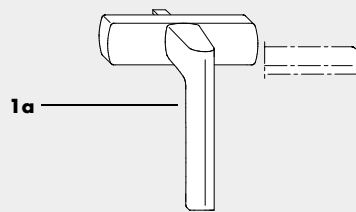
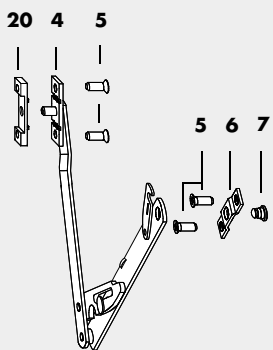
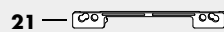
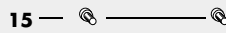
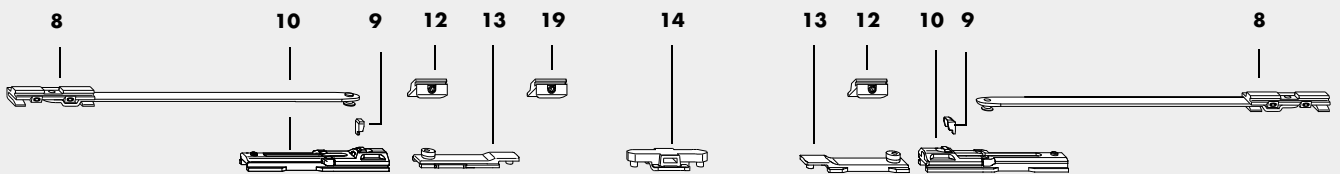


Commercially available sky-light snapper

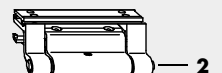
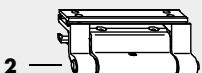
a from 751 mm to 1,020 mm





a from 840 mm (1b) and 1021 mm (1a) to 2400 mm



- |                                    |                                     |
|------------------------------------|-------------------------------------|
| <b>1a</b> Handle LM                | <b>12</b> Striker                   |
| <b>1b</b> Window handle            | <b>13</b> Slider                    |
| <b>2</b> Tilt only hinge LM 4200   | <b>14</b> Coupling bracket          |
| <b>3</b> Stay right                | <b>15</b> Cheese head screw M5 x 12 |
| <b>4</b> Stay left                 | <b>16</b> Coupling screw M6         |
| <b>5</b> Countersunk screw M5 x 13 | <b>17</b> ESG LM M6                 |
| <b>6</b> Stop plate                | <b>18</b> Countersunk screw M5 x 35 |
| <b>7</b> Bolt                      | <b>19</b> Striker                   |
| <b>8</b> Tilt only stay LM         | <b>20</b> Packer A0004              |
| <b>9</b> Barrier                   | <b>21</b> Handle support LM         |
| <b>10</b> Stop                     |                                     |
| <b>11</b> Striker                  |                                     |



# LM 4200-K Hardware list

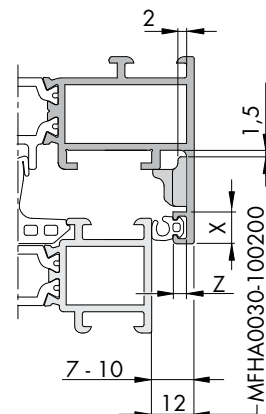
Item	Quantity	Description		Material no.		Material no.	
1a	0...1	<b>Handle LM</b>	Use for a 751 and up		See handle overview LM Drawing no.: LMen1337 in aluminium planning manual		
	0...1	<b>Window handle</b> (□ 7 mm x 25, cam Ø 10 mm)	Use for a 840 and up				
2	2...3 <sup>1)</sup>	<b>Tilt only hinge LM 4200</b>	<b>Silver</b>	1	MMKB0020-525010	20	MMKB0020-525030
			<b>Brown</b>	1	MMKB0020-533010	20	MMKB0020-533030
			<b>White RAL 9010</b>	1	MMKB0020-503010	20	MMKB0020-503030
			<b>White RAL 9016</b>	1	MMKB0020-504010	20	MMKB0020-504030
			<b>Black RAL 9005</b>	1	MMKB0020-523010	20	MMKB0020-523030
			<b>EV1</b>	1	MMKB0020-524010	20	MMKB0020-524030
			<b>ESLG</b>	1	MMKB0020-800010	20	MMKB0020-800030
			<b>Mill finish</b>	1	MMKB0020-500010	20	MMKB0020-500030
3-7	0...1 <sup>2)</sup>	<b>Tilt only security stay size 1</b>	From b 450 mm to 600 mm	1	AMFP0010-100010	5	AMFP0010-100120
	0...1 <sup>2)</sup>	<b>Tilt only security stay size 2</b>	From b 601 mm to 1,200 mm	1	AMFP0020-100010	5	AMFP0020-100120
8-10	1...2	<b>Tilt only stay LM</b>	Use tilt only stays for a 1,021 mm and up	1	848876	50	239155
11	1	<b>Striker</b>	From a 751 mm to 1,020 mm	1	859322	20	265413
12-13	1	<b>VS LM-K var. set</b>	a 1,021 mm and up (1a or 1b)	1	MMV50330-100010	20	MMV50330-100030
14-15	0...1	<b>Coupling set LM A0156</b>	For handle LM (1a)	1	MMKL0060-100010	20	MMKL0060-100030
16-18	0...1	<b>Gear set M6 Trial/RR (a &gt; 840)</b>	For window handle (1b) □ 7 x 25 /Ø 10 mm cam	1	MMGI0090-100010	20	MMGI0090-100030
19	0...1	<b>Striker</b>	1,250 mm and up additionally as MV	1	859322	20	265413
20	0...2	<b>Packer</b>	For A0004	1	889220	200	303863
21	0...1	<b>Handle support LM</b>	For handle LM (1a)	-	-	200	See table

Generally required

- 1) for FB 1201 mm and up, an additional tilt only hinge as MV is recommended  
 2) Contents of packing unit: 1 right and 1 left tilt only security stay

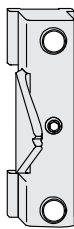
## Design variations for handle support (21)

USH	Z	X < 7 mm	X 7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-

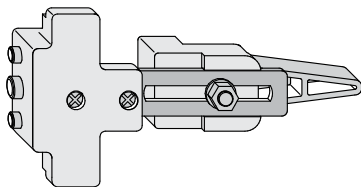




## LM 4200-K Jigs, abbreviations



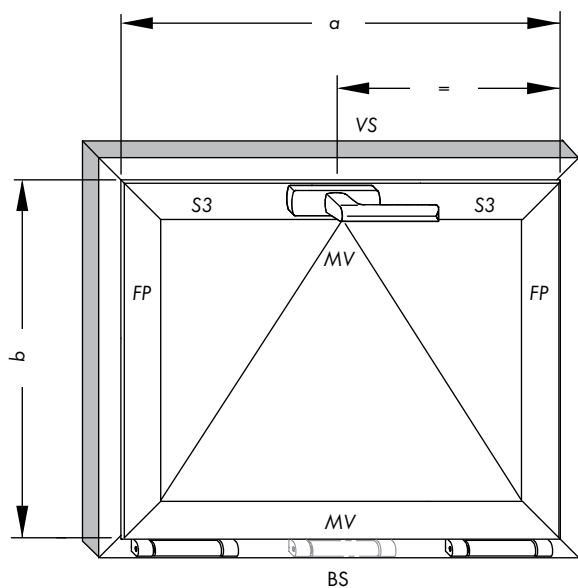
Jig LM EL LM-FP (sash jig)



Jig LM EB LM-FP (frame jig)

Description		Material no.
<b>Jig LM EL LM-FP</b>		<b>894958</b>
Jig LM EL LM-FP	Sash jig	158647
Jig LM EB LM-FP	Frame jig	158630

<b>Required tools</b>	See assembly instructions LMen1200	
-----------------------	------------------------------------	--



### Abbreviations

The following abbreviations are used in these assembly instructions:

a	Sash width
b	Sash height
BS	Hinge side
EV1	Anodised
ESLG	Brushed stainless steel-look
FP	Tilt only security stay
MV	Centre lock
Nm	Torque in Nm
VS	Locking side
USH	Rebate height
S3	Operating rods, top horizontal

## LM 4200-K Assembly instructions

- Preparation**
- A** For a (sash width) of 751 mm and up, make punch out for handle LM (1a), window handle (1b) (see page 8).
  - B** Open the operating rod guiding groove.
  - C** Remove the rebate seal in the area through which the hinges pass and rework the sash profiles according to the specifications on page 8.
  - D** For a 1021 mm and up, rework operating rods S3 according to specifications on page 8.

- Sash**
- a from 400 - 2,400 mm**
- A** Insert tilt only hinge LM 4200 (2) horizontally from below.
  - B** Position tilt only hinge LM 4200 (2) according to specifications on page 8 and screw on with countersunk screws M5 x 7 (torque  $2.5 \pm 0.25$  Nm).
  - C** Position stop (10) according to dimensions on page 8 and lock it using punching screw (torque  $2.5 \pm 0.25$  Nm).
- a from 400 - 750 mm**
- D** Fasten commercially available sky-light snapper (sash hardware).
- a from 751 - 1,020 mm**
- E** Insert coupling bracket (14) horizontally from above.
  - F** Attach handle LM (1a) using cheese head screws M5 x 12 (15) (torque  $2.5 \pm 0.25$  Nm).
- a from 840 - 2,400 mm**
- E** Operating rods horizontally from above.
  - F** Insert ESG LM M6 (17) in provided opening (see page 8 Figure 3).
  - G** Attach ESG LM M6 (17) to operating rods using coupling screws M6 (16) (PZ 2, torque  $2.75 \pm 0.25$  Nm).
  - H** Attach handle LM (1a) using cheese head screws M5 x 12 (15) (torque  $2.5 \pm 0.25$  Nm).
- a from 1,021 - 2,400 mm**
- E** Insert slider (13) with operating rod S3, operating rod S3 and slider (13) horizontally from above.
  - F** Insert ESG LM M6 (17) in provided opening (see page 8 Figure 3).
  - G** Attach ESG LM M6 (17) to operating rods S3 using coupling screws M6 (16) (PZ 2, torque  $2.75 \pm 0.25$  Nm).
  - H** Attach window handle (1b) using countersunk screw M5 x 35 (18) (PZ 2, torque  $2.5 \pm 0.25$  Nm).
- For gear LM*
- F** Insert ESG LM M6 (17) in provided opening (see page 8 Figure 3).
  - G** Attach ESG LM M6 (17) to operating rods using coupling screws M6 (16) (PZ 2, torque  $2.75 \pm 0.25$  Nm).
- For gear LM*
- H** Attach handle LM (1a) using cheese head screws M5 x 12 (15) (torque  $2.5 \pm 0.25$  Nm).
- For gear LM*
- E** Insert slider (13) with operating rod S3, operating rod S3 and slider (13) horizontally from above.
  - F** Insert ESG LM M6 (17) in provided opening (see page 8 Figure 3).
  - G** Attach ESG LM M6 (17) to operating rods S3 using coupling screws M6 (16) (PZ 2, torque  $2.75 \pm 0.25$  Nm).
- For gear LM*
- H** Attach window handle (1b) using countersunk screw M5 x 35 (18) (PZ 2, torque  $2.5 \pm 0.25$  Nm).

- Frame**
- a from 400 - 2,400 mm**
- A** Position tilt only stays LM (8) according to specification on page 9 and fix each in place with grub screws (torque  $2.5 \pm 0.25$  Nm).
- a from 400 - 750 mm**
- B** Fasten commercially available sky-light snapper (frame hardware).
- a from 751 - 2,400 mm**
- C** Position strikers (11, 12, 19) according to specification on page 9 and fix each in place with grub screws (torque  $1.5 \pm 0.25$  Nm).

- Final installation**
- A** Insert sash in the frame.
  - B** Align sash laterally.
  - C** Open sash and tighten cheese head screws on top hinge (torque  $2.5 \pm 0.25$  Nm).
  - D** Check that the window works correctly.
  - E** If necessary, adjust sash contact pressure using eccentric locking cam.

- Hinging the tilt only stay**
- A** Push back the anti-lift device of the stop (10) (Figure 1).
  - B** Insert pan head rivet of the tilt only stay LM (8) in the provided guide (Figure 1).

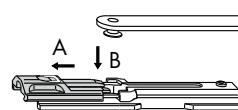


Figure 1

- C** Release the anti-lift device of the stop (10) (Figure 2).
- D** Insert barrier (9) in provided groove and snap into place (Figure 2).

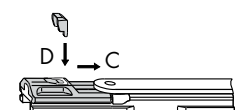


Figure 2

## LM 4200-K Installing the tilt only security stay

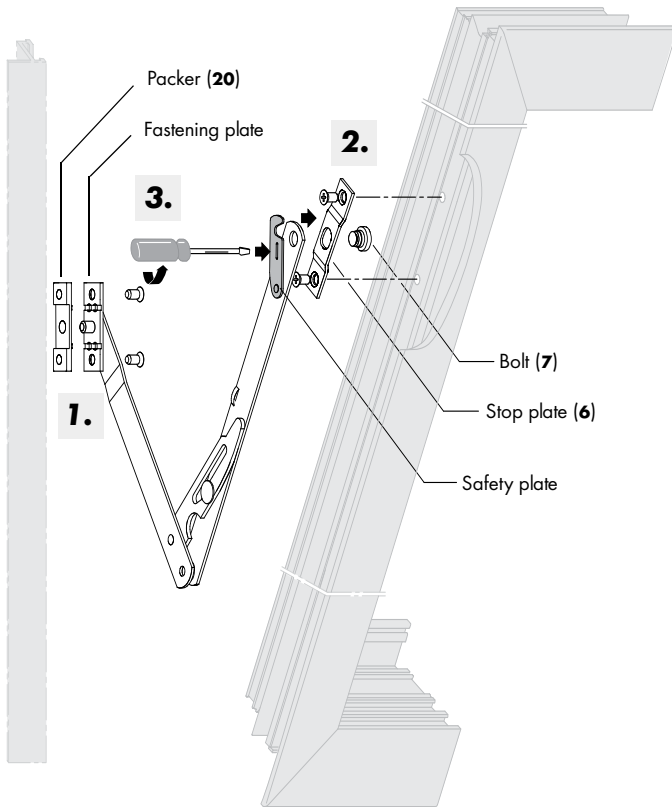
### ⚠️ WARNUNG

#### Unsecured sash frames can pose a risk of injury.

? When being hinged into the frame, the unsecured sash frame can tilt downwards suddenly and lead to serious bodily injury.

#### Always have two people present when hinging or unhinging the tilt sash.

All rules and regulations regarding job safety must always be observed when working above the head, on ladders and at great heights.



#### Installing the tilt only security stay

##### Preparation

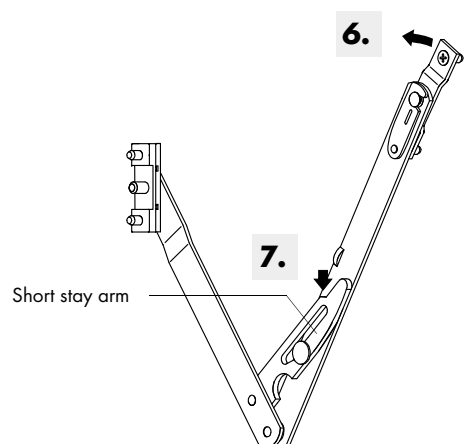
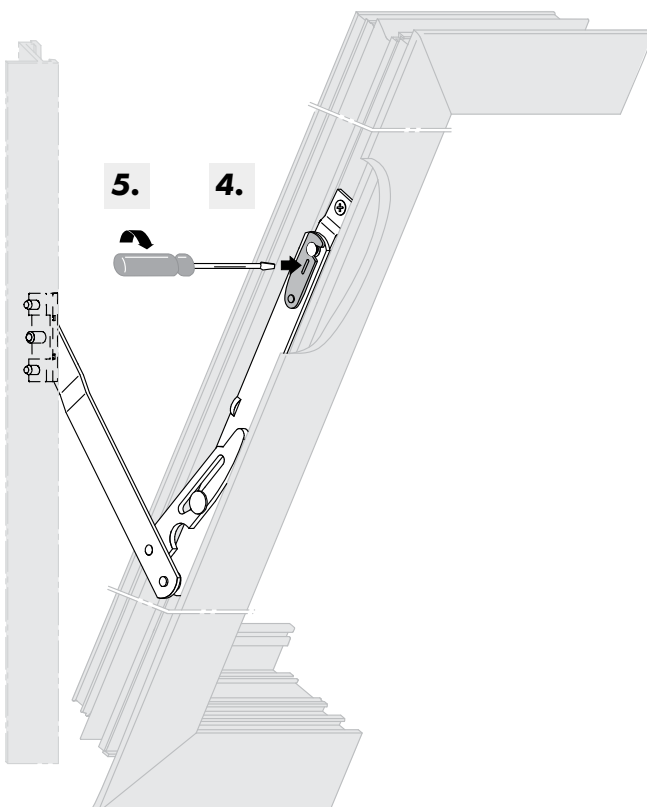
Drill holes for tilt only security stay according to specifications on pages 7, 8 and 9.

1. Apply fastening plate to frame groove and fasten using countersunk groove screws M5 x 13 (5) (torque  $2.5 \pm 0.25$  Nm).
2. Insert stop plate (6) and bolt (7) in the guiding groove and fasten with countersunk screws M5 x 13 (5) (torque  $2.5 \pm 0.25$  Nm).
3. Tilt up the safety plate of the tilt only security stay.
4. Hinge tilt only security stay into the installed bolts (7).
5. Tilt back the safety plate to the original position.

Unhinge it in the reverse order.

#### Stay in full tilt cleaning position

6. In tilt position, lift sash slightly.
7. Press short stay arm downward and lower sash into full tilt cleaning position.



## LM 4200-K Installing the jigs LM EL/EB LM-FP

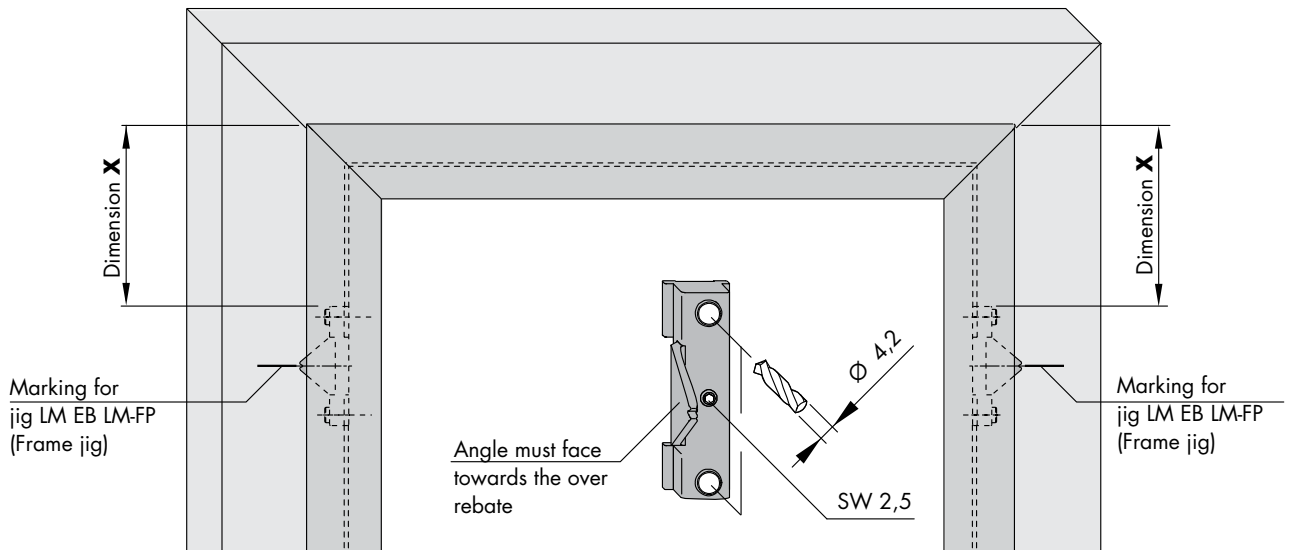


Figure 1

### Installing the jig LM EL LM-FP (sash jig)

8. Insert jig LM EL LM-FP in the sash groove.
9. Position jig LM EL LM-FP according to dimensions given and secure with grub screw SW 2.5 so that it cannot move.
10. Drill holes  $\text{Ø } 4.2$  for stop plate (6) (see Figure 1).
11. Make markings for jig LM EB LM-FP (frame jig) on frame (see Figure 1).

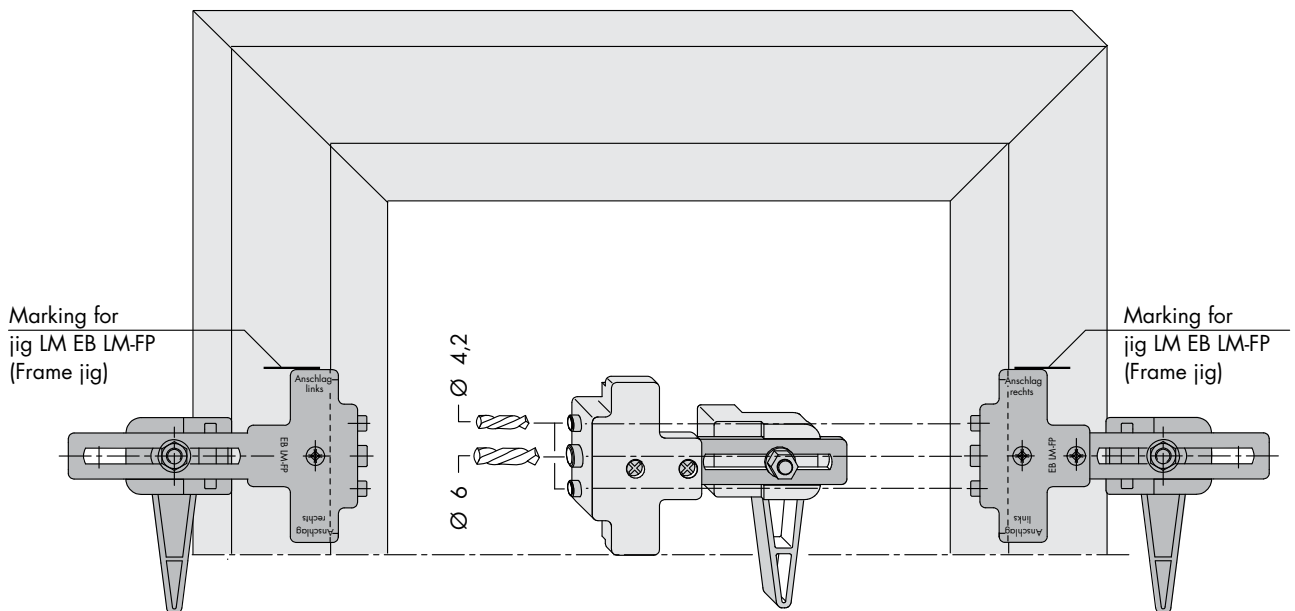


Figure 2

### Installing the jig LM EB LM-FP (frame jig)

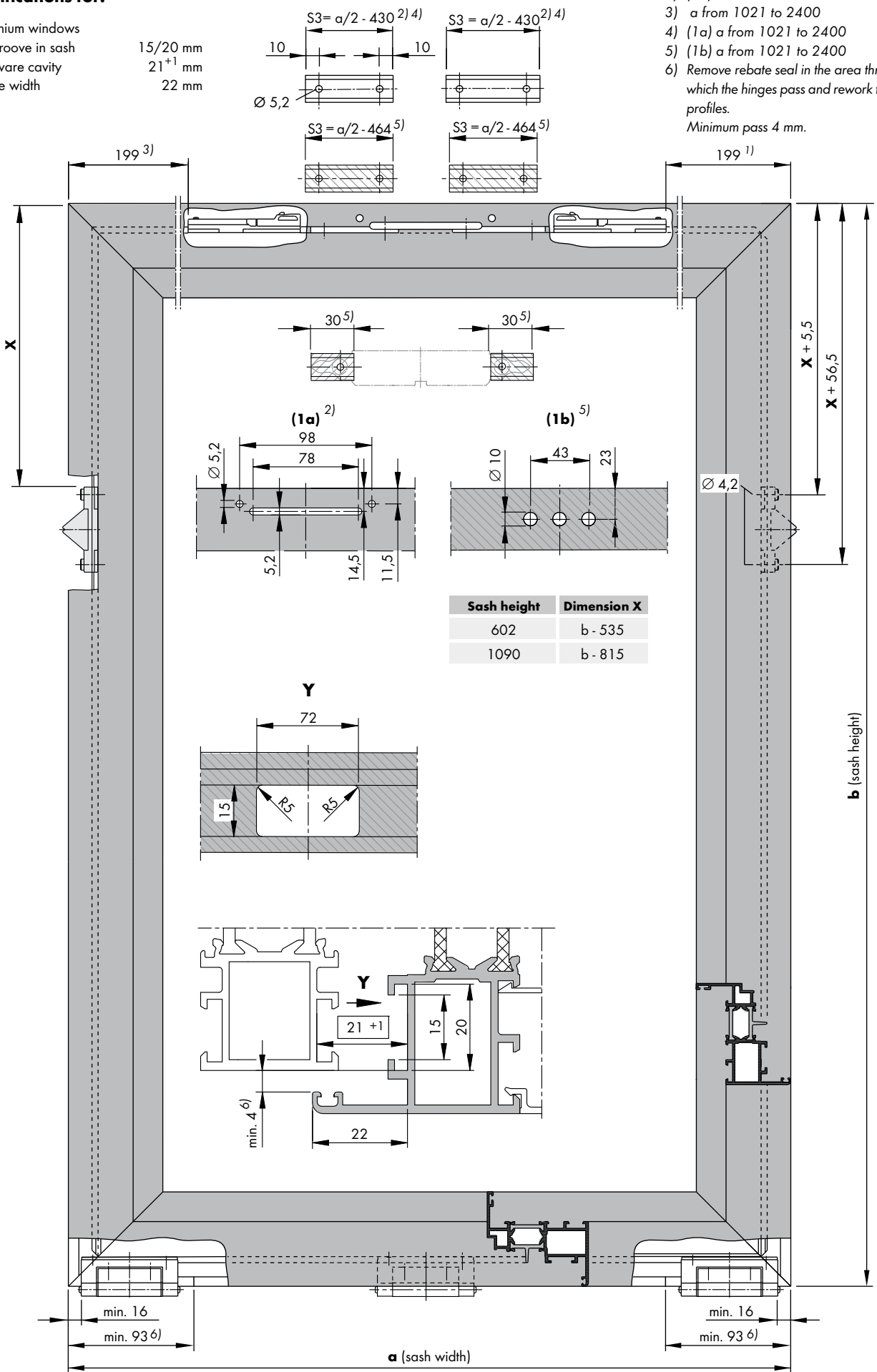
12. Position jig LM EB LM-FP and fix in place (see Figure 2).
13. Drill holes  $\text{Ø } 4.2$  and hole (6) (see Figure 2).

# LM 4200-K Sash dimensions

## All dimensions (in mm) and specifications for:

Aluminium windows	15/20 mm
Eurogroove in sash	21 <sup>+1</sup> mm
Hardware cavity	22 mm
Rebate width	22 mm

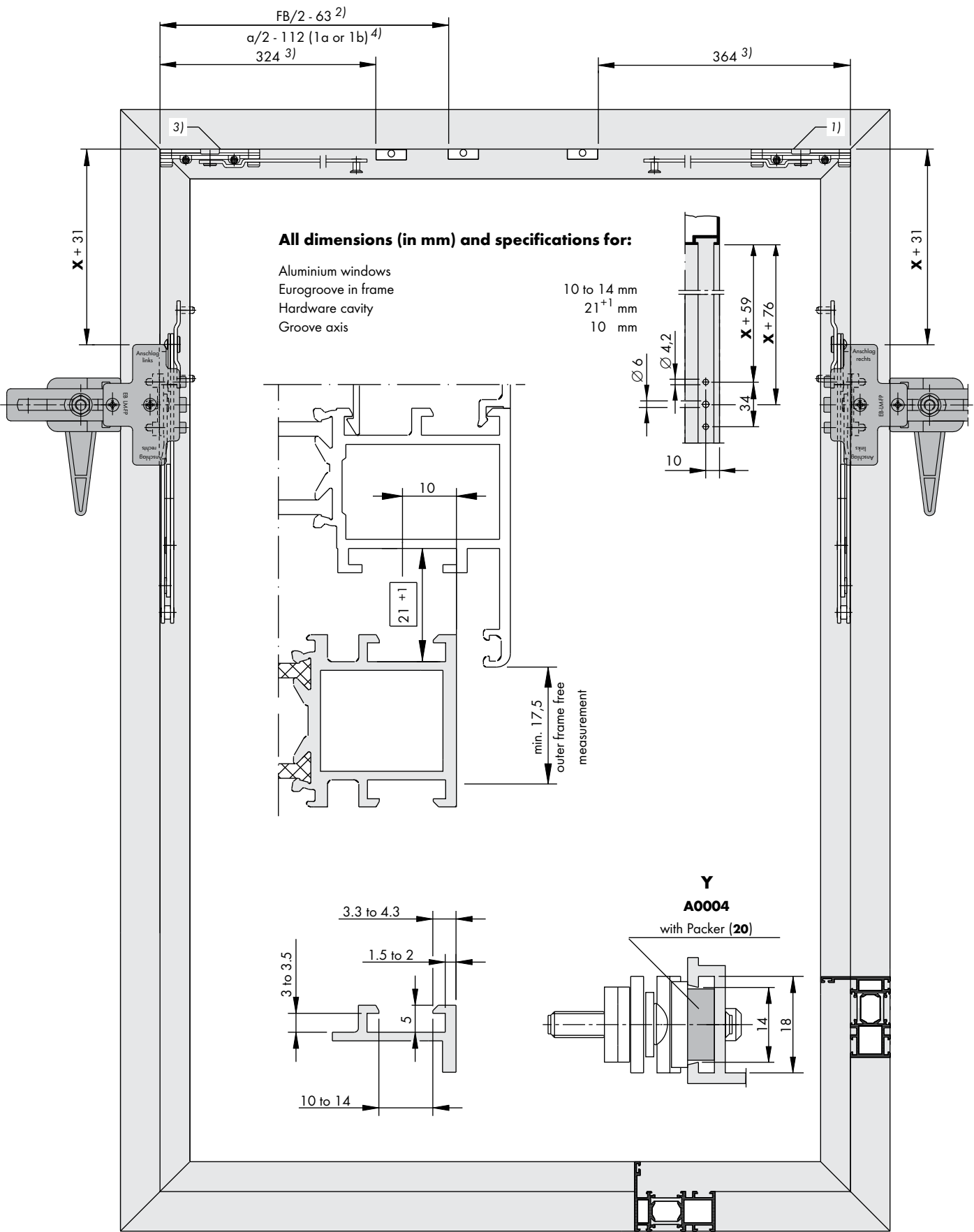
- 1) a from 400 to 2400
- 2) (1a) a from 751 to 2400
- 3) a from 1021 to 2400
- 4) (1a) a from 1021 to 2400
- 5) (1b) a from 1021 to 2400
- 6) Remove rebate seal in the area through which the hinges pass and rework the sash profiles.  
Minimum pass 4 mm.



Sash height	Dimension X
602	b - 535
1090	b - 815

# LM 4200-K Frame dimensions

- 1) FB from 400 to 2,400
- 2) FB from 751 to 1,020
- 3) FB from 1,021 to 2,400
- 4) FB from 1,251 to 2,400



## **Basic safety instructions**

### **Correct use**

The hardware described in this document is intended to be installed in an aluminium window frame by a certified window construction specialist in accordance with these instructions. The windows may only be installed vertically plumb.

The certified window construction specialist must ensure that the hardware is suitable for the application based on the specifications in these instructions and in other documents that are cited.

### **Avoid excessive strain.**

Hinge parts may break if they are subject to excessive strain. This can cause the window sash to fall out, which may lead to serious injuries.

### **Do not mix hardware.**

The hardware is technically matched. When you mix hardware from different systems or manufacturers in one window, the safe functioning of the hardware is not guaranteed. The hardware can break and cause accidents.

- Use only the hardware that is named in these instructions in combination in one window.

### **Treat the window surface before installation only.**

- Treating the surface of the window after the hardware has been installed can reduce the functional capacity of the hardware.

### **Prevent damage caused by rust and deposits.**

Corrosive substances, dirt and moisture can damage the hardware and cause hazards.

- Do **not** use acetic or acid cure sealants.
- Do **not** use the hardware in environments where the air contains aggressive or corrosive components.
- Keep the rebates free from deposits and dirt, especially from remnants of cement and plaster.
- Keep the hardware dry.

### **Always clean the hardware gently.**

- Clean the hardware only with a soft cloth and mild, diluted pH-neutral cleaning agents.
- Keep the hardware from coming into contact with scouring agents or aggressive, acidic cleaning agents.
- Dry the hardware after cleaning it.

### **Pass the information on to the user of the window.**

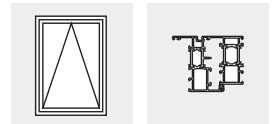
- Affix the user information (order no. 05083) to the installed window or door element in a place that can be seen easily.
- Provide the user with the following documents:
  - Maintenance/care instructions SI-AU order no. 19748
  - Operating instructions SI-AU order no. 05766

### **Disclaimer of liability**

- We assume no liability for loss of function and damage to the hardware (and to the windows and portal doors that are equipped with these) resulting from insufficient tendering, failure to follow these assembly instructions or which result from force being applied to the hardware (e.g. through improper use).

# LM 4200-K/ZV

The clampable tilt sash fitting for aluminium windows



More details and specifications/guidelines on the product and on liability (Guidelines: 'VHBH, TDBK and VHBE') are to be checked without fail in the Aluminium Specifiers Manual (H4006.0125DE).

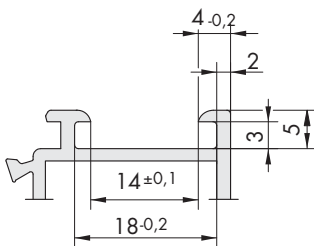
The specified dimensions are finished dimensions after the surface treatment of the profiles e.g. painting, powder coating etc.!

## Intended use

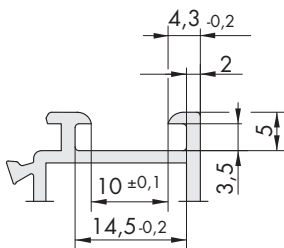
### Profile selection/alignment

### Frame groove dimensions

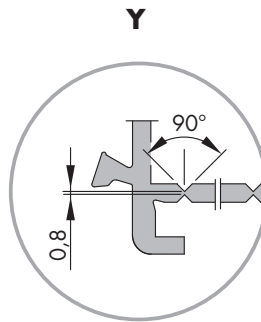
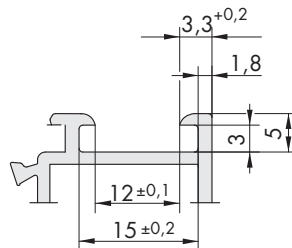
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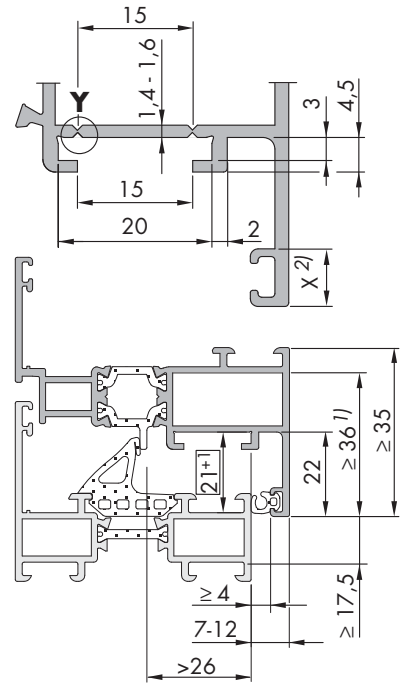
#### A0006



#### A0022

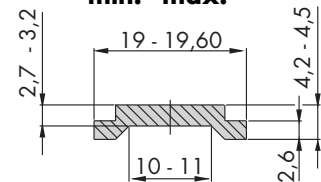


## Sash- and frame dimensions



## Operating rod dimensions

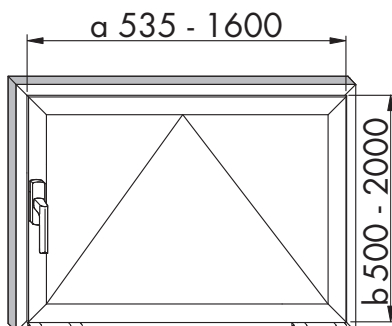
min. - max.



## All dimensions in mm

1) On gearbox M6  
2) Refer to table on page 3

		1 tilt sash stay	2 tilt sash stays
sash width	(a)	min. 535 - max. 935	min. 936 - max. 1600
sash height	(b)	min. 500 - max. 2000	min. 500 - max. 2000
sash weight	(c)	max. 40 kg	max. 100 kg



## Contents

size range.....	page 1
layout of fittings.....	page 2
list of fittings.....	page 3
installation aids, abbreviations.....	page 4
installation instruction.....	page 5
sash dimensions.....	page 6
frame dimensions.....	page 7
important notes.....	page 8

**Installation instructions**  
 LMen1368

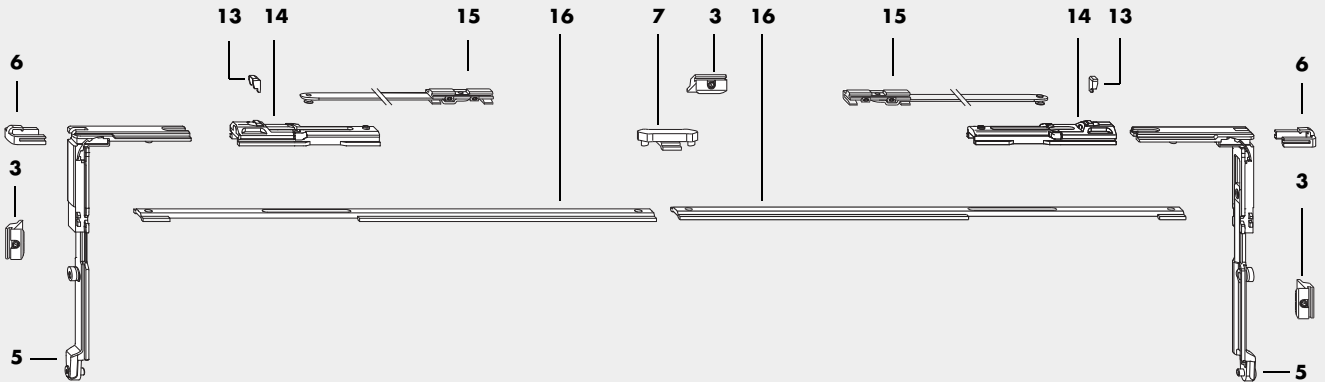
Technical specifications and colours are subject to change

LMen1368\_3\_2011-09/0

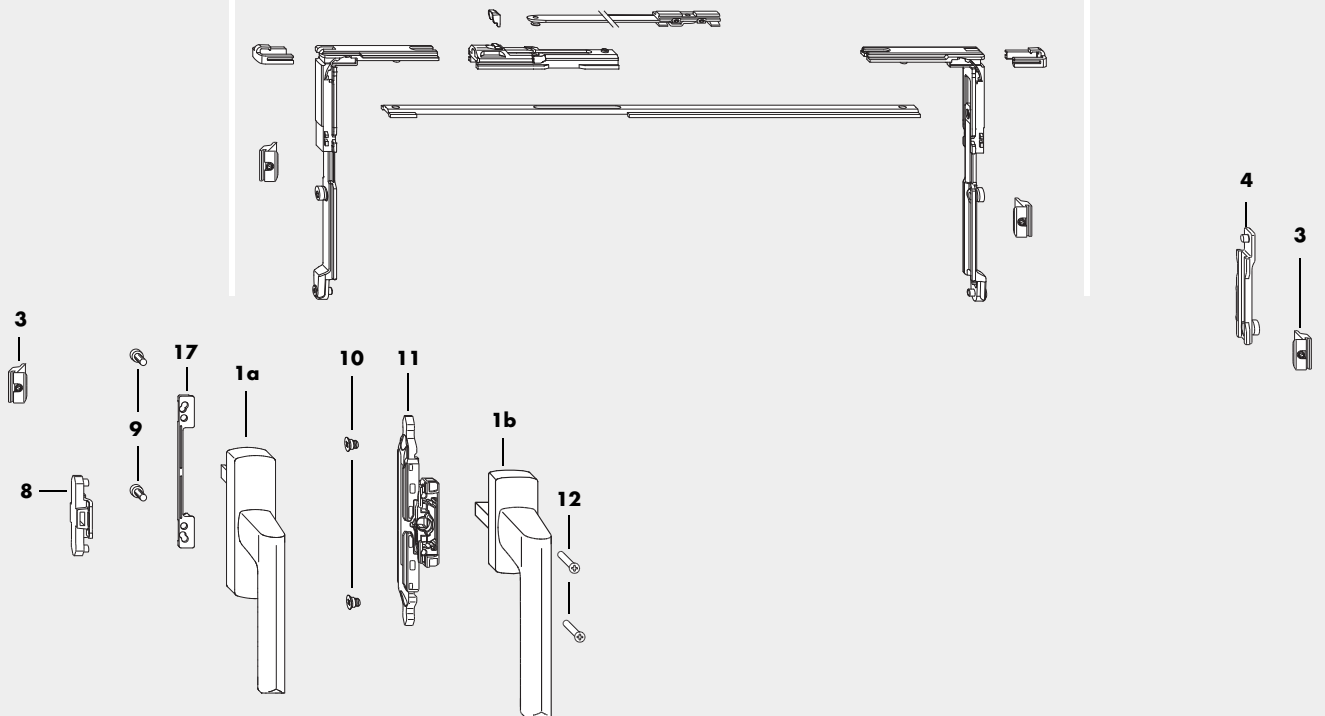


# LM 4200-K/ZV Fittings Layout

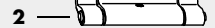
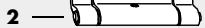
a from 936 mm to 1600 mm




a from 535 mm to 920 mm



- |           |                      |           |                           |
|-----------|----------------------|-----------|---------------------------|
| <b>1a</b> | Handle LM            | <b>9</b>  | Cheese head screw M5 x 12 |
| <b>1b</b> | Window handle        | <b>10</b> | Countersunk screw M6      |
| <b>2</b>  | Rebate hinge LM 4200 | <b>11</b> | ESG LM M6                 |
| <b>3</b>  | Striker              | <b>12</b> | Csk screw M5 x 35         |
| <b>4</b>  | Slider               | <b>13</b> | Locking piece             |
| <b>5</b>  | Corner drive VSU     | <b>14</b> | Retainer                  |
| <b>6</b>  | Clamping piece       | <b>15</b> | Tilt sash stay            |
| <b>7</b>  | Coupling piece       | <b>16</b> | Drive rod                 |
| <b>8</b>  | Coupling bracket     | <b>17</b> | Handle support LM         |



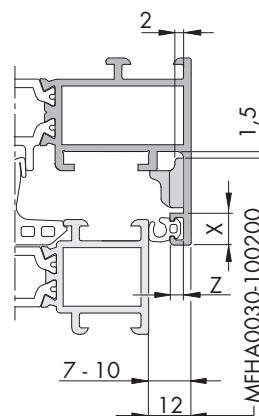
# LM 4200-K/ZV Hardware list

Pos.	Qty.	Description		Material no.		Material no.	
1	0...1	Handle LM		Refer to handle overview LM Drawing no.: LMen1337 in the Aluminium Specifiers Manual			
1	0...1	Window handle (□7mm x 25, lugs Ø 10 mm)					
always necessary	2...3 <sup>1)</sup>	Rebate hinge LM 4200	silver	1	MMKB0020-525010	20	MMKB0020-525030
			brown	1	MMKB0020-533010	20	MMKB0020-533030
			white RAL 9010	1	MMKB0020-503010	20	MMKB0020-503030
			white RAL 9016	1	MMKB0020-504010	20	MMKB0020-504030
			black RAL 9005	1	MMKB0020-523010	20	MMKB0020-523030
			EV1	1	MMKB0020-524010	20	MMKB0020-524030
			ESLG	1	MMKB0020-800010	20	MMKB0020-800030
			mill	1	MMKB0020-500010	20	MMKB0020-500030
3-7	1	ZV LM-K Var. Set	1	MMZV0030-100010	20	MMZV0030-100030	
8-9	0...1	Coupling set LM A0156	for 1a	1	MMKL0060-100010	20	MMKL0060-100030
10-12	0...1	Gear set M6 Trial/RR	in conjunction with (1b)	1	MMGI0090-100010	20	MMGI0090-100030
13-15	1...2	Tilt sash stay LM	from a 936 mm 2 tilt sash stays LM	1	848876	50	239155
16	1...2	Drive rod	from a 936 mm 2 drive rods	1	848913	20	239162
17	0...1	Handle support LM	-	-	200	see table	

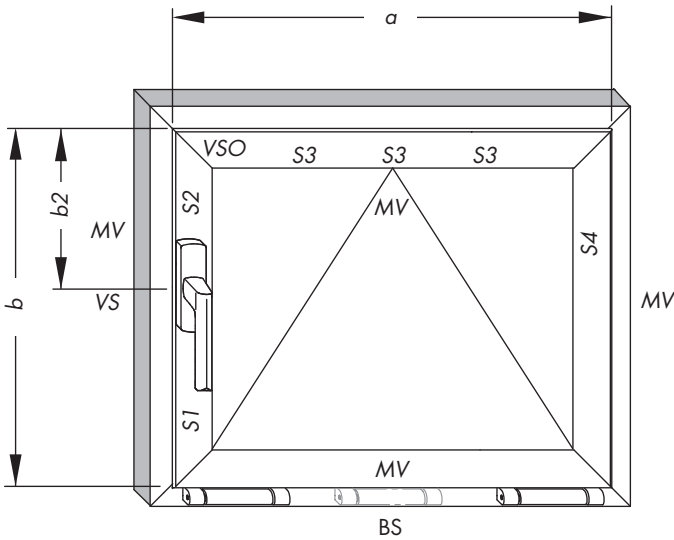
1) from a 1201 mm it is recommended to use an additional turn and rebate hinge LM 4200 as MV

## Handle support versions (17)

USH	Z	X < 7 mm	X 7,1 - 8,5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2,1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-



Description	
<b>Necessary tools</b>	please see installation instructions LMgb1200



### Abbreviations

The following abbreviations are used in this installation instruction

- BS hinge side
- a sash width
- b sash height
- G handle position
- MV centre lock
- VS locking side
- VSO top locking side
- S1 drive rod, top locking side
- S2 drive rod, top horizontal
- S3 drive rod, top horizontal
- S4 drive rod opposite to locking side

## Installation Instructions

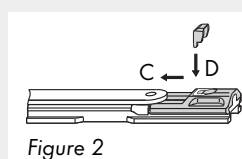
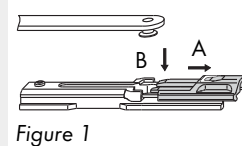
- Preparation**
- A** Prepare the handle LM (1a) / handle (1b) holes.
  - B** Open the drive gear grooves.
  - C** If necessary remove the over rebate seals in the area of the hinges or re-work sash profiles according to the detail on page 6
  - D** Prepare the drive rods S1 and S4 according to the details on page 6.

- Sash**
- For sash width between **535 mm and 935 mm:**
- A** Slide in stop (14) using the drive rod S3 (16) horizontally at the top.
  - B** Slide-in coupling bracket (8) with drive rod S2 and corner drive VSU (5) on the VS (locking side).
  - C** Connect together the corner drive VSU (5) and drive rod S3 (16) and secure using clamping piece EUL (6).
  - D** Position the stop (14) according to the dimensions on page 6 and lock in place with the punching screws (Torque  $2.5 \pm 0.25$  Nm).
- For LM gears
- E** Insert ESG LM M6 (11) into the intended opening (See Page 6, figure 3).
- For LM gears
- F** Connect the ESG LM M6 (11) using the M6 coupling screws (10) to the S1 and S2 drive rods (PZ 2, Torque  $2.75 \pm 0.25$  Nm).
- For LM gears
- G** Screw on handle (1b) using countersunk-head screws PZ M5 x 35 (12) (PH 2, Torque  $2.5 \pm 0.25$  Nm).
- For sash width between **936 mm to 1600 mm:**
- C** Insert stop (14) with drive rod S3 (16), locking bolt (7) and drive rod S3 (16) with stop (14) in the top horizontal.
  - D** Slide in coupling bracket (8) with drive rod S2 and corner drive VSU (5) on the VS (locking side).
  - E** Connect the corner drive VSU (5) with the drive rod S3 (16) and secure using clamping piece EUL (6).
- For LM gears
- H** Insert ESG LM M6 (11) into the intended opening.
- For LM gears
- I** Connect the ESG LM M6 (11) using the coupling screws M6 (10) to the S1 & S2 drive rods (PZ 2, Torque  $2.75 \pm 0.25$  Nm).
- For LM gears
- F** Screw on handle (1b) using countersunk-head screw PZ M5 x 35 (12) (PZ 2, Torque  $2.5 \pm 0.25$  Nm). Position the stop (14) according to the dimensions on page 6 and lock in place with the punching screws (Torque  $2.5 \pm 0.25$  Nm).
- For sash width between **535 mm to 1600 mm:**
- J** Connect the slider (4) with the drive rod S4 and corner drive VSU (5) and slide in opposite the VS (locking side), connect to drive rod S3 (16) and secure using clamping piece EUL (6).
  - K** Screw on handle LM (1a) using cylinder-head screws M5 x 12 (9) (Torque  $2.5 \pm 0.25$  Nm).
  - L** Position tilt-only hinge LM 4200 (2) according to the specifications on page 6 and fasten using countersunk-head screw M5 x 7 (Torque  $2.5 \pm 0.25$  Nm).

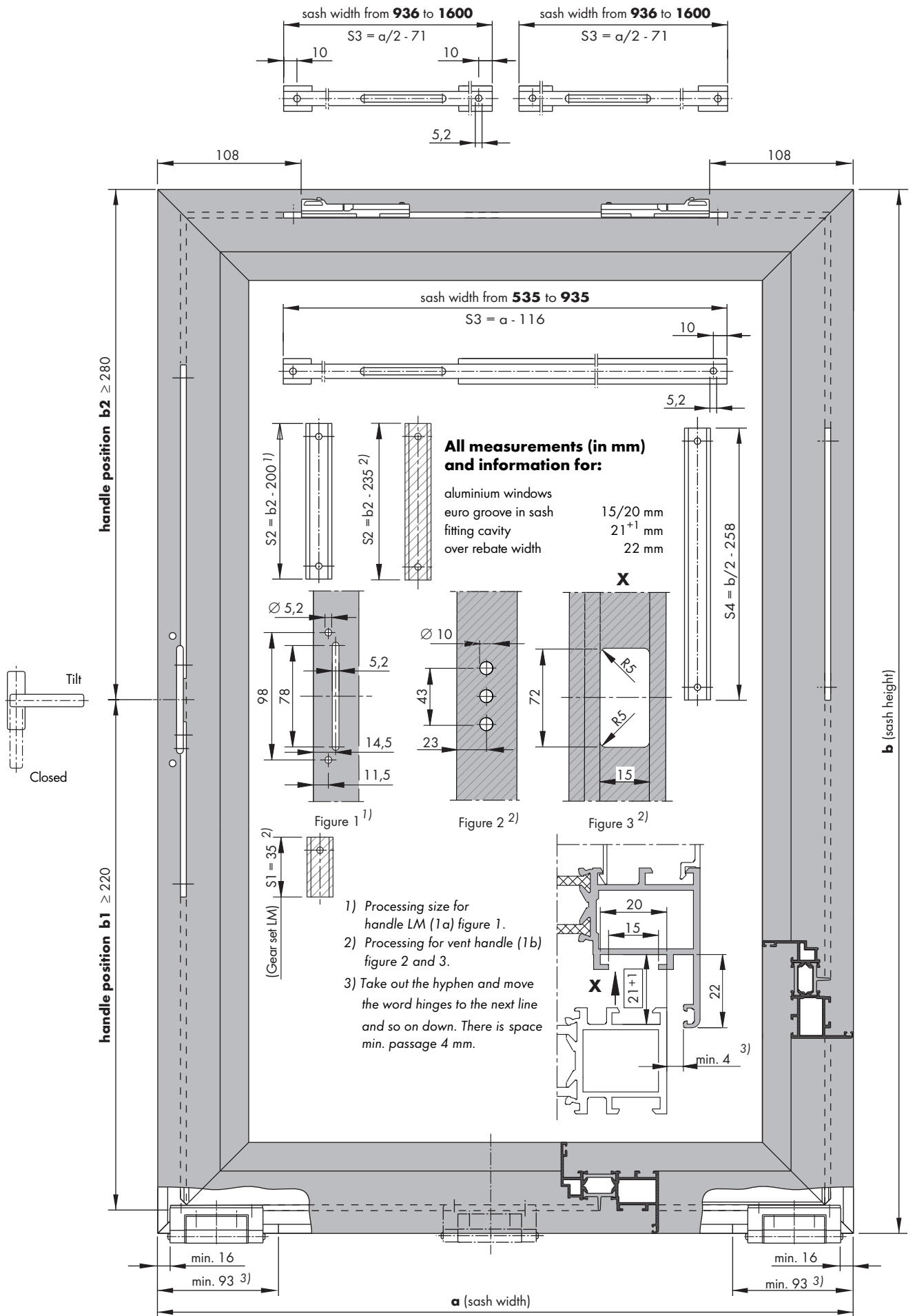
- Frame**
- Position strikers (3) as specified on page 7 and clamp each with grub screws (threaded pins) (Torque  $1.5 \pm 0.25$  Nm).

- Final assembly LM**
- A** Insert sash into the frame.
  - B** Insert hinge part into the frame groove.
  - C** Laterally align sash. Open sash and tighten the cylinder-head screws on the top hinge (Torque  $2,5 \pm 0,25$  Nm).
  - D** Check window for operation.
  - E** If necessary, adjust the closing pressure using the eccentric locking cams.

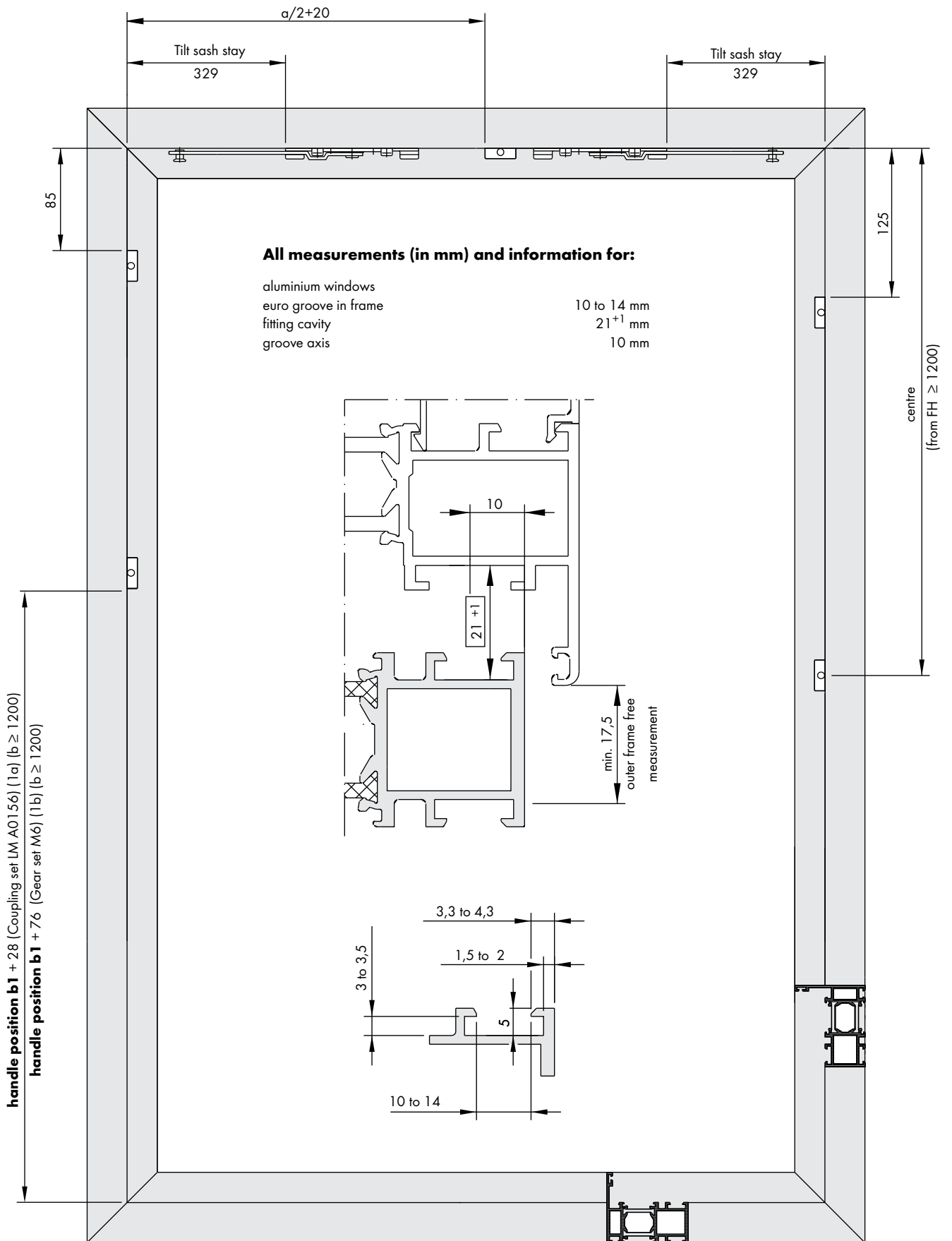
- Hanging the tilt stay**
- A** Slide back the retainer (14) as shown in figure 1.
  - B** Attach the tilt sash stay (15), figure 1.
  - C** Release the retainer (14) as shown in figure 2.
  - D** Slide in locking piece (13), figure 2.



# LM 4200-K/ZV Sash Dimensions



# LM 4200-K/ZV Frame Dimensions



## **Basic safety instructions**

### **Intended use**

The fittings described in this document are intended to be installed in an aluminium window frame by a certified window construction specialist in accordance with these instructions. The windows may only be installed vertically plumb. The certified window construction specialist must ensure that the fittings are suitable for the application based on the specifications in these instructions and in other documents that are cited.

### **Avoid excessive strain**

Hinge parts may break if they are subject to excessive strain. This can cause the window sash to fall out, which may lead to serious injuries.

- If you anticipate that the hinge parts will be subject to excessive strain, limit the opening angle with an LM limit stay with friction. For example, excessive strain is to be expected in nurseries, schools and colleges.

### **Do not mix fittings**

The fittings are technically matched. When you mix fittings from different systems or manufacturers in one window, the safe functioning of the fittings is not guaranteed, they could break and cause accidents. The fittings can break and cause accidents.

- Use only the fittings that are named in these instructions in combination in one window.

### **Treat the window surface before installation only**

- Treating the surface of the window after the fittings have been installed can reduce the functional capacity of the fittings.

### **Prevent damage caused by rust and deposits**

Corrosive substances, dirt and moisture can damage fittings and cause hazards.

- Do **not** use acetic or acid cure sealants.
- Do **not** use the fittings in environments where the air contains aggressive or corrosive components.
- Keep the rebates free from deposits and dirt, especially from remnants of cement and plaster.
- Keep the fittings dry.

### **Always clean the fittings gently**

- Clean the fittings only with a soft cloth and mild, diluted pH-neutral cleaning agents.
- Keep the fittings from coming into contact with scouring agents or aggressive, acidic cleaning agents.
- Dry the fittings after cleaning them.

### **Pass the information on to the user of the window**

- Affix the user information (order no. 05083) to the installed window or door element in a place that can be seen easily.
- Provide the user with the following documents:
  - Maintenance/Care instructions (order no. 15750)
  - Operating instructions (order no. 05766)

### **Disclaimer of liability**

- We assume no liability for loss of function and damage to the fittings (as well as the windows and portal doors that are equipped with them) resulting from insufficient maintenance, failure to follow these installation instructions or which result from force being applied to the fittings (e.g. through improper use).

### **Feedback on documentation**

- We are always happy to receive comments and suggestions for the improvement of our documentation. Please e-mail us your comments to [dokumentation@siegenia-aubi.com](mailto:dokumentation@siegenia-aubi.com).

# ALU axxent-DK/TBT

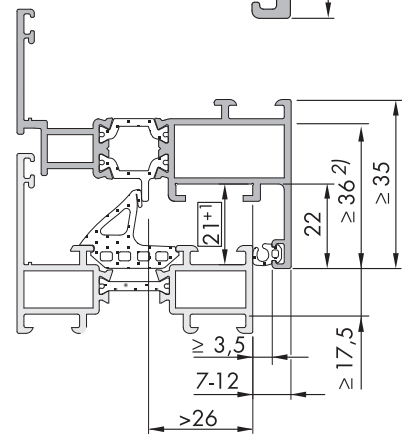
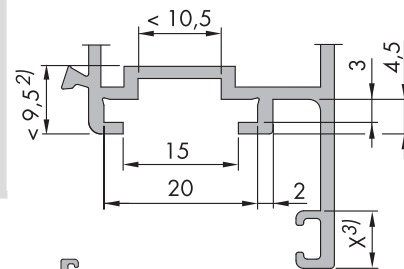
Concealed tilt sash hardware for aluminium windows and window frames



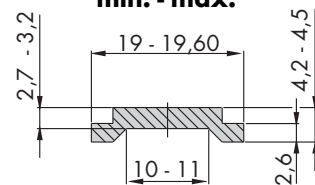
Further details and specifications/information regarding the product and liability (guidelines: VHBH, TBDK und VHBE) can be found in the aluminium planning manual (H4006.3042EN) and must be **observed**.

All dimensions given are final dimensions after the surface of the sections has been treated e.g. painted, powder coated etc.!

## Sash and frame dimensions



## Push rod dimensions min. - max.

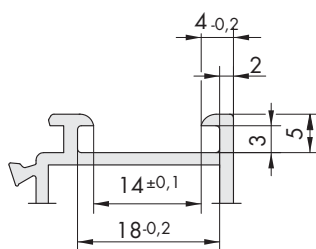


## Intended use

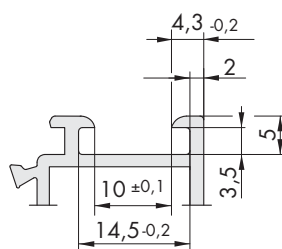
### Profile selection/alignment

#### Frame designs

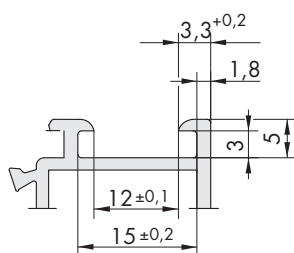
A0004



A0006<sup>4)</sup>





A0022<sup>4)</sup>



- 1) See diagram on page 6
- 2) Gear set M6
- 3) See tables 2, 3, 14 and 15
- 4) Profile machining see page 11

## All dimensions in mm

Sash width <sup>1)</sup>	(a)	min. 450 - max. 1600
Sash height <sup>1)</sup>	(b)	min. 550 - max. 2400
Opening limit	(  )	max. 110 °
Sash weight <sup>1)</sup>	(  )	max. 130 kg

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Important information .....	page 3
Hardware list and assembly instructions (DK) .....	page 4
Limit stay and assembly instructions .....	page 5
Diagram and abbreviations .....	page 6
Hardware overview and installation dimensions (DK) ..	page 7
Hardware overview and installation dimensions (DK) ..	page 8
Hardware overview and installation dimensions (DK) ..	page 9
Mounting accessories, BS axxent, right/left 130 kg .....	page 10
Punching and profile machining axxent .....	page 11
Hardware overview and installation dimensions (TBT) ..	page 12
Hardware overview and installation dimensions (TBT) ..	page 13
Hardware overview and installation dimensions (TBT) ..	page 14
Assembly of the hardware components to the hinge side, top and hinge side, bottom .....	page 15
Compression and adjustment .....	page 16
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Function notes for handle, LM lockable (TBT) .....	page 18
Hardware list and assembly instructions (TBT) .....	page 19
Disassembly of axxent stay .....	page 20



**Assembly instructions**  
 H48.axntlS002en

Technical specifications and colours are subject to change

H48.axntlS002en\_0\_2014.06/0

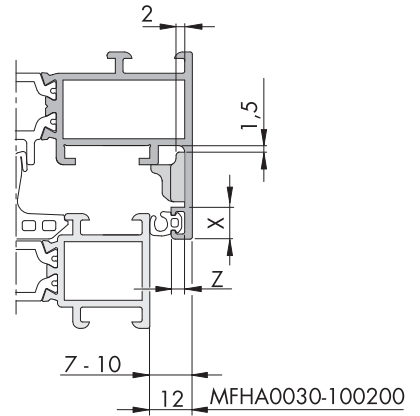


# ALU axxent-DK Hardware list and assembly instructions

No.	Piece	Description		Material no.		Material no.
14-20	1	VS LM-DK FBS-EUL KPS (For figure see page 7)	1	MMV50310-100010	20	MMV50310-100030
21-22	0...1	Coupling set LM A0156 (1a)	1	MMKL0060-100010	20	MMKL0060-100030
24-26	0...1	Gear set M6 Trial/RR (1b)	1	MMGI0090-100010	20	MMGI0090-100030
<b>Accessories</b>						
39	1	Handle support LM (1a)	-	-	200	-

## Design variants of the handle support (39)

USH	Z	X < 7 mm	X 7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-



## **Basic safety notes**

### **Intended use**

The hardware described in this document is intended to be installed in an aluminium window frame by a certified window construction specialist in accordance with these instructions.

The windows must only be installed vertically.

The window construction specialist must determine the suitability of the hardware for its intended use by means of the information provided in these instructions and additional listed documents.

### **Overstrain**

Bearing components can break if they are exposed to excessive strain. If this happens, the window sash may fall out, leading to serious injuries.

If the hinge parts are likely to be subject to excessive strain under certain conditions (use in schools, nursery schools, etc.), appropriate measures must be taken to prevent this from happening, such as using turning locks or tilt-before-turn opening types (TBT).

- If in any doubt, please contact your SIEGENIA sales consultant.

### **Do not mix hardware components**

The hardware components are designed to work with one another. If they are mixed on a window with hardware components from other systems or manufacturers, it is not possible to guarantee that they will operate safely.

Hardware components can break and cause accidents.

- Only use the hardware components listed in these instructions together on a window.

### **Only treat window surfaces prior to assembling the hardware**

- Any surface treatment applied to the window surfaces following assembly of the hardware components may limit their functionality.

### **Avoid damage caused by corrosion and debris**

Corrosive materials, dirt and moisture may damage hardware components and cause hazards.

- Do **not** use acetic or acid-releasing sealants.
- Do **not** use the hardware components in environments where the air contains aggressive or corrosive components.
- Keep the rebates free from deposits and dirt, especially from cement or plaster residue.
- Keep the hardware dry.

### **Clean hardware gently**

- Only clean the hardware with a soft cloth and mild, diluted pH-neutral cleaning agents.
- The hardware must not be exposed to abrasive cleaners or aggressive, acidic cleaning agents.
- Leave the hardware to dry after cleaning.




### **Pass on information to the user of the window**

- Attach the user information sticker, order no. 05083, to the installed window or door element so that it can be seen easily.
- Provide the user with the following documents:
  - Maintenance and cleaning instructions, order no. 15750
  - Operating instructions, order no. 05766

### **Exclusion of liability**

- We assume no liability for malfunctions and damage to the hardware, or to the windows and French doors equipped with the hardware, where such malfunctions and damage are the result of insufficient tendering information, failure to follow these installation instructions or forceful impact (e.g. due to improper use).

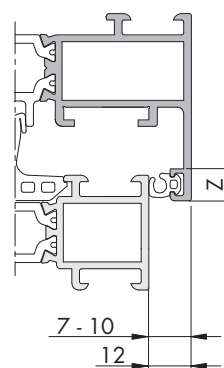
# ALU axxent-DK Hardware list and assembly instructions

No.	Piece		Description		Material no.		Material no.	
	L	R						
1a	0...1	0...1	Handle Si-line LM / Handle LM Globe (without illustration)		See Handle overview LM drawing no.: H48.ZUBHLS007en in aluminium planning manual			
1b	0...1	0...1	Window handle  7mm x 25 mm	cam dia. 10 mm				
2-8	-	1	BS axxent DK right size 1S < 100 kg		1	MMB50191-100010	10	MMB50191-100020
	1	-	BS axxent DK left size 1S < 100 kg	Size ranges	1	MMB50192-100010	10	MMB50192-100020
2-9	-	1	BS axxent DK right size 2S	see page 6	1	MMB50171-100010	10	MMB50171-100020
	1	-	BS axxent DK left size 2S		1	MMB50172-100010	10	MMB50172-100020
10-13	1	1	Additional stay LM A0040	a ≥ 1250 mm (> 100 kg a ≥ 1020 mm)	1	MMSZ0010-100010	20	MMSZ0010-100030
14-20	1	1	VS LM-DK KPS		1	MMV50250-100010	20	MMV50250-100030
	0...1	0...1	Coupling set FBS-G	9 MM (1a)	1	MMKL0030-100010	20	MMKL0030-100030
21-23	0...1	0...1	Coupling set FBS-G	10 MM (1a)	1	MMKL0010-100010	20	MMKL0010-100030
	0...1	0...1	Coupling set FBS-G	USH 12 MM (1a)	1	MMKL0040-100010	20	MMKL0040-100030
24-26	0...1	0...1	Gear set FBS M6 Trial/RR	(1b)	1	MMGI0080-100010	20	MMGI0080-100030
27-29	1	1	MV LM 4200-DK	a ≥ 1250 mm	1	857045	20	246979
30-34	1	1	MV LM VS/BS A0040	b ≥ 250 mm	1	MMMV0030-100010	20	MMMV0030-100030
<b>Accessories</b>								
35 - 39	-	1	Sashbrake ALU A0040 <sup>1)</sup>	a 600 mm - 1000 mm	1	MSBR0010-000011	50	MSBR0010-000051
	1	-	Sashbrake ALU, long <sup>1)</sup>	a 1001 mm - 1600 mm	1	MSBR0120-100010	50	MSBR0120-100050
42	1	1	Jig BS axxent 130 kg	(See fig. on page 10)	1	MARB0030-023010	-	-
43 - 47	-	1	Accessories BS axxent right 130 kg <sup>1)</sup>	(See fig. on page 10)	1	MZBS0061-100010	10	MZBS0061-100020
	1	-	Accessories BS axxent left 130 kg <sup>1)</sup>		1	MZBS0062-100010	10	MZBS0062-100020

1) Contents of the packing unit: BSO A0040 mounting bracket (43), countersunk screws M5 x 13 (44), BSU A0040 right/left frame part (45), BSU A0040 rod (46) and BSU A0040 right/left sash part. (47).

## Design variants for coupling set FBS-G (21 - 23)

USH	X	Material no.
7 - 10 mm	≤ 8.5 mm	MMKL0030-100030
7 - 10 mm	≤ 7.5 mm	MMKL0010-100030
12 mm	≤ 7 mm	MMKL0040-100030



**Installation dimensions for LM limit stay with brake**

For assembly instructions see document no. H48.ZUBHLS017en

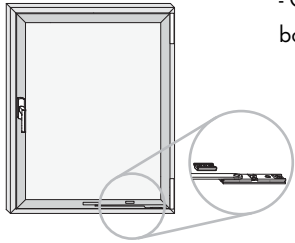
Opening angle (Measurements in mm)	90° Y
Sashbrake ALU A0040 (a 600 - 1000)	145
Sashbrake ALU, long (a 1001 - 1600)	215

**Assembly of the limit stay LM on the hinge side at the bottom (BSU)**

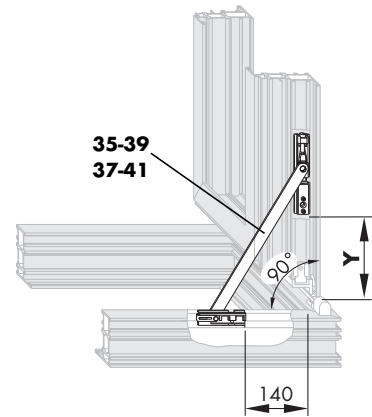
**⚠ WARNING**

**There is a risk of injury if the window sash falls out!**

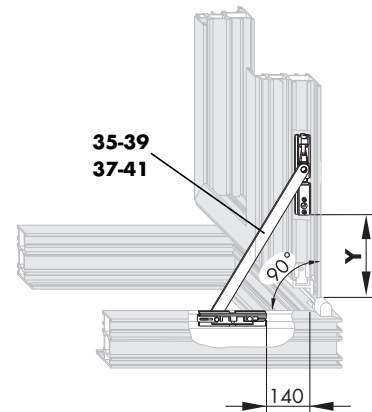
- Only mount limit stay LM on the hinge side at the bottom.



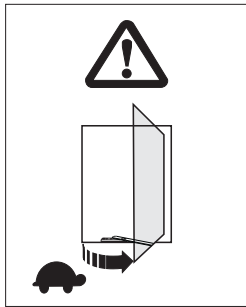
**Sashbrake ALU A0040**



**Sashbrake ALU long**



**Turn window sash into the end position of the limit stay LM**



**⚠ WARNING**

**Risk of injury and damage to property (hinge breakage) due to the sash falling out when opened improperly.**

- Do not hit the frame or other sashes with the sash when opening.
- Slowly move the sash into its end position by hand
- Never let sashes swing open uncontrollably.

## ALU axxent-DK/TBT

Diagram 130 kg for determining the permissible sash sizes; abbreviations

### Glass thickness in mm without air gap

16 mm glass thickness (equivalent to 40 kg/m<sup>2</sup>)

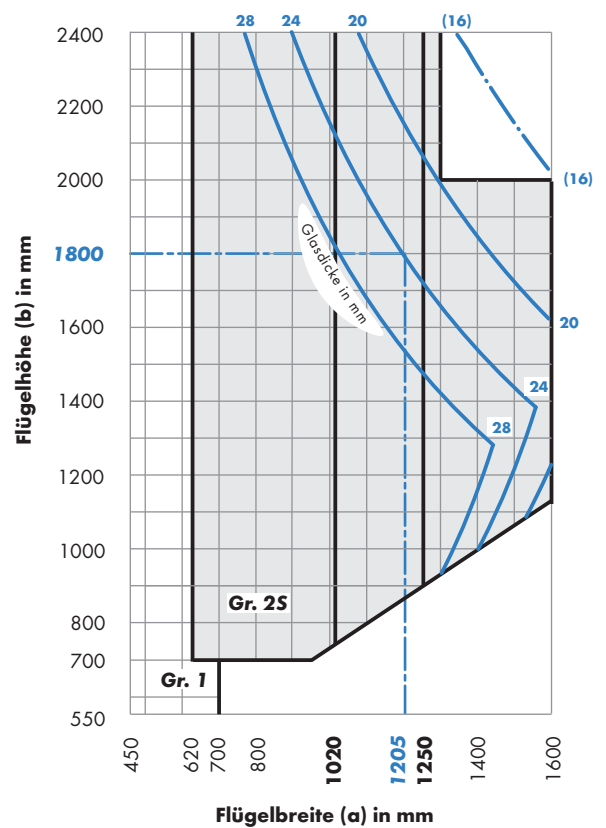
20 mm glass thickness (equivalent to 50 kg/m<sup>2</sup>)

24 mm glass thickness (equivalent to 60 kg/m<sup>2</sup>)

28 mm glass thickness (equivalent to 70 kg/m<sup>2</sup>)

1 mm/m<sup>2</sup> glass thickness = 2.5 kg

Example (---): Sash height = 1800 mm  
 glass thickness = 24 mm  
 permissible  
 sash width = **1205 mm**



For glass thickness of less than 16 mm, all sash sizes that lie within the size range and which do not exceed an aspect ratio a/b of 1.5 are permissible.

Maximum permissible sash weight: 130 kg

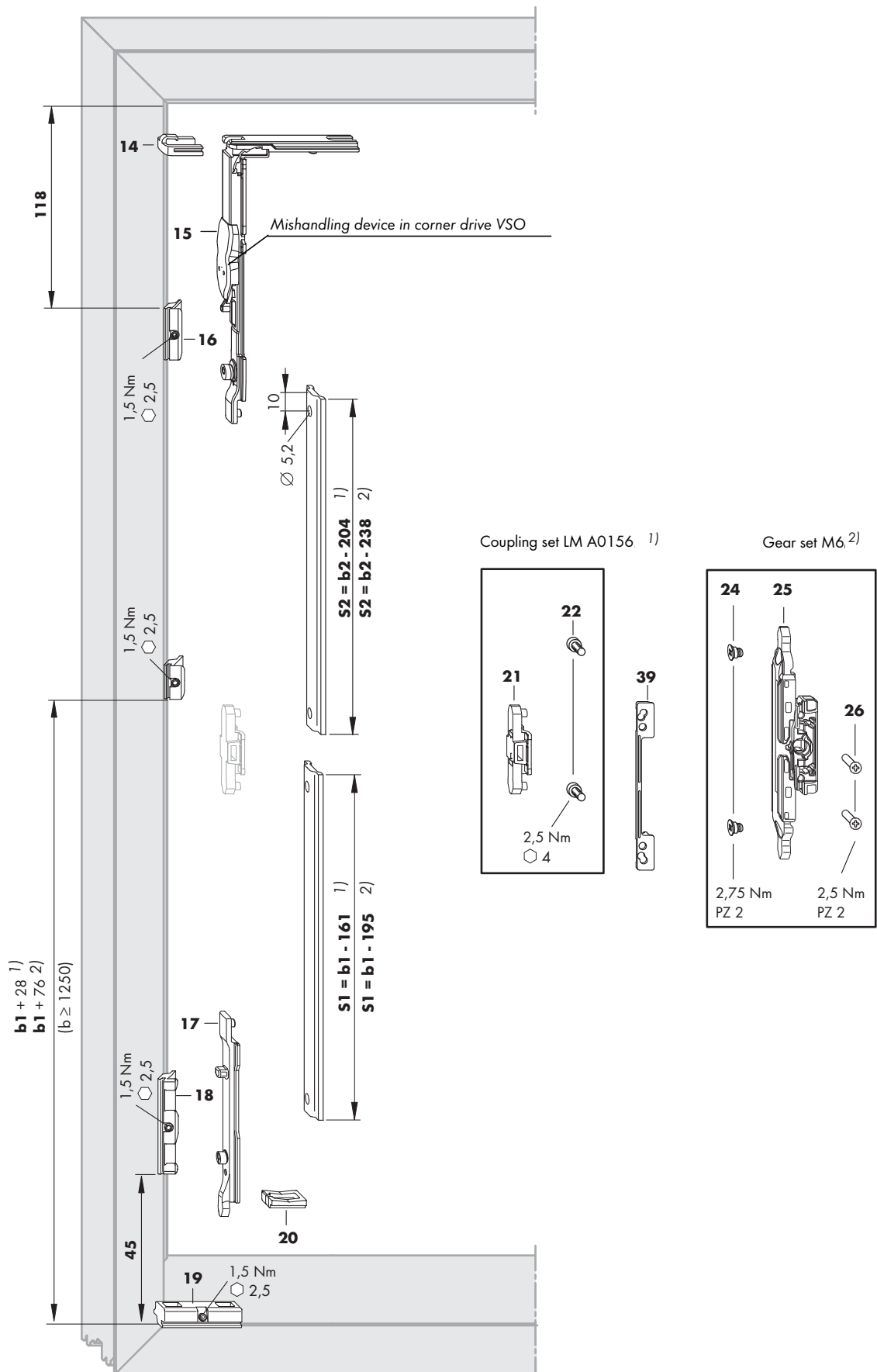
a ≥ 1250: size 2S + additional stay LM A0040

> 100 kg a ≥ 1020 size 2S + additional stay LM A0040

### Abbreviations

The following abbreviations are used in these installation instructions:

AV	Compression setting	S1	Operating rod, locking side bottom
BS	Hinge side	S2	Operating rod, locking side top
BSO	Hinge side, top	S3	Operating rod, top horizontal
BSU	Hinge side, bottom	S4	Operating rod, hinge side
a	Sash width	S5	Operating rod, bottom horizontal
b	Sash height		
b1	Handle height, bottom		
b2	Handle height, top		
ESG	routed-in drive gear		
FBS-G	Tilt only safety stay on handle		
FBS-EUL	Mishandling device in the corner drive		
MV	Centre lock		
Nm	Torque in Nm		
SV	Side adjustment		
SW	Wrench size		
TBT	Tilt Before Turn		
VS	Locking side		
VSO	Locking side, top		
VSU	Locking side, bottom		
USH	Rebate height		





### Fixing the BSO A0040 supporting piece

1. Insert the BS axxent 130 jig kg (42) on loosened stay, as shown in the adjacent diagram (fig. 1).
2. Drill holes  $\varnothing 4.2$  for mounting bracket BSO A0040 (43).
3. Insert the BSO A0040 supporting piece (43) into the frame groove, position it on the stay and fix it in place with M5 x 13 countersunk screws (44).
4. Tighten the M5x13 countersunk screws (44) with a torque of  $2.5 \pm 0.25$  Nm.

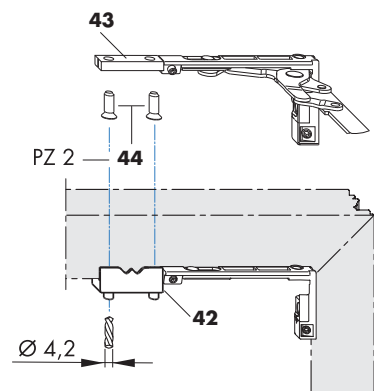


Fig. 1

### Fixing the BSU A0040 right/left frame part

5. Insert frame part BSU A0040 right/left (45) into the frame groove and position it on the axxent bottom hinge as shown in the diagram (fig. 2).
6. Tighten the grub screws of frame part BSU A0040 right/left (45) with  $2.5 \pm 0.25$  Nm torque.

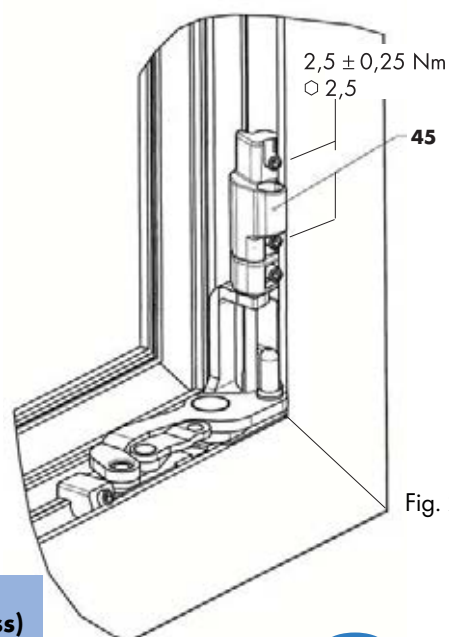


Fig. 2

### Installing the BSU A0040 rod into the sash and frame (without the glass)

7. Insert sash part BSU A0040 right/left (47) into the sash groove and secure it (fig. 3).
8. Fit sash and open sash.
9. Insert the BSU A0040 rod (46) into the BSU A0040 right/left frame part (45) (fig. 4).
10. Insert the BSU A0040 rod (46) into the BSU A0040 right/left sash part (47) (fig. 4).
11. Position sash part BSU A0040 right/left (47) as shown in the adjacent diagram (fig. 3) and tighten with torque  $2.5 \pm 0.25$  Nm.
12. By adjusting the grub screw in the sash part BSU A0040 right/left (47), reduce the play of the BSU rod (46) (fig. 4).

**Note a:** Make sure that the BSU A0040 rod (46) has no perceptible play.

**Note b:** If the tension of the BSU A0040 rod (46) is too high, the sash cannot be closed.

**Note c:** After making adjustments to the BSU, repeat the steps from notes a and b.

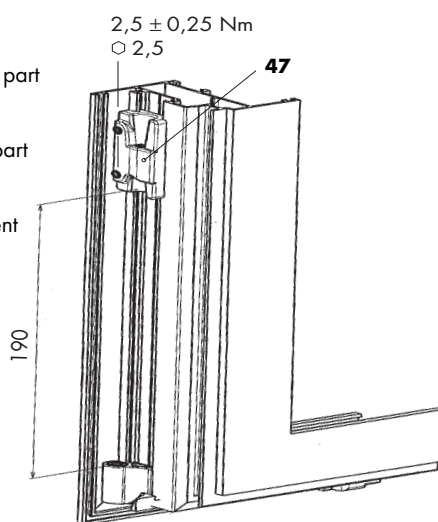


Fig. 3

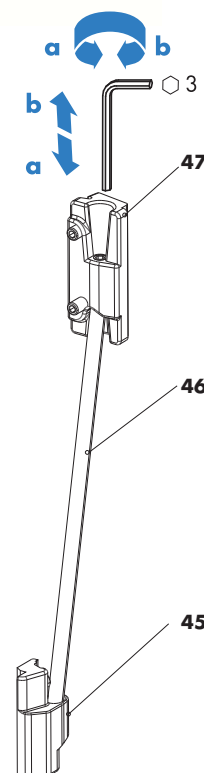

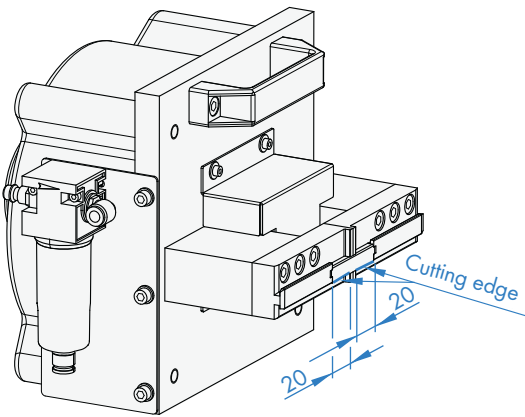


Fig. 4

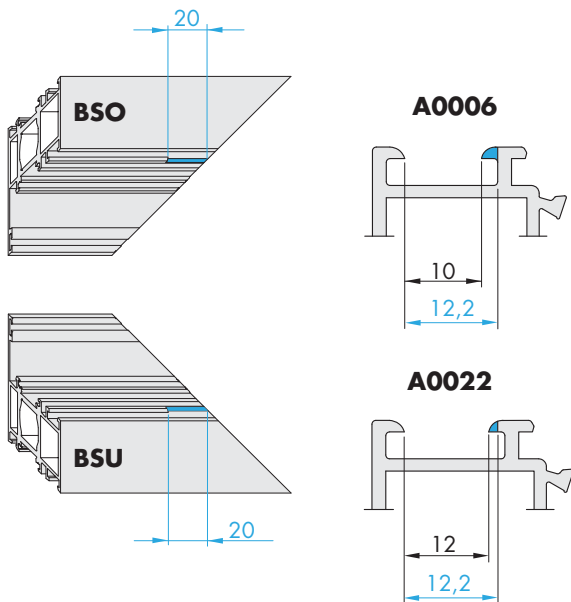


Material description		Material no.
<b>Punch axxent</b> Punch out frame profile A0006/A0022	1	MART0010-000010

**Profile machining with punch BS axxent**

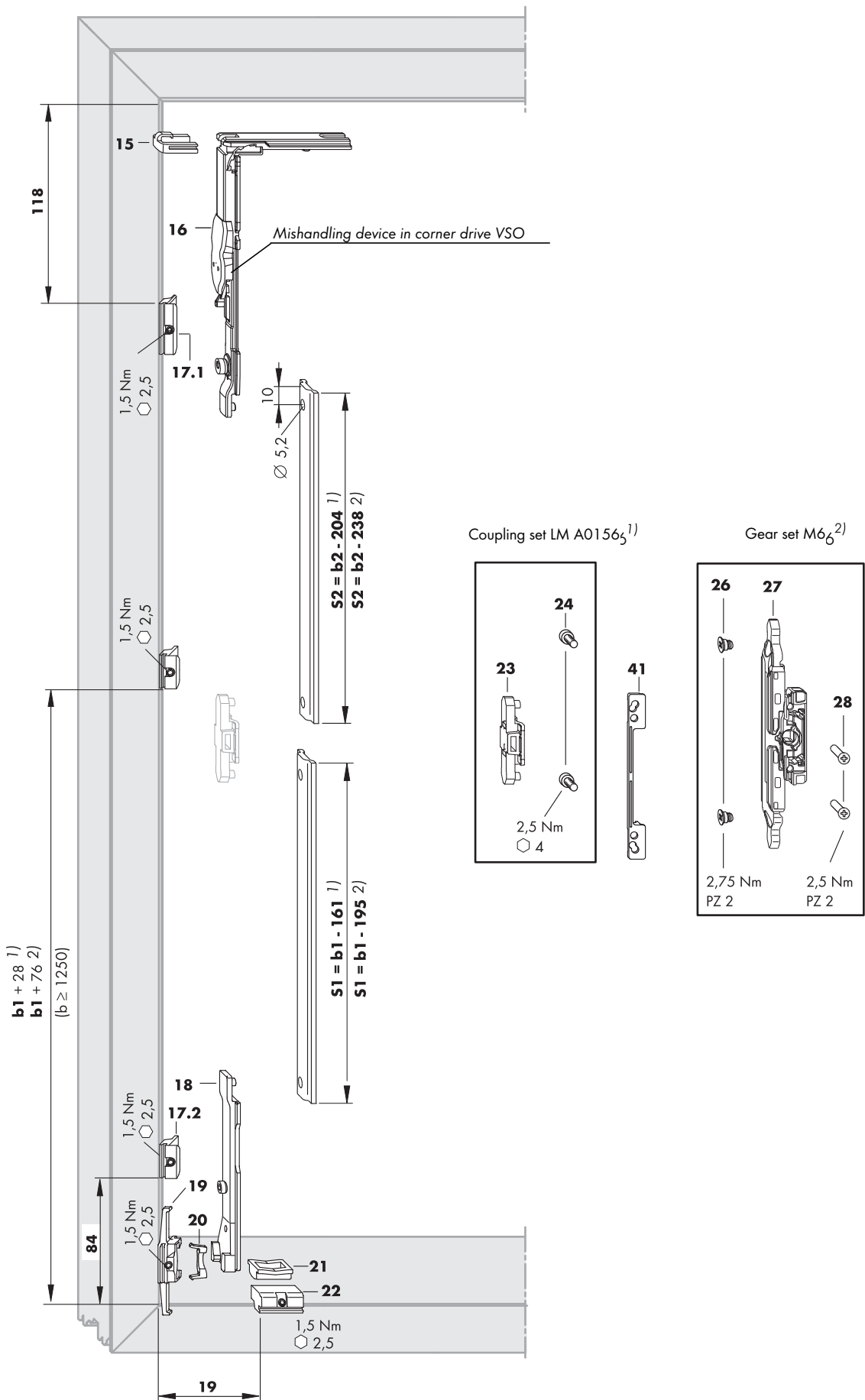


**Profile reworking prior to welding DIN right**



See aluminium planning manual for the necessary tools  
 Drawing no.: H48.ZUBHLS009en / H48.axntLS003en

# ALU axxent-TBT Hardware overview and installation dimensions





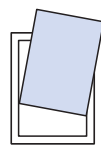
# ALU axxent-DK/TBT *Installing the hardware components on the hinge side at the top and bottom*

**Assembly of axxent stay DK/TBT right/left size 1-2 (4) and axxent guide size 1-2 (5), axxent sash hinge right/left (3) and axxent bottom hinge right/left (2).<sup>2)</sup>**

## ⚠ WARNING

Observe the appropriate sequence (a-b) when tightening the grub screws!

Observe the steps for positioning 1 - 15 !



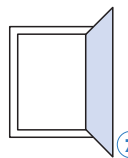
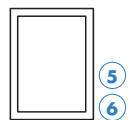
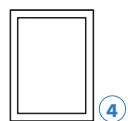
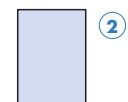
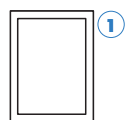
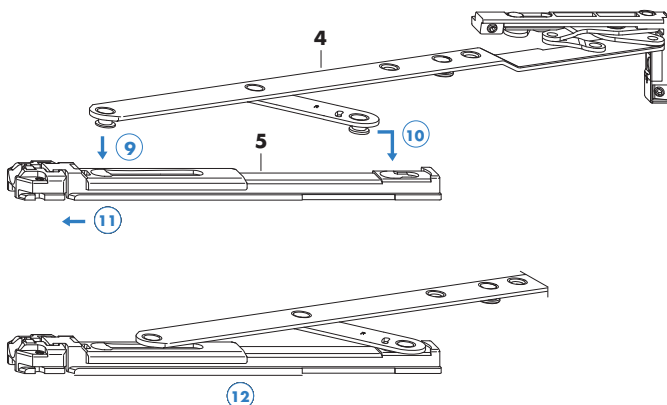
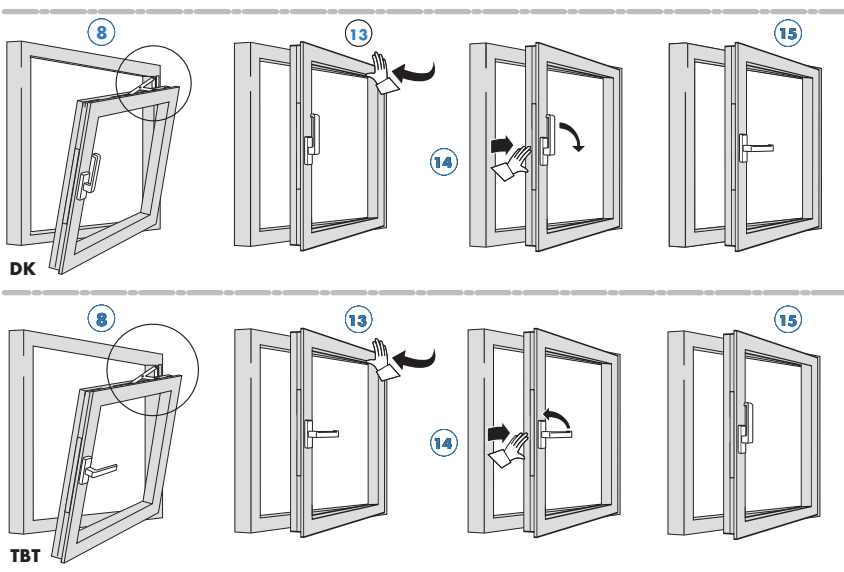
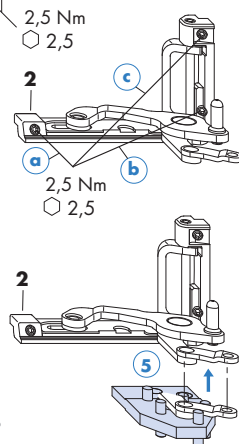
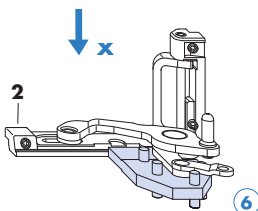
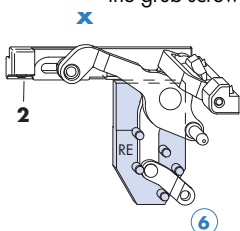
1) At least 2 people are required to assemble the sash.

2) Shown as mirror image, for hardware components, see the parts list on page 2 and 14.

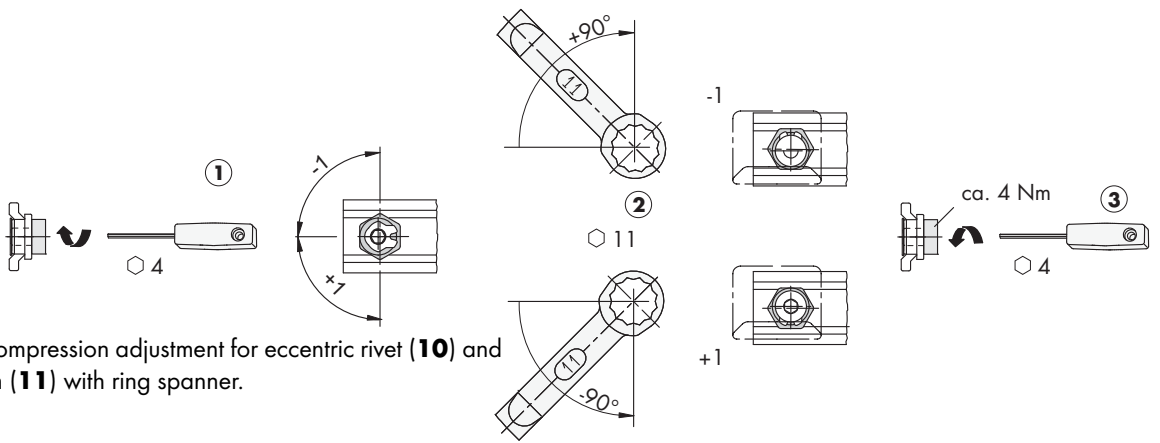
Description	Material no.
BS axxent jig requires 1 piece	MAEW0010-000010

## ⚠ WARNING

Observe the appropriate sequence (a-b-c) when tightening the grub screws!



# ALU axxent-DK/TBT Height and compression setting and adjustment options



Carry out compression adjustment for eccentric rivet (10) and locking cam (11) with ring spanner.

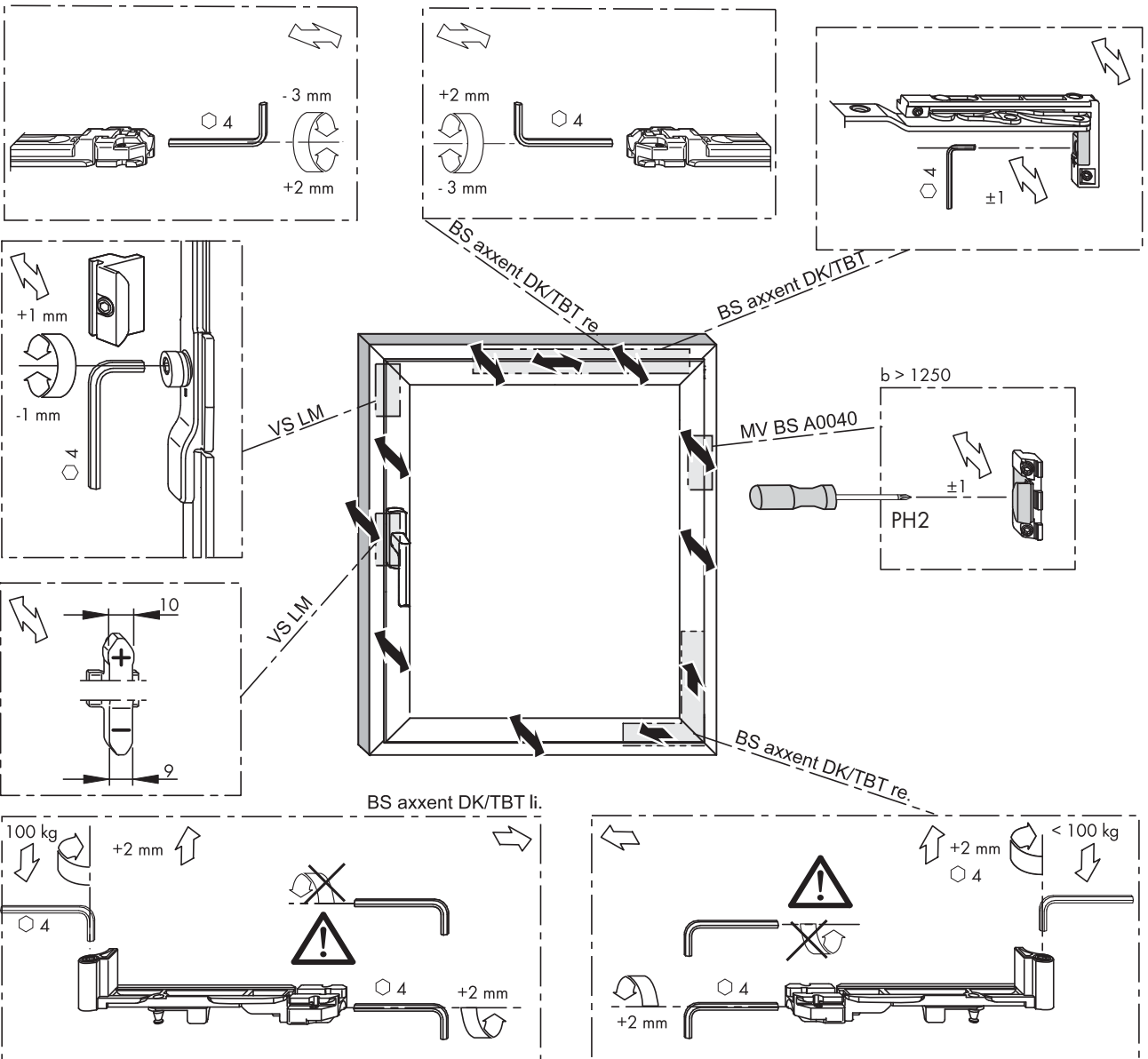
## Positioning axxent stay guide piece and axxent sash hinge

### ⚠ WARNING



There is a risk of injury if the window sash falls out.

- Turn the adjusting screws only in the direction shown.

BS axxent DK/TBT li.



# ALU axxent-TBT Hardware list and assembly instructions

No.	Piece	Description		Material no.		Material no.
14-20	1	VS LM-TBT FBS-EUL KPS <sup>1)</sup> (For figure see page 13)	1	MMV50320-100010	20	MMV50320-100030
23-24	1	Coupling set LM A0156 (1a)	1	MMKL0060-100010	20	MMKL0060-100030
26-28	1	Gear set M6 (1b)	1	MMGI0050-100010	20	MMGI0050-100030

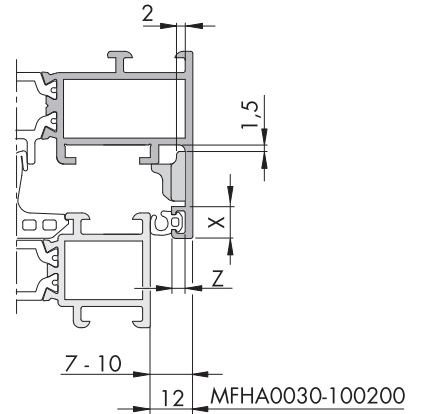
## Accessories

41	0...1	Handle support LM (1a)	-	-	200	-
----	-------	------------------------	---	---	-----	---

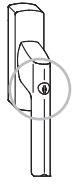
1) Insertion of the spring, item 20 in grey, from FH 550 - 1100 in black, 1100 - 2400 or more

## Design variants of the handle support (41)

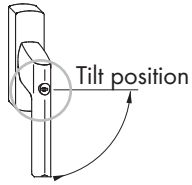
USH	Z	X ≤ 7 mm	X 7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-



**Instructions for handle, LM lockable TBT**



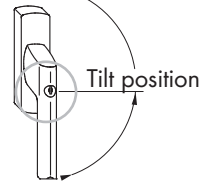
Locked position



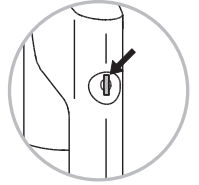
Locked position





Turn position



Locked position



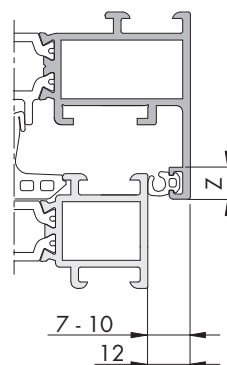
# ALU axxent-TBT Hardware list and assembly instructions

No.	Piece		Description		Material no.		Material no.
	L	R					
1a	0...1	0...1	Handle Si-line LM lockable TBT/ Handle LM Globe lockable TBT (without illustration.)		See handle overview LM drawing no.: H48.ZUBHLS007en in aluminium planning manual		
1b	0...1	0...1	Window handle lockable $\square$ 7 mm x 25 mm cam dia. 10 mm				
2-8	-	1	BS axxent TBT right size 1S < 100 kg	1	MMBS0201-100010	10	MMBS0201-100020
	1	-	BS axxent TBT left size 1S < 100 kg Size ranges	1	MMBS0202-100010	10	MMBS0202-100020
2-9	-	1	BS axxent TBT right size 2S see page 6	1	MMBS0181-100010	10	MMBS0181-100020
	1	-	BS axxent TBT left size 2S	1	MMBS0182-100010	10	MMBS0182-100020
10-13	1	1	Additional stay LM A0040 $a \geq 1250$ mm ( $> 100$ kg $a \geq 1020$ mm)	1	MMSZ0010-100010	20	MMSZ0010-100030
14	1	1	Stay striker MV $a \geq 1250$ mm ( $> 100$ kg $a \geq 1020$ mm)	1	MXSK0010-100010	20	MXSK0010-100030
15-22	1	1	VS LM-TBT KPS <sup>1)</sup>	1	MMV50270-100010	20	MMV50270-100030
23-25	0...1	0...1	Coupling set FBS-G 9 MM (1a)	1	MMKL0030-100010	20	MMKL0030-100030
	0...1	0...1	Coupling set FBS-G 10 MM (1a)	1	MMKL0010-100010	20	MMKL0010-100030
26-28	0...1	0...1	Coupling set FBS-G USH 12 MM (1a)	1	MMKL0040-100010	20	MMKL0040-100030
	0...1	0...1	Gear set FBS M6 Trial/RR (1b)	1	MMGI0080-100010	20	MMGI0080-100030
29-31	1	1	MV LM 4200-DK $a \geq 1250$ mm	1	857045	20	246979
32-36	1	1	MV LM VS/BS A0040 $b \geq 1250$ mm	1	MMMV0030-100010	20	MMMV0030-100030
<b>Accessories</b>							
37-41	-	1	Sashbrake ALU A0040 <sup>1)</sup> $a$ 600 mm - 1000 mm	1	M5BR0010-000011	50	M5BR0010-000051
	1	-	Sashbrake ALU, long <sup>1)</sup> $a$ 1001 mm - 1600 mm	1	M5BR0120-100010	50	M5BR0120-100050
42	1	1	Jig BS axxent 130 kg (See fig. on page 10)	1	MAR0030-023010	-	-
43-47	-	1	Accessories BS axxent right <sup>1)</sup> (See fig. on page 10)	1	MZBS0061-100010	10	MZBS0061-100020
	1	-	Accessories BS axxent left <sup>1)</sup>	1	MZBS0062-100010	10	MZBS0062-100020

1) Contents of the packing unit: BSO A0040 mounting bracket (43), countersunk screws M5 x 13 (44), BSU A0040 right/left frame part (45), BSU A0040 rod (46) and BSU A0040 right/left sash part. (47).

## Design variants for coupling set FBS-G (23 - 25)

USH	X	Material no.
7 - 10 mm	$\leq 8.5$ mm	MMKL0030-100030
7 - 10 mm	$\leq 7.5$ mm	MMKL0010-100030
12 mm	$\leq 7$ mm	MMKL0040-100030

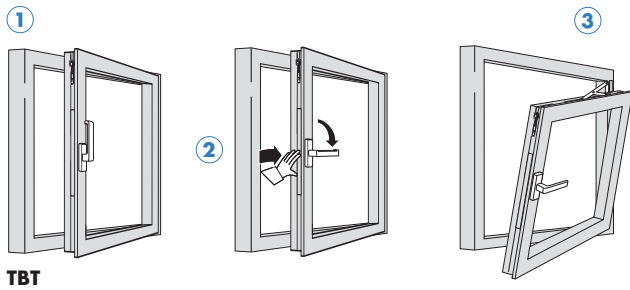
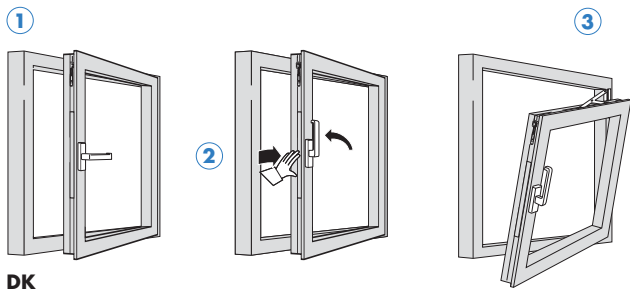




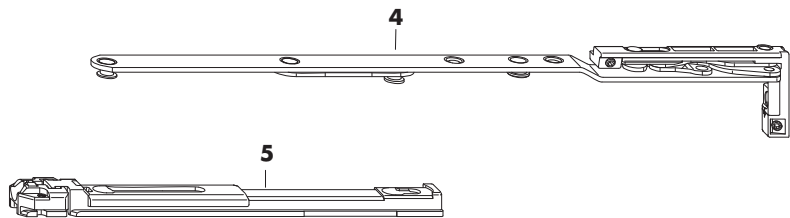
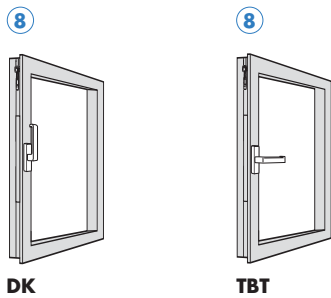
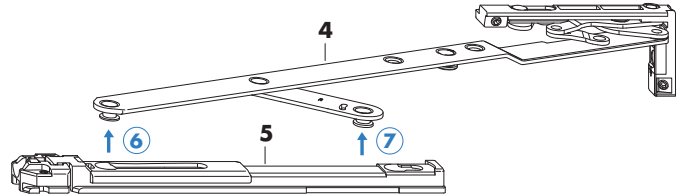
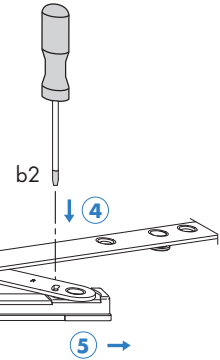
# ALU axxent-DK/TBT Disassembly of axxent stay DK/TBT

Disassembly of axxent DK/TBT right stay size 1-2 (4) and axxent guide part size 1-2 (5)

Observe the steps for positioning ① - ⑧ !

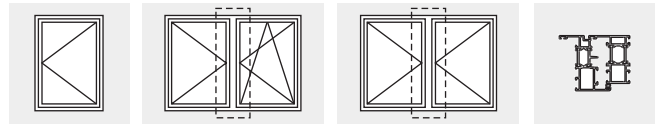


1) At least 2 people are required to disassemble the sash.



# ALU axxent-D/DS

Concealed hardware for  
aluminium windows and French doors



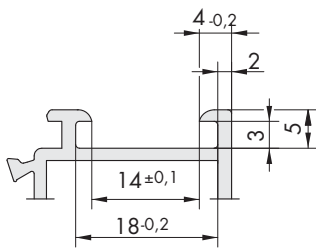
**Always** check the planning manual on aluminium (H4006.3042EN) for further details and specifications/information regarding the product and liability (guidelines: VHBH, TBDK and VHBE).

All dimensions given are final dimensions after the surface of the sections has been treated e.g. painted, powder coated, etc.

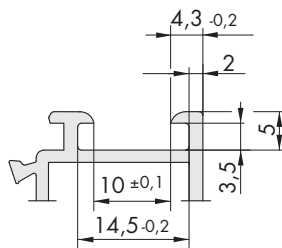
## Intended use

### Profile selection/alignment/Frame designs

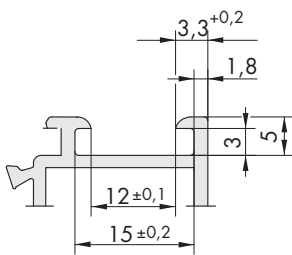
**A0004**



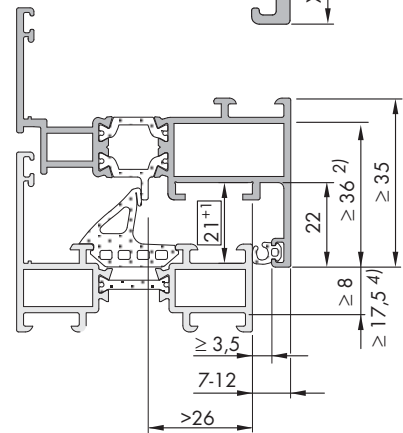
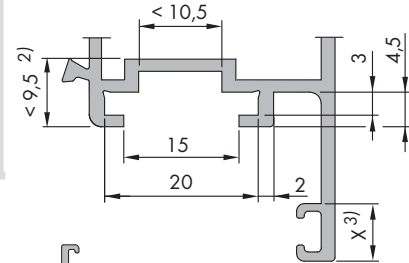
**A0006** <sup>5)</sup>



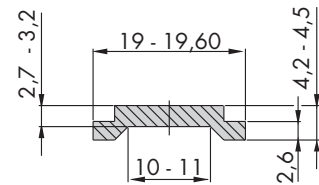
**A0022** <sup>5)</sup>





## Sash and frame dimensions



## Operating rod dimensions min. - max.



## All dimensions in mm

Sash width	(a)	min. 400 <sup>1)</sup> /620 <sup>4)</sup> - max. 1600
Sash height	(b)	min. 500 <sup>1)</sup> - max. 2400
Opening limit	(  )	max. 110°
Sash weight	(  )	max. 100 kg <sup>1)</sup> /130 kg <sup>4)</sup>

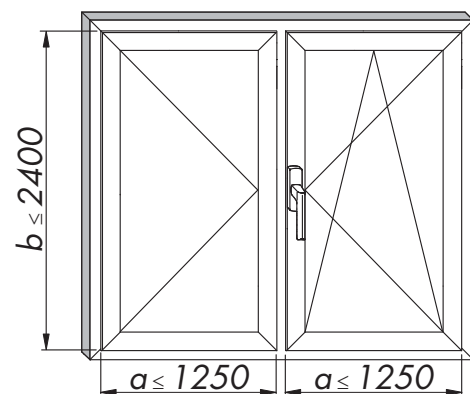
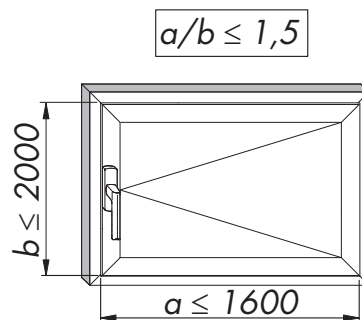
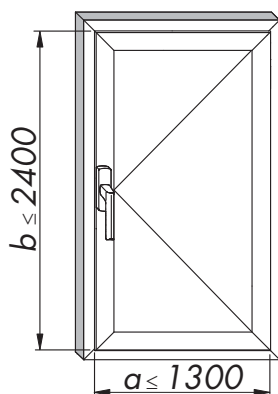
1) See diagram on page 6

2) For gear set M6

3) Dimensions, see page 3

4) 100 kg - 130 kg (pages 14, 15, 19 and 20).

5) For subsequent work on the profile, see page 3



# Assembly instructions

H48.axxentLS003en

Technical specifications and colours are subject to change

H48.axxentLS003en/0

## **Basic safety notes**

### **Intended use**

The hardware described in this document is intended to be installed in an aluminium window frame by a certified window construction specialist in accordance with these instructions. The windows must only be installed vertically.

The certified window construction specialist must ensure that the hardware is suitable for the application based on the specifications in these instructions and in the other documents that are cited.

### **Avoid excessive strain**

Bearing components can break if they are exposed to excessive strain. If this happens, the window sash may fall out, leading to serious injuries. If the hinge parts are likely to be subject to excessive strain under certain conditions (use in schools, nursery schools, etc.), appropriate measures must be taken to prevent this from happening, such as using turning locks or tilt-before-turn opening types (TBT).

- If in any doubt, please contact your SIEGENIA sales consultant.

### **Do not mix hardware components**

The hardware components are designed to work with one another. If they are mixed on a window with hardware components from other systems or manufacturers, it is not possible to guarantee that they will operate safely. Hardware components may break and cause accidents.

- Only use the hardware components listed in these instructions together on a window.

### **Only treat window surfaces prior to assembly of hardware**

- Treating window surfaces after assembling the hardware may affect the components' operational reliability.

### **Avoid damage caused by corrosion and debris**

Corrosive materials, dirt and moisture may damage hardware components and cause hazards.

- Do **not** use acetic or acid-releasing sealants.
- Do **not** use the hardware components in environments where the air contains aggressive or corrosive components.
- Keep all rebates free of debris and dirt, especially cement and plaster residue.
- Keep the hardware dry.

### **Clean hardware gently**

- Only clean the hardware with a soft cloth and mild, diluted pH-neutral cleaning agents.
- The hardware must not be exposed to abrasive cleaners or aggressive, acidic cleaning agents.
- Leave the hardware to dry after cleaning.



### **Pass on information to the user of the window**

- Attach the user information order no. 05083 to the installed window or door element so that it can be seen easily.
- Provide the user with the following documents:
  - Maintenance and cleaning instructions, order no. 15750
  - Operating instructions, order no. 05766

### **Exclusion of liability**

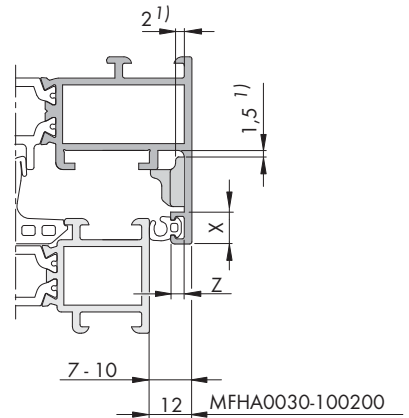
- We assume no liability for malfunctions and damage to the hardware, or to the windows and French doors equipped with the hardware, where such malfunctions and damage are the result of insufficient tendering information, failure to follow these assembly instructions or forceful impact (e.g. due to improper use and handling).

# ALU axxent-D List of hardware and assembly instructions

No.	Pc.	Description		Material no.		Material no.	
1a	0...1	Si-line LM handle/LM Globe handle (no illustr.)		See LM handle overview, drawing no.: H48.ZUBHLS007en in aluminium planning manual			
1b	0...1	Window handle $\square$ 7 mm x 25 mm	Cam $\varnothing$ 10 mm				
2-3	1	BS axxent-D	1	MMS0110-100010	10	MMS0110-100020	
4-8	1	VS LM-D	1	MMV50240-100010	20	MMV50240-100030	
9-10	0...1	Coupling set LM A0156 (1a)	1	MMKL0060-100010	20	MMKL0060-100030	
11-13	0...1	Gear set M6 Trial/RR (1b)	1	MMGI0090-100010	20	MMGI0090-100030	
22-26	1	MV LM 4200-D VS/BS	$b \geq 1250$ mm	1	857052	20	246986
17-21	1	MV LM 4200/2200-D VSU/VSO	$a \geq 1250$ mm	1	MSBR0120-100010	20	MSBR0120-100050
<b>Accessories</b>							
22	1	LM handle support <sup>1)</sup>	(1a)	-	200	(see table)	
	1	Sashbrake ALU A0040 <sup>2)</sup>	$a$ 600 mm - 1000 mm	1	MSBR0010-000011	50	MSBR0010-000051
23-27	1	Sashbrake ALU, long <sup>2)</sup>	$a$ 1001 mm - 1600 mm	1	MSBR0120-100010	50	MSBR0120-100050
no illus.	2	BS axxent jig (see figures on pages 9-10)		1	MAEW0010-000010		

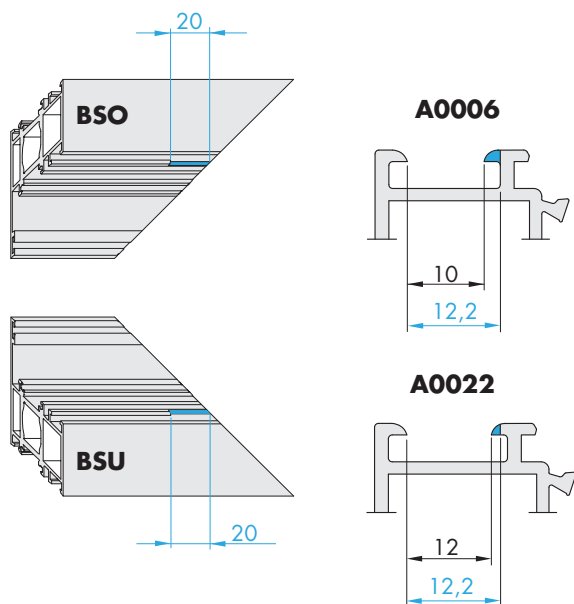
## Design variations for handle support (22)

USH	Z	X $\leq 7$ mm	X 7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-




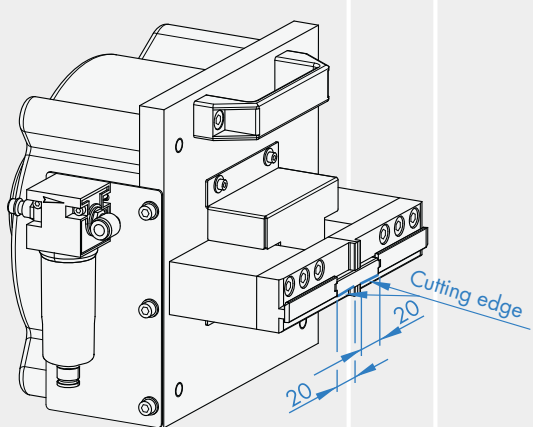
1) Required space

2) See page 5 for the assembly instructions of the LM limit stay



See aluminium planning manual for the necessary tools  
Drawing no.: H48.ZUBHLS009en

Material description			Material no.
<b>Punch axxent</b>	Punch out frame profile A0006/A0022	1	MART0010-000010

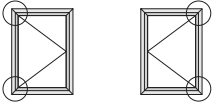


# ALU axxent-D/DS Adjustment options for axxent-D bottom hinges

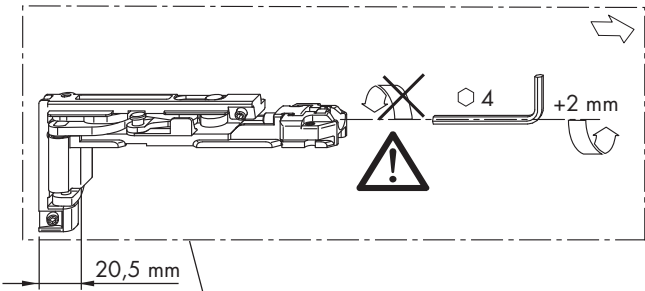
## Adjusting the bottom hinge

**⚠ WARNING** There is a risk of injury if the window sash falls out.

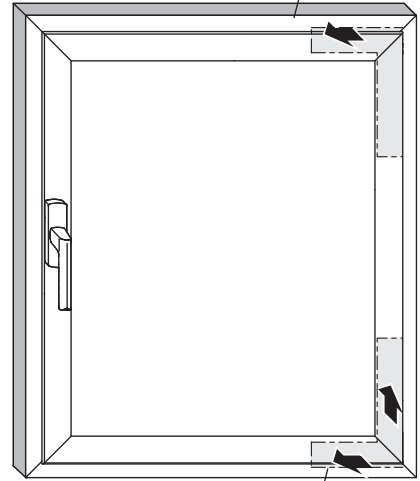
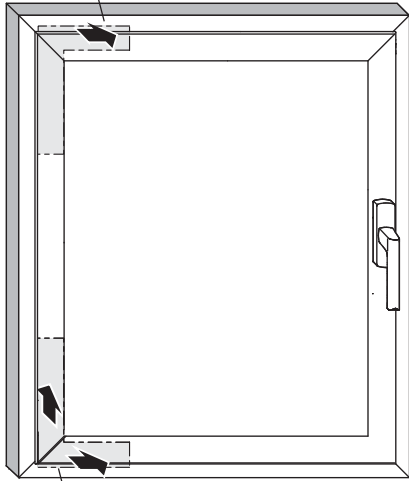
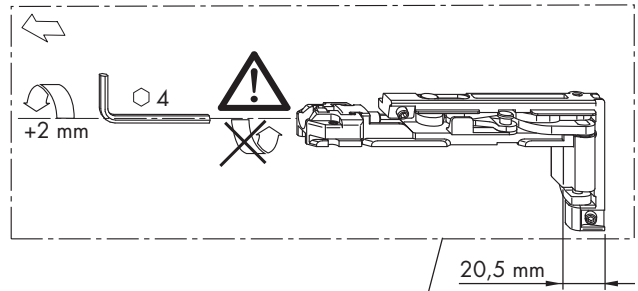
- Only turn adjusting screws in direction shown.



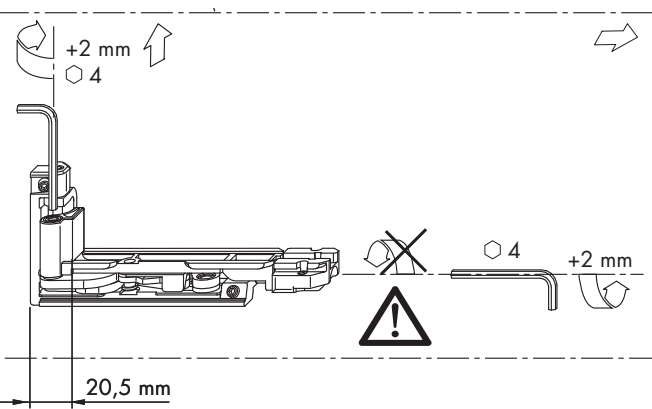
Right axxent-D bottom hinge



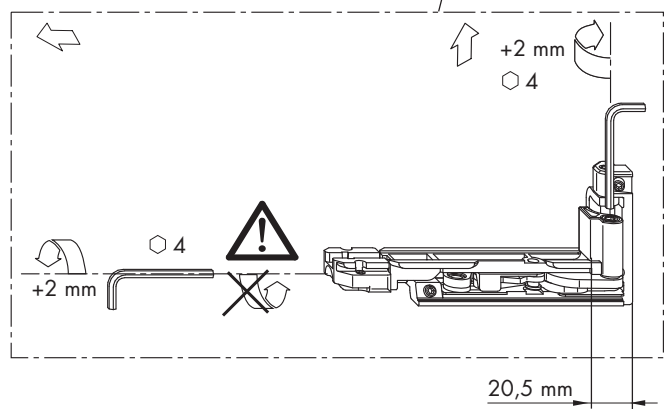
Left axxent-D bottom hinge



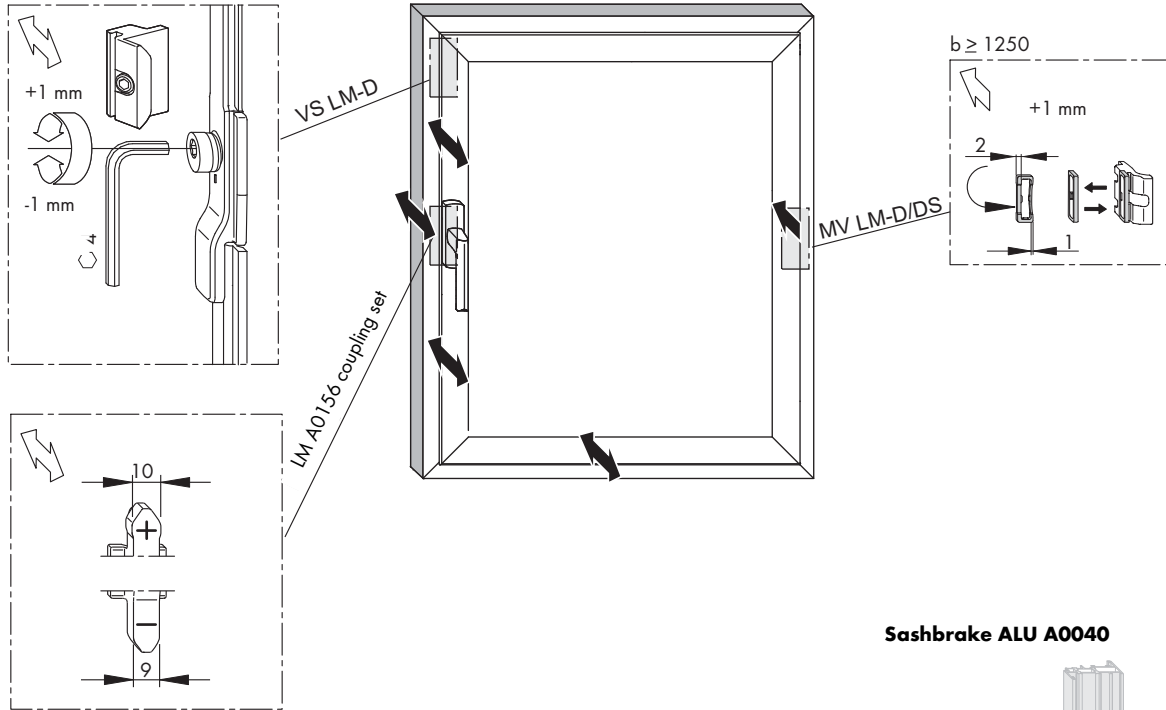
Right axxent-D bottom hinge



Left axxent-D bottom hinge



**Adjustment options**

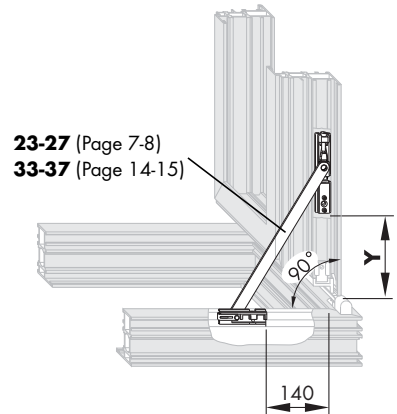


**Installation dimensions for LM limit stay with brake**

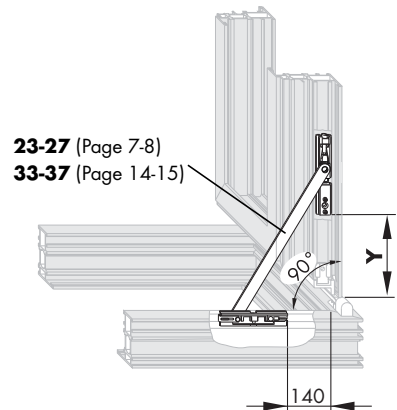
For assembly instructions see document no. H48.ZUBHLS017en

Opening angle (Measurements in mm)	90° Y
Sashbrake ALU A0040 (a 600 - 1000)	145
Sashbrake ALU, long (a 1001 - 1600)	215

**Sashbrake ALU A0040**

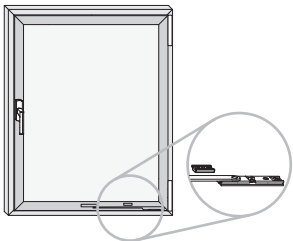


**Sashbrake ALU long**

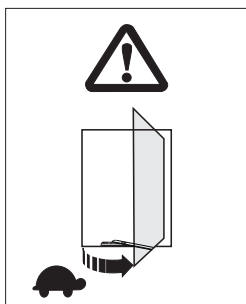


**Assembly of the LM limit stay on the lower hinge side (BSU)**

**⚠ WARNING** Risk of injury if the window sash falls out!  
- Only fit LM limit stay on the lower hinge side.



**Turn window sashes into final position of the LM limit stay**



**⚠ WARNING** Risk of injury and damage (bearing failure) due to sash falling out when opened incorrectly.

- Avoid hitting the frame or other sash when opening one sash.
- Slowly move the sash into its end position by hand
- Never let sashes swing open uncontrollably.

# ALU axxent-D/DS 100 kg diagram for determining permissible sash sizes, abbreviations

## Glass thickness in mm without air gap

12 mm glass thickness (equivalent to 30 kg/m<sup>2</sup>)

16 mm glass thickness (equivalent to 40 kg/m<sup>2</sup>)

20 mm glass thickness (equivalent to 50 kg/m<sup>2</sup>)

24 mm glass thickness (equivalent to 60 kg/m<sup>2</sup>)

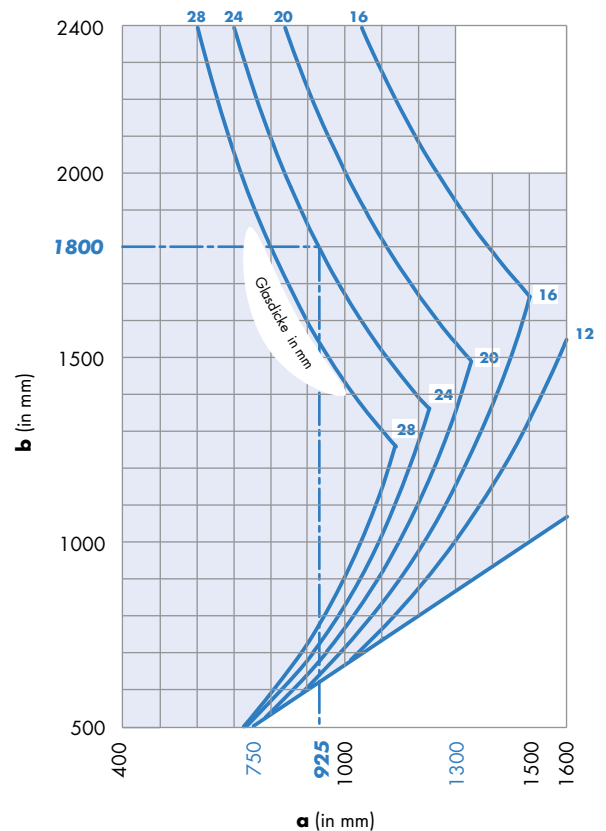
28 mm glass thickness (equivalent to 70 kg/m<sup>2</sup>)

1 mm/m<sup>2</sup> glass thickness = 2.5 kg

Example (---): sash height = 1800 mm  
 glass thickness = 24 mm  
 permissible sash width = **925 mm**

For glass thicknesses of less than 12 mm, all sash sizes that lie within the range of application and do not exceed an aspect ratio a/b of 1.5 are permissible.

Maximum permissible sash weight: 100 kg



## Abbreviations

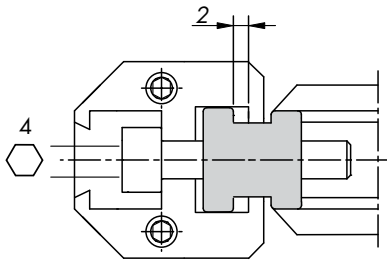
These assembly instructions contain the following abbreviations:

AV	Compression adjustment	S1	Operating rod, locking side bottom
BS	Hinge side	S2	Operating rod, locking side top
BSO	Hinge side, top	S3	Operating rod, top horizontal
BSU	Hinge side bottom	S5	Operating rod, bottom horizontal
a	Sash width	S6	Operating rod, locking side of secondary sash bottom
a1	Sash width of main sash	S7	Operating rod, locking side of secondary sash top
a2	Sash width of secondary sash	S8	Operating rod, locking side of secondary sash top
b	Sash height		
b1	Handle height, bottom		
b2	Handle height, top		
D	Turn only sash		
DK	Tilt and turn		
DN	Turn only sash groove		
DS	Turning secondary sash		
ESG	Routed-in drive gear		
FBS-G	Mishandling device on handle		
MV	Centre lock		
Nm	Torque in Nm		
SV	Side adjustment		
SW	Width across flat		
VS	Locking side		
VSO	Locking side, top		
VSU	Locking side, bottom		
USH	Rebate height		





## Preparation

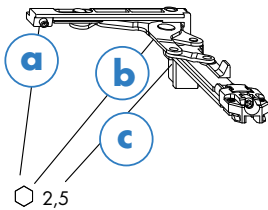


Home position for adjusting piece, with 2 mm clearance

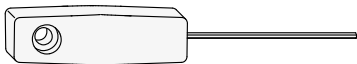
1. Check whether the adjusting piece on the bottom hinge is in the home position (see figure "Home position for adjusting piece").
2. If necessary move adjusting piece to home position.

Note: The bottom hinges cannot be adjusted if the adjusting pieces are not in the home position during installation.

## Attaching the bottom hinge to the window frame



Tightening sequence (example: BSO)



Hexagon screwdriver Hexagon 2.5 mm

1. Open bottom hinge.

### **WARNING**

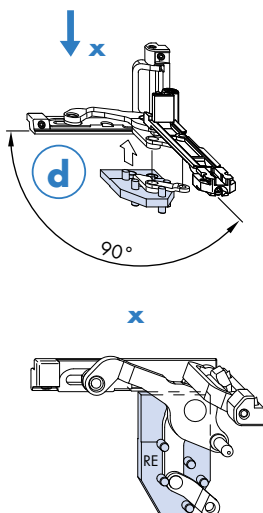
**Protruding grub screws will cause the bottom hinge to break when the window sash is closed.**

**Risk of injury if the window sash falls out!**

-Screw in grub screws fully.

2. Screw in the grub screw (a-b-c) and tighten with a torque of 2.5 Nm.
3. The middle grub screw (b) can be reached with the SIEGENIA hexagon screwdriver (material no. 141274).

## Slide the BS axxent jigs onto the bottom hinges

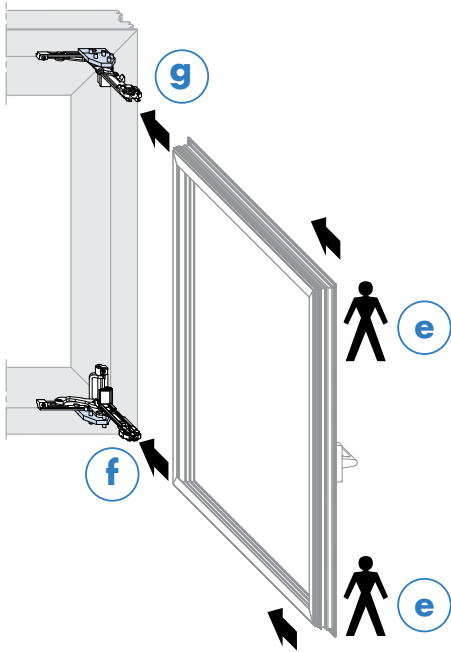


Installation of the jig and views of bottom hinge (example: BSU)

1. Open bottom hinge to 90°.
2. Slide on the jigs at the BSO and BSU (d).

**Note:** The jigs hold the bottom hinges in place and make it easier to slide the sash on.

## Slide the window sash onto the bottom hinge



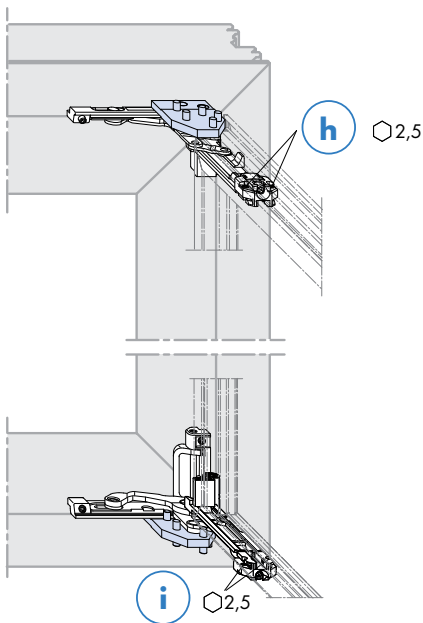
1. Because window sashes are heavy, they are installed without glazing.
2. Two persons (**e**) are needed to install the window sash.

**⚠ WARNING** The bottom hinges can break if the window sash is tilted during installation steps. There is a risk of injury if the window sash falls out!

> Slide the window sash in parallel to the two bottom hinges

3. Slide in the window sash at the hinge side, bottom (BSU) (**f**) and hinge side, top (BSO) (**g**).

## Attach the window sash to the bottom hinges



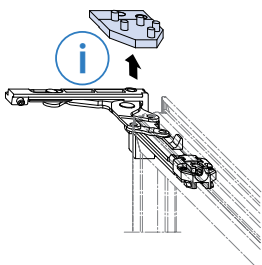
**⚠ WARNING** Tilting the loose window may cause the bottom hinges to break.

**There is a risk of injury if the window sash falls out!**

- The first person prevents the window sash from tilting

1. The second person attaches the bottom hinges using the grub screws.
2. Tighten all grub screws (**h, i**) with a torque of 2.5 Nm.

## Remove the BS axxent jigs from the bottom hinges

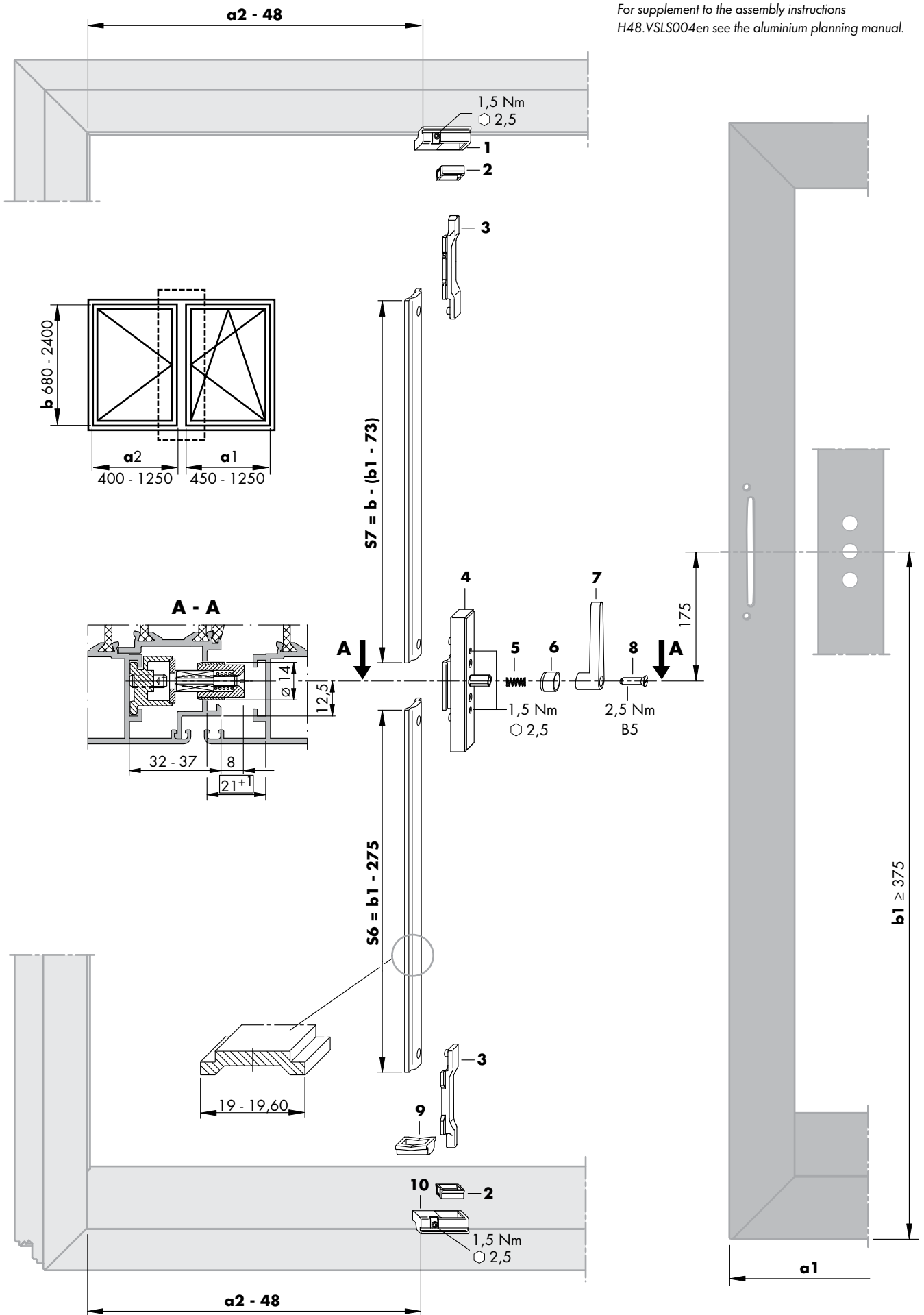


1. Remove all jigs from the BSO (**i**) and BSU
2. Close the window sash.

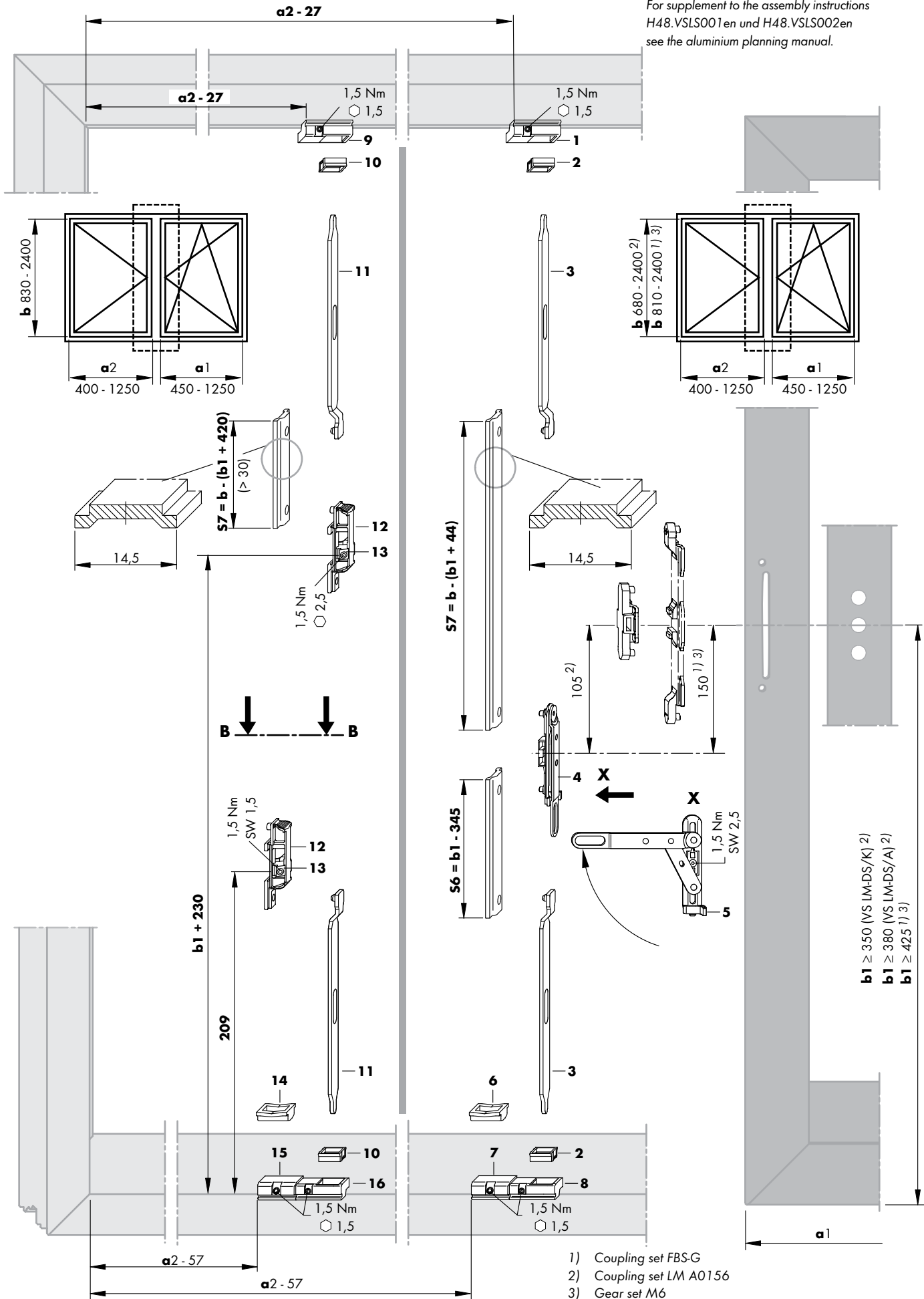
Removing the jigs (Example: hinge side, top (BSO))

# VS ALU axxent-DS Hardware overview and installation dimensions

For supplement to the assembly instructions  
H48.VSLS004en see the aluminium planning manual.



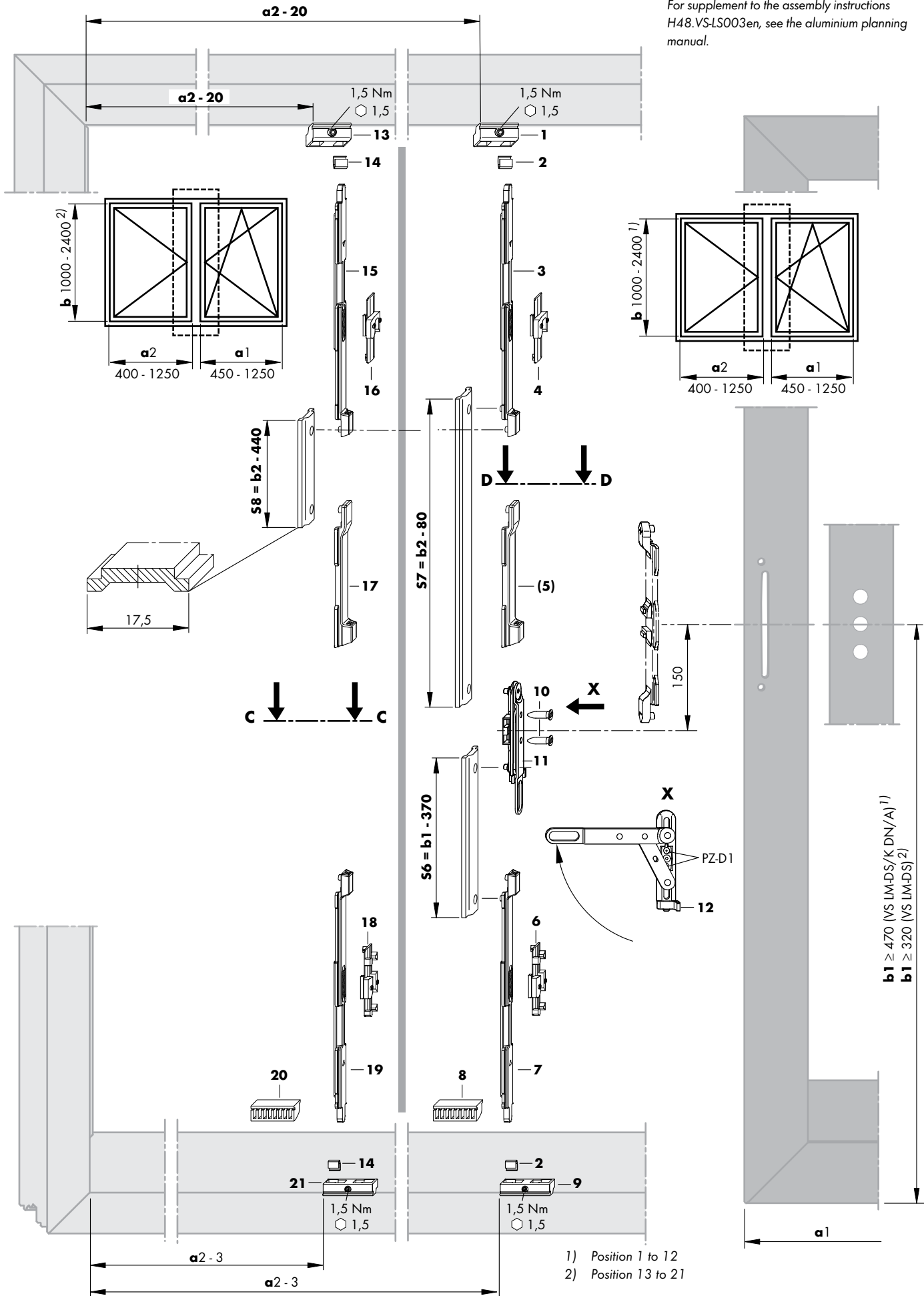
For supplement to the assembly instructions H48.VLSL001en und H48.VLSL002en see the aluminium planning manual.



- 1) Coupling set FBS-G
- 2) Coupling set LM A0156
- 3) Gear set M6

**VS ALU axxent-DS/K A0004** Hardware overview and installation dimensions **VS ALU axxent-DS/K DN A0004**



For supplement to the assembly instructions H48.VS-LS003en, see the aluminium planning manual.



$b_1 \geq 470$  (VS LM-DS/K DN/A)<sup>1)</sup>  
 $b_1 \geq 320$  (VS LM-DS)<sup>2)</sup>



## ALU axxent-DS List of hardware, assembly instructions and compression setting

No.	Pc.	Description		Material no.		Material no.
1-10	1	VS LM 4200-DS A0109	1	879368	20	266885
-	1	BS axxent-D	1	MMBS0110-100010	10	MMBS0110-100020
-	1	MV LM 4200-D VS/BS $b \geq 1250 \text{ mm}$	1	857052	20	246986

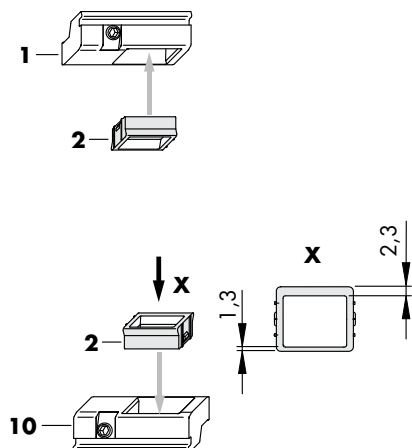
### Assembly instructions



- Preparation**
- A** Open the operating rod guide groove.
  - B** Prepare operating rods S6 - S7 according to specifications on page 11.
  - C** Prepare secondary sash profile according to the specifications on page 11 ( $\varnothing 14$ ).
  - D** Insert run-up block (9) horizontally on the VSU.

- Sash**
- A** Insert locking bolt (3), operating rod S6, secondary sash gear (4), operating rod S7 and locking bolt (3) vertically on the VS.
  - B** Position secondary sash gear (4) and fix with grub screws (torque  $2.5 \pm 0.25 \text{ Nm}$ ).
  - C** Position the secondary sash profile and fix it in place.
  - D** Screw on compression spring (5), PVC bushing (6) and handle (7) with countersunk screw M4 x 16 (8) according to specifications on page 11.

- Frame**
- A** Position strikers DS (1 and 10) DIN right or DIN left according to the specifications on page 11 and fix in place with grub screws (torque  $1.5 \pm 0.25 \text{ Nm}$ ).
  - B** Insert pressure pieces (2) into the strikers DS (1 and 10) according to the diagram on page 11.

### Compression setting of the pressure pieces (2) + 1 mm



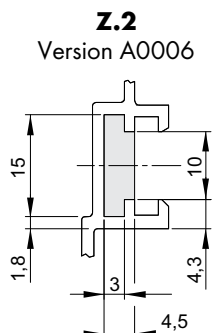
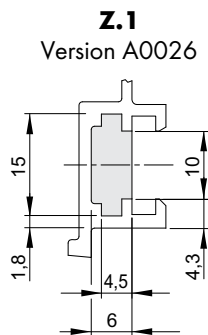
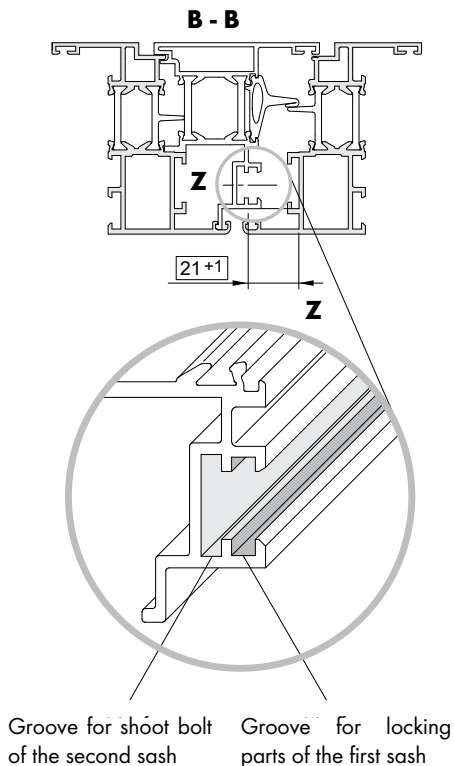
No.	Pc.	Description		Material no.		Material no.
1-8	1	<b>VS LM-DS/A A0026</b> secondary sash	1	<b>864425</b>	<b>20</b>	<b>252192</b>
	1	<b>VS LM-DS/A A0006</b> secondary sash	1	<b>860823</b>	<b>20</b>	<b>249321</b>
9-16	1	<b>VS LM-DS/K</b> secondary sash	1	<b>860830</b>	<b>20</b>	<b>249338</b>
-	1	<b>BS axxent-D</b> (See fig. on page 8 items 2 - 3)	1	<b>MMBS0110-100010</b>	<b>10</b>	<b>MMBS0110-100020</b>
-	1	<b>MV LM 4200-D VS/BS</b> ( $b \geq 1250$ mm) (See fig. on page 8 items 14 - 15)	1	<b>857052</b>	<b>20</b>	<b>246986</b>

## Assembly instructions

- Preparation**
- A** Open the operating rod guide groove.
  - B** Prepare operating rods S6 – S7 according to specifications on page 12.
  - C** Insert run-up block (6/14) horizontally on the VSU.

- Sash**
- VS LM-DS/A**
- A** Place the stop (5) DIN right or DIN left onto the secondary sash gear (4).
  - B** Insert shoot bolt (3) with operating rod S6 and operating rod S7 with shoot bolt (3) vertically on the VSO.
  - C** Attach the secondary sash gear (4) to the operating rods S6 and S7 and fix in place with countersunk screw (torque  $1.5 \pm 0.25$  Nm).
- VS LM-DS/K**
- A** Slide in shoot bolt (11) with locking element (12) vertically on the VSU. Position clamping piece (13) according to the dimensions on page 12 and fix in place with grub screw (torque  $1.5 \pm 0.25$  Nm).
  - B** Slide in locking part (12), operating rod S7 and shoot bolt (11) vertically on the VSO. Position clamping piece (13) according to the dimensions on page 12 and fix in place with grub screw (torque  $1.5 \pm 0.25$  Nm).



- Frame**
- A** Position strikers DS (1/9 and 8/16) DIN right or DIN left with run up block TBT (7/15) according to the specifications on page 12 and fix in place with grub screws (torque  $1.5 \pm 0.25$  Nm).
  - B** Insert pressure pieces (2/10) into the strikers DS (1/9 and 8/16) according to the diagram on page 12.



For compression adjustment of the pressure pieces (2/10) + 1 mm, see page 16.



# VS ALU axxent-DS/K A0004 *List of hardware, assembly instructions and profile recommendations*

No.	Pc.	Description		Material no.		Material no.	
1-9	1	VS LM-DS/K DN A0004 Z5.0	Secondary sash	1	MMVS380-100010	20	MMVS380-100030
10-12	1	Gear set DS/A DN A0004 Z5.0	Secondary sash	1	MMGI0100-100010	20	MMGI0100-100030
13-21	1	VS LM-DS/K A0004	Secondary sash	1	MMVS390-100010	20	MMVS390-100030
-	1	BS axxent-D	(See fig. on page 8 items 2 - 3)	1	MMBS0110-100010	10	MMBS0110-100020
-	1	MV LM 4200-D VS/BS (b ≥ 1250 mm)	(See fig. on page 8 items 14 - 15)	1	857052	20	246986
-	1	Striker jig LM A0004	(see below)	1	879504	-	-

## Assembly instructions

- Preparation**
- A** Open the operating rod guide groove.
  - B** Prepare operating rods S6, S7, S8 according to specifications on page 13.
  - C** Insert run-up block (8/20) horizontally on the VSU.

- Sash profile section D-D**
- A** Insert shoot bolt LM VSU/DN A0004 Z5.0 (7) with attached striker E (6) and operating rod S6 into the secondary sash profile from below.
  - B** Insert shoot bolt LM VSO/DN A0004 Z5.0 (3) and operating rod S7 (for locking element (5), operating rod S8) with attached striker VSO (4) into the secondary sash profile from above.
- Gear set DN (D-D)**
- C** Place the stop (12) DIN right or DIN left onto the secondary sash gear DN (11).
  - D** Attach the secondary sash gear DN (11) to the operating rods S6 and S7 and fix in place with taps 3.9 x 32 (10) (torque  $1.5 \pm 0.25$  Nm).
- Sash profile section C-C**
- E** Insert shoot bolt LM VSU A0004 (19) with attached striker E (18) into the secondary sash profile from below.
  - F** Insert shoot bolt LM VSO A0004 (15) with attached striker VSO (16), operating rod S8 and locking element (17) into the secondary sash profile from above.
  - G** Position striker E (6/18) with striker jig LM and fix in place with grub screws M5 (torque  $2.5 \pm 0.25$  Nm) (Fig. 1).
  - H** Position striker VSO (4/16) with striker jig LM and fix in place with grub screws M5. (Torque  $2.5 \pm 0.25$  Nm) (Fig. 2).

- Frame** Position tilt locking part (9/21) and top striker (1/13) according to the specifications on page 13 and fix each in place with grub screw M5 (torque  $1.5 \pm 0.25$  Nm).

### Position of striker jig LM

### Compression setting with pressure pieces (2) +0.5

### Profile recommendation

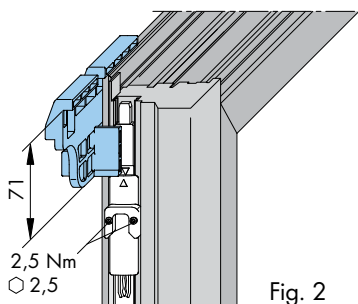


Fig. 2

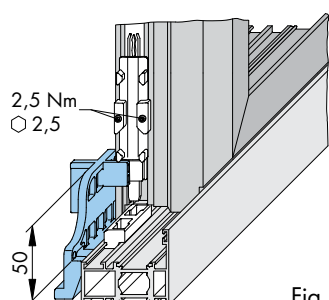
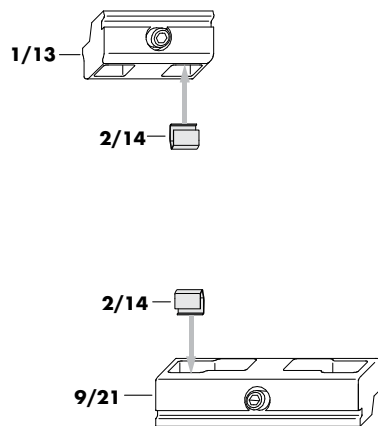
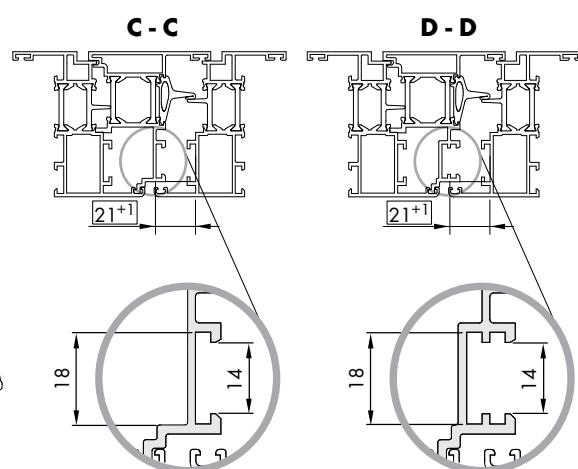


Fig. 1



# ALU axxent-D 130 kg List of hardware and 130 kg diagram

No.	Pc.		Description	Image	Material no.	Material no.	
	LH	RH					
1a	0...1	0...1	Si-line LM handle/LM Globe handle (no illustr.)	1	See LM handle overview, drawing no.: H48.ZUBHLS007en in aluminium planning manual		
1b	0...1	0...1	Window handle $\square$ 7 mm x 25 mm Cam $\varnothing$ 10 mm	1			
2-9	-	1	BS axxent DK right, size 25	1	MMBS0171-100010	10	MMBS0171-100020
-	1	-	BS axxent DK left, size 25	1	MMBS0172-100010	10	MMBS0172-100020
10-18	1	1	VS LM-D stop/corner drive VSO (1a)	1	MMVS0410-100010	10	MMVS0410-100030
19-21	0...1	0...1	Gear set M6 Trial/RR (1b)	1	MMGI0090-100010	20	MMGI0090-100030
22-24	0...1	0...1	MV LM 4200-DK $a \geq 1250$ mm	1	857045	20	246979
25-29	0...1	0...1	MV LM VS/BS A0040 $b \geq 1250$ mm	1	MMMV0030-100010	20	MMMV0030-100030
30-32	0...1	0...1	LM locking part $a \geq 1250$ mm	1	-	10	317556
33-37	0...1	0...1	Sashbrake ALU A0040 $a$ 600 mm - 1000 mm	1	MSBR0010-000011	50	MSBR0010-000051
	0...1	0...1	Sashbrake ALU, long $a$ 1001 mm - 1600 mm	1	MSBR0010-000010	50	MSBR0010-000050
38	0...1	0...1	LM handle support (1a) Design variants, see page 3	-	-	200	-
39	1	1	Jig BS axxent 130 kg (See fig. on page 20)	1	MARB0030-023010	-	-
40-44	-	1	Accessories, BS axxent right, 130 kg <sup>1)</sup> (See fig. on page 20)	1	MZBS0061-100010	10	MZBS0061-100020
	1	-	Accessories, BS axxent left, 130 kg <sup>1)</sup>	1	MZBS0062-100010	10	MZBS0062-100020

1) Contents of the packing unit: BSO A0040 supporting piece (40), countersunk screws M5 x 13 (41), BSU A0040 right/left frame part (42), BSU A0040 rod (43) and BSU A0040 right/left frame part (44) (see page 20).

**Note:** For assembly and disassembly, compression settings and adjustment options, see H48.axntLS002en in the aluminium planning manual.

## Glass thickness in mm without air gap

16 mm glass thickness (equivalent to 40 kg/m<sup>2</sup>)

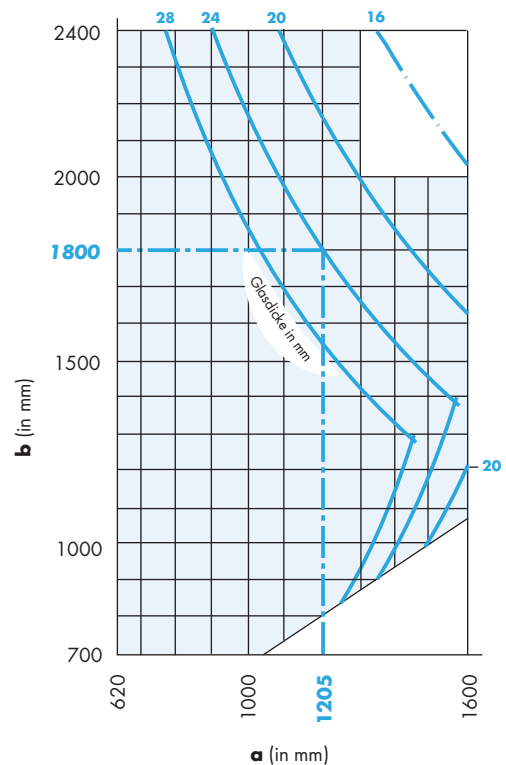
20 mm glass thickness (equivalent to 50 kg/m<sup>2</sup>)

24 mm glass thickness (equivalent to 60 kg/m<sup>2</sup>)

28 mm glass thickness (equivalent to 70 kg/m<sup>2</sup>)

1 mm/m<sup>2</sup> glass thickness = 2.5 kg

Example (---): sash height = 1800 mm  
 glass thickness = 24 mm  
 permissible sash width = **1205 mm**

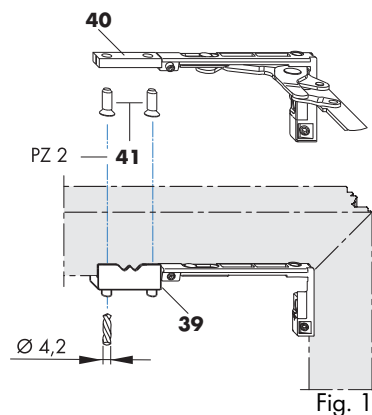


For glass thicknesses of less than 16 mm, all sash sizes that lie within the range of application and do not exceed an aspect ratio  $a/b$  of 1.5 are permissible.

Maximum permissible sash weight: 130 kg

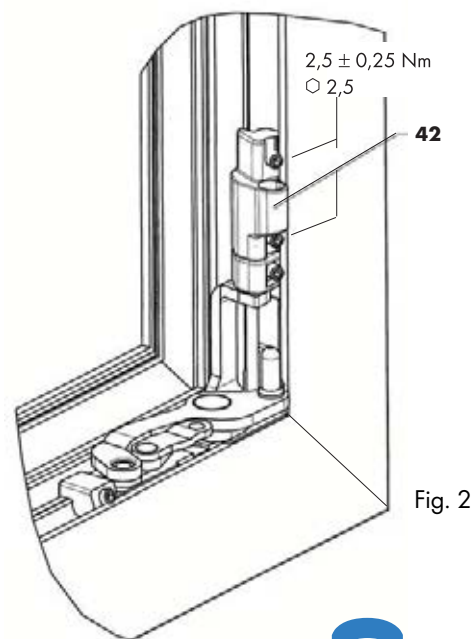
## ALU axxent-D 130 kg Mounting accessories, BS axxent right/left 130 kg

1. Insert the BS axxent 130 kg jig (39) on loosened stay, as shown in the adjacent diagram (fig. 1).
2. Drill holes with  $\varnothing 4.2$  for the BSO A0040 supporting piece (39).
3. Insert the BSO A0040 supporting piece (40) into the frame groove, position it on the stay and fix it in place with M5 x 13 countersunk screws (41).
4. Tighten the M5 x 13 countersunk screws (41) with  $2.5 \pm 0.25$  Nm.



### Fixing the BSU A0040 right/left frame part

1. Insert BSU A0040 right/left frame part (42) into the frame groove and position it on the axxent bottom hinge as shown in the adjacent diagram (fig. 2).
2. Tighten the grub screws of the BSU A0040 right/left frame part (42) with  $2.5 \pm 0.25$  Nm.



### Installing the BSU A0040 rod into the sash and frame (without the glass)

1. Insert BSU A0040 right/left sash part (44) into the sash groove and secure it (fig. 3).
2. Hang the sash (P 2 - 10) and open it.
3. Insert the BSU A0040 rod (43) into the BSU A0040 right/left frame part (42) (fig. 4).
4. Insert the BSU A0040 rod (43) into the BSU A0040 right/left sash part (44) (fig. 4).
5. Position the BSU A0040 right/left sash part (44) as shown (fig. 3) and fix in place with  $2.5 \pm 0.25$  Nm.
6. Adjust the grub screw in the BSU A0040 right/left sash part (44) to reduce the play of the BSU rod (43) (fig. 4).

**Note a:** Make sure that the BSU A0040 rod (43) has no noticeable play.

**Note b:** If the tension of the BSU A0040 rod (43) is too high, the sash cannot be closed.

**Note c:** After making adjustments to the BSU, repeat the steps from notes a and b.

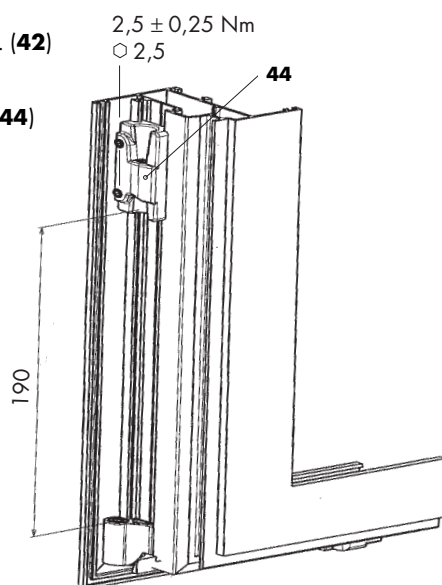


Fig. 3

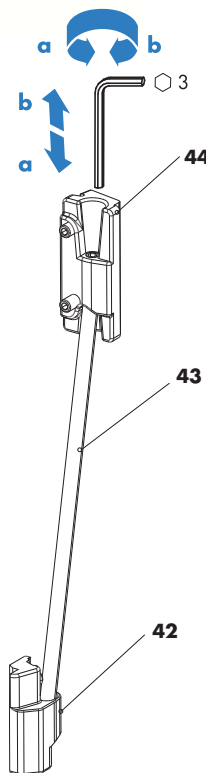
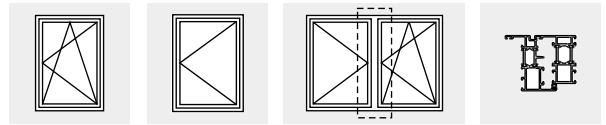


Fig. 4

# LM 2200

The clampable hardware for aluminium windows and portal doors

Hardware certified in accordance with **QM 328**

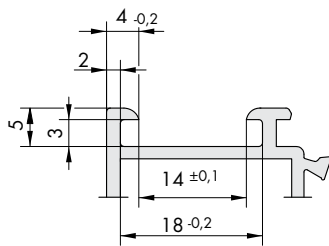


Further details and specifications/information regarding the product and liability (guidelines: VHBH, TBDK and VHBE) can be found in the aluminium planning manual (H4006.3042EN) and **must** be observed.

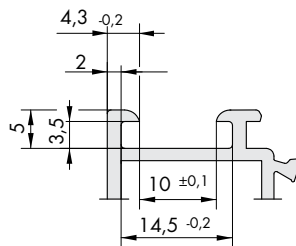
All dimensions given are final dimensions after the surface of the sections has been treated (painted, powder coated, etc.).

## Frame groove size

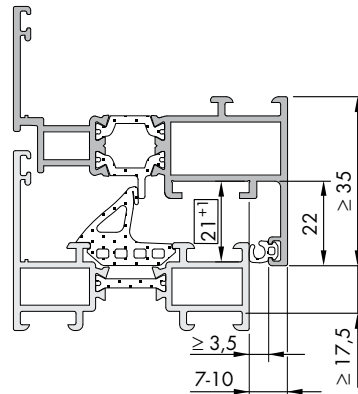
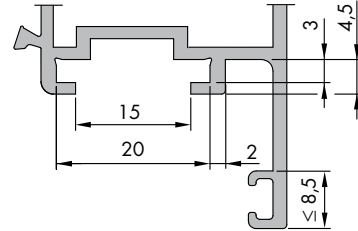
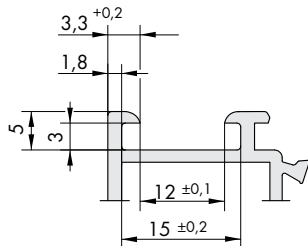
### A0004



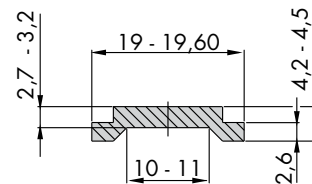
### A0006



### A0022

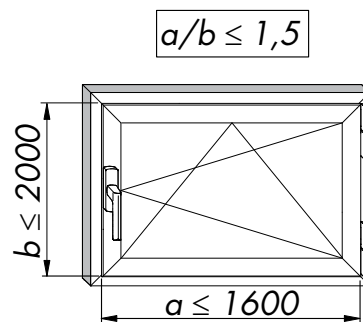
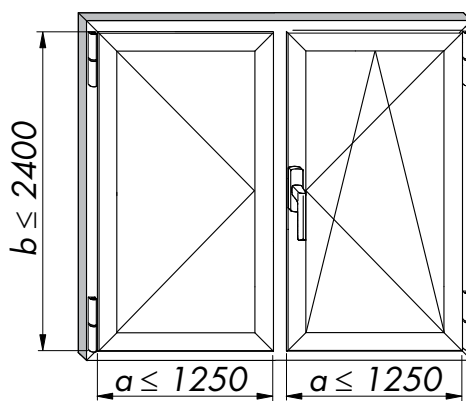
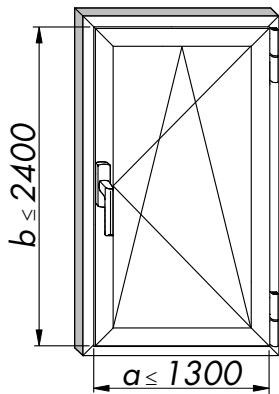


## min. - max.



## All dimensions in mm

Sash width	(a)	min. 375 - max. 1600
Sash height	(b)	min. 550 - max. 2400
Sash weight	( $\bar{m}$ )	max. 80 kg



Technical specifications and colours are subject to change

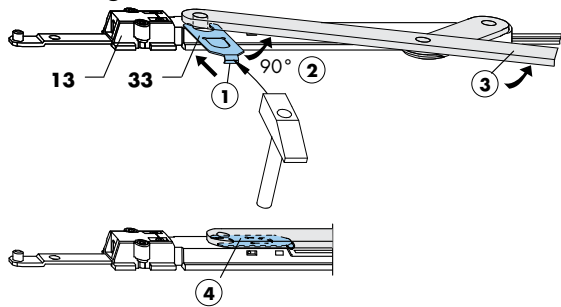
H48.2200LS001en\_1\_2013-02

**Assembly Instructions**  
H48.2200LS001en

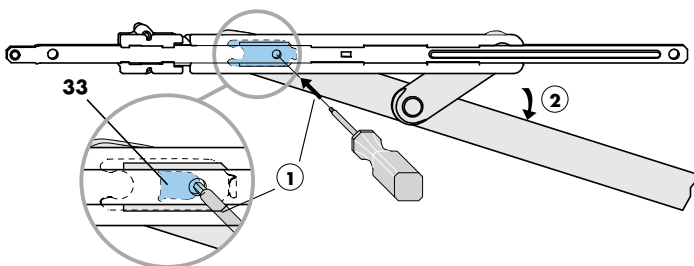
# LM 2200-DK Hardware list and installation notes

Item	Qty	Description		Material no.		Material no.							
Generally required	1	<b>LM Globe handle</b>		See handle overview LM Drawing no.: H48.ZubhLS007de									
	2-12	1	<b>BS LM 2200</b>	Silver	1	<b>MMBS0060-525010</b>	10	<b>MMBS0060-525020</b>					
				Brown	1	<b>MMBS0060-533010</b>	10	<b>MMBS0060-533020</b>					
				White RAL 9016	1	<b>MMBS0060-504010</b>	10	<b>MMBS0060-504020</b>					
				Black RAL 9005	1	<b>MMBS0060-523010</b>	10	<b>MMBS0060-523020</b>					
				Mill finish	-	-	10	<b>MMBS0060-500020</b>					
	13	1	<b>Stay LM 2200</b>	Size	a (in mm)	1	<b>MSKK0010-000010</b>	20	<b>MSKK0010-000030</b>				
				20	375 - 600					1	<b>MSKK0210-000010</b>	20	<b>MSKK0210-000030</b>
				35	601 - 1,250								
	1) with LM 4200 additional stay			35 <sup>1)</sup>	1251 - 1,600	1	<b>MSKK0210-000010</b>	20	<b>MSKK0210-000030</b>				
14-17	1	<b>Additional stay LM 4200</b>	a > 1,250 mm + stay 35	1	<b>857076</b>	10	<b>247006</b>						
18-25	1	<b>VS LM-DK KPS</b>		1	<b>MMV0250-100010</b>	20	<b>MMV0250-100030</b>						
26-28	1	<b>Coupling set FBS-G 9 mm</b>		1	<b>MMKL0030-100010</b>	20	<b>MMKL0030-100030</b>						
29-31	2	<b>MV LM 4200-DK</b>	a/b > 1,250 mm	1	<b>857045</b>	20	<b>246979</b>						
29-31	2	<b>MV LM4200/2200-DK A0172</b>	a/b > 1,250 mm (see fig.)	1	<b>MMMV0010-100010</b>	20	<b>MMMV0010-100030</b>						
<b>Accessories</b>													
32	1	<b>MV stay striker</b>	(a 601 - 1,600) Stay size 35 only	1	<b>MXSK0010-100010</b>	20	<b>MXSK0010-100030</b>						
33	1	<b>LM 2200 tilt restrictor</b>	(a 601 - 1,250) Stay size 35 only	1	<b>MXSK0030-000010</b>	200	<b>MXSK0030-000200</b>						
34	1	<b>Pressure piece SV right</b>	Width adjustment: 0.8 mm	1	<b>MBDR0021-100010</b>	100	<b>MBDR0021-100060</b>						
35	1	<b>Pressure piece SV left</b>	Width adjustment: 0.8 mm	1	<b>MBDR0022-100010</b>	100	<b>MBDR0022-100060</b>						
36	1	<b>Striker</b>	Stay size 35 only	1	<b>859322</b>	20	<b>265413</b>						

## Mounting the tilt restrictor (33)

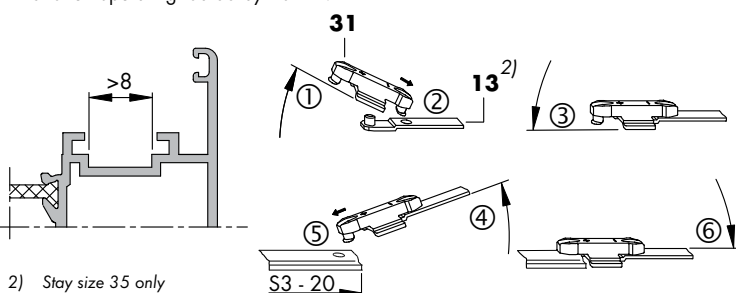


## Removing the tilt restrictor (33)



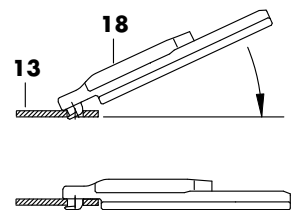
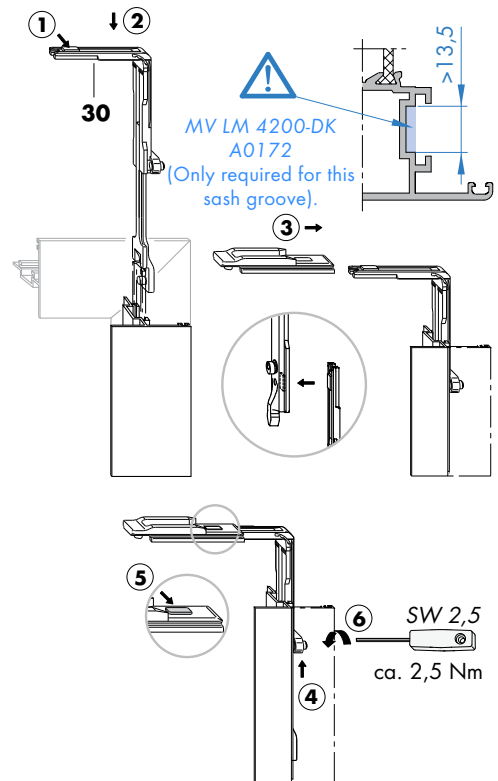
## Installation instructions for items 32 and 18

- If necessary, the MV stay striker (32) can be used as an additional locking point. Striker (35) must be ordered separately.
- MV stay striker (32) is required for the sash groove (see fig.).
- Shorten operating rod S3 by 20 mm.





2) Stay size 35 only

## Instructions for installing the VSU/BSO corner drive (31) A0172

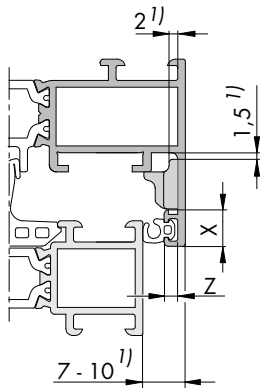


# LM 2200-D Hardware list and installation notes

Item	Qty	Description		Material no.		Material no.	
1	1	<b>LM Globe handle</b>		See handle overview LM Drawing no.: H48.ZubhLS007de			
Generally required	2-12	<b>BS LM 2200</b>	<b>Silver</b>	1	<b>MMBS0060-525010</b>	<b>10</b>	<b>MMBS0060-525020</b>
	(See fig. on page 7)		<b>Brown</b>	1	<b>MMBS0060-533010</b>	<b>10</b>	<b>MMBS0060-533020</b>
			<b>White</b> RAL 9016	1	<b>MMBS0060-504010</b>	<b>10</b>	<b>MMBS0060-504020</b>
			<b>Black</b> RAL 9005	1	<b>MMBS0060-523010</b>	<b>10</b>	<b>MMBS0060-523020</b>
			<b>Mill finish</b>	-	-	<b>10</b>	<b>MMBS0060-500020</b>
13-14	1	<b>Accessories - LM 2200 turn-only stay</b>	1	<b>MZBS0040-000010</b>	<b>20</b>	<b>MZBS0040-000030</b>	
15-21	1	<b>VS LM 4200-D</b>	1	<b>857014</b>	<b>20</b>	<b>246948</b>	
22-24	1	<b>MV LM 4200-D VS/BS</b>	$b > 1250 \text{ mm}$	1	<b>857052</b>	<b>20</b>	<b>246986</b>
25-28	1	<b>MV LM4200/2200-D VSU/VSO</b>	$a > 1,250 \text{ mm}$	1	<b>MMMV0040-100010</b>	<b>20</b>	<b>MMMV0040-100030</b>
25-28	1	<b>MV LM4200/2200-D VSU/VSO A0172</b>	$a > 1250 \text{ mm}$ (see fig.)	1	<b>MMMV0020-100010</b>	<b>20</b>	<b>MMMV0020-100030</b>
<b>Accessories</b>							
29	1	<b>Handle support LM</b>	-	-	<b>200</b>	(See table)	
30	1	<b>Stop</b>	1	<b>820544</b>	<b>10</b>	<b>222805</b>	
34	1	<b>Pressure piece SV right</b> (See fig. on page 7)	Width adjustment: 0.8 mm	1	<b>MBDR0021-100010</b>	<b>100</b>	<b>MBDR0021-100060</b>
35	1	<b>Pressure piece SV left</b> (See fig. on page 7)	Width adjustment: 0.8 mm	1	<b>MBDR0022-100010</b>	<b>100</b>	<b>MBDR0022-100060</b>

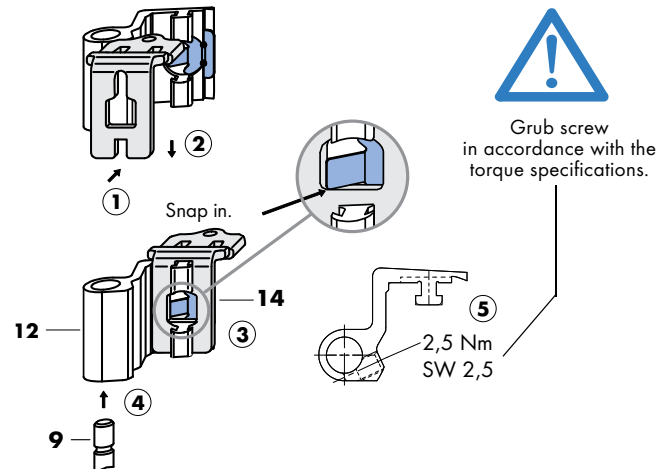
## Design variations for handle support (29)

Z	X < 7 mm	X 7.1-7.5 mm
< 2 mm	MFHA0010-100200	MFHA0010-100200
2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
> 3 mm	MFHA0010-100200	-

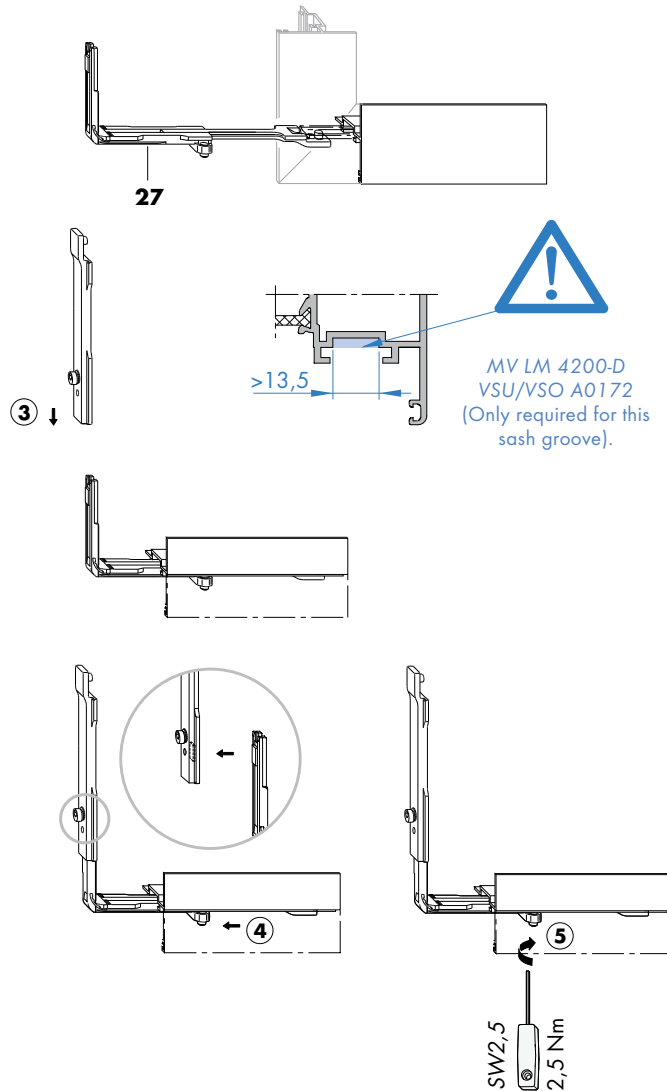


1) Required space



## Instructions for installing the stay hinge (12), adapter (14) and top hinge pin (9).



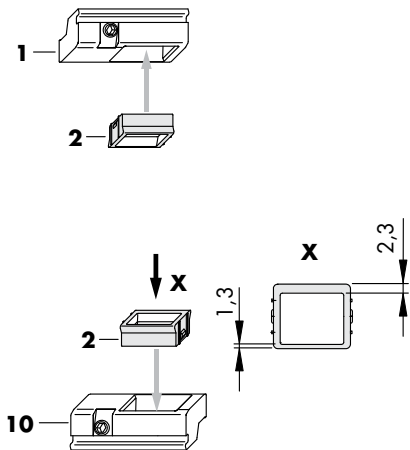
## Instructions for installing the VSU/BSO corner drive (30) A0172



## VS 2200-DS Hardware list and pressure adjustment

Item	Qty	Description		Material no.		Material no.
1-10	1	VS LM 4200-DS A0109	1	879368	20	266885
11	1	LM 4200/2200-D stay <i>Secondary sash</i>	1	MSKD0010-100010	100	MSKD0010-100060
12-13	1	Accessories - LM 2200 turn-only stay	1	MZB50040-000010	20	MZB50040-000030
-	1	MV LM 4200-D VS/BS <i>b &gt; 1250 mm</i> <small>(See fig. on page 8, items 22 - 23)</small>	1	857052	20	246986

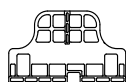
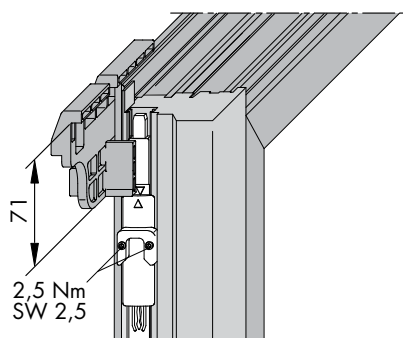
### Pressure adjustment of the pressure pieces (2) + 1 mm



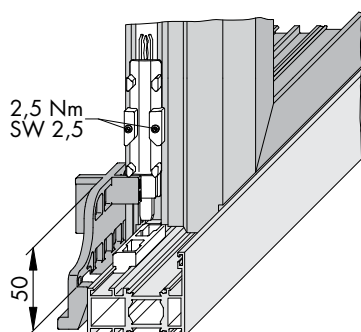
# VS LM 2200-DS/K A0004 Hardware list, installation notes and pressure adjustment

Item	Qty	Description		Material no.		Material no.
1-10	1	VS LM-DS/K DN A0004 Z5.0 Secondary sash	1	MMV50380-100010	20	MMV50380-100030
11-13	1	Gear set DS/A DN A0004 Z5.0 Secondary sash	1	MMGI0100-100010	20	MMGI0100-100030
14	1	LM 4200/2200-D stay Secondary sash	1	MSKD0010-100010	20	MSKD0010-100030
15-16	1	Accessories - LM 2200 turn-only stay Secondary sash	1	MZBS0040-000010	20	MZBS0040-000030
17-24	1	VS LM-DK FBS-G 9 MM A0172 Main sash	1	MMV50360-100010	20	MMV50360-100020

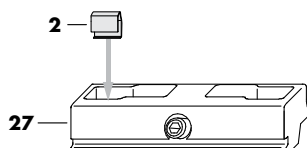
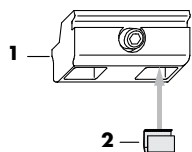
## Instructions for positioning the LM striker jig on the secondary sash



Description	Material no.
LM A0004 striker jig	879504



## Contact pressure setting with stop springs (2) +0.5 mm

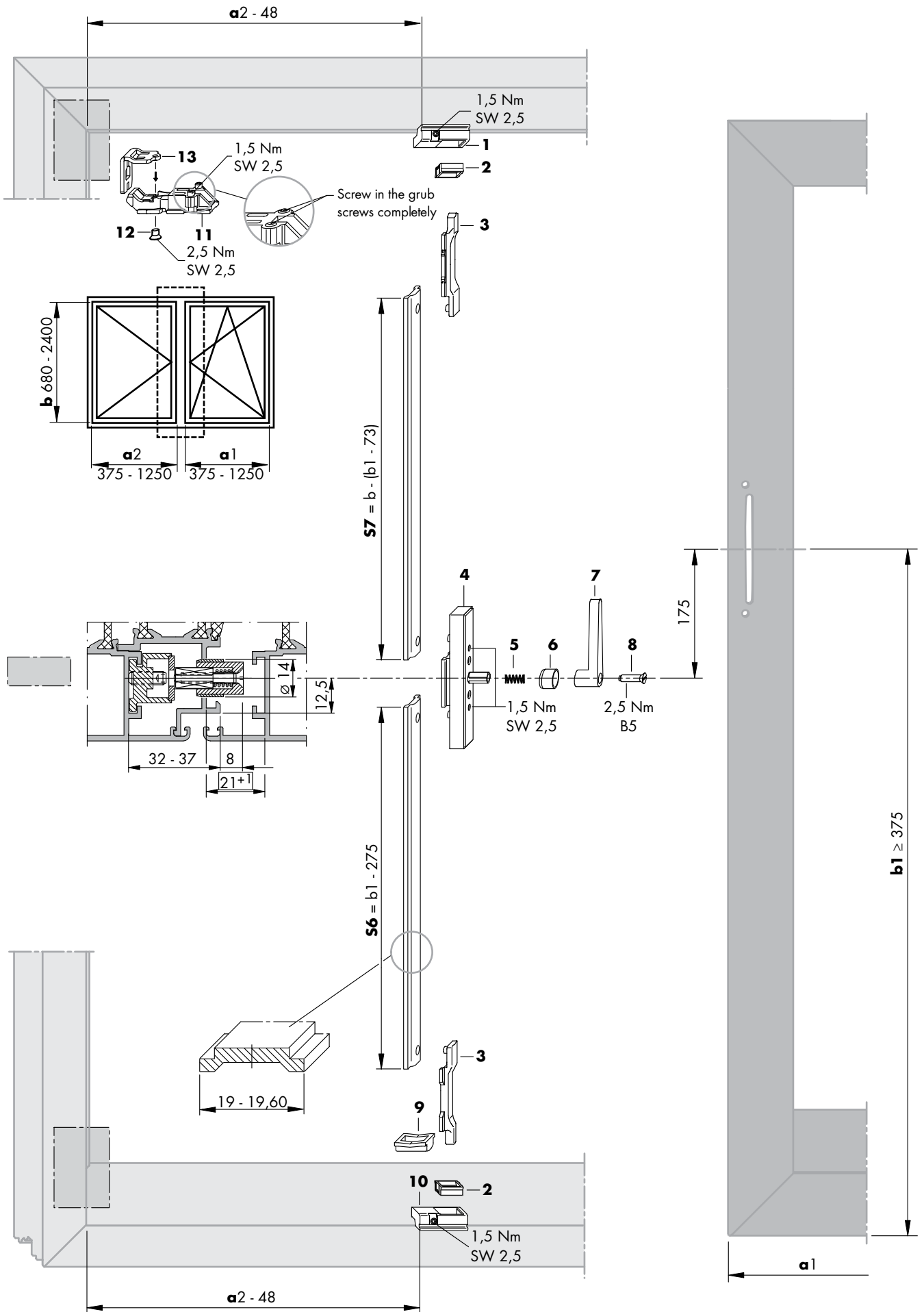




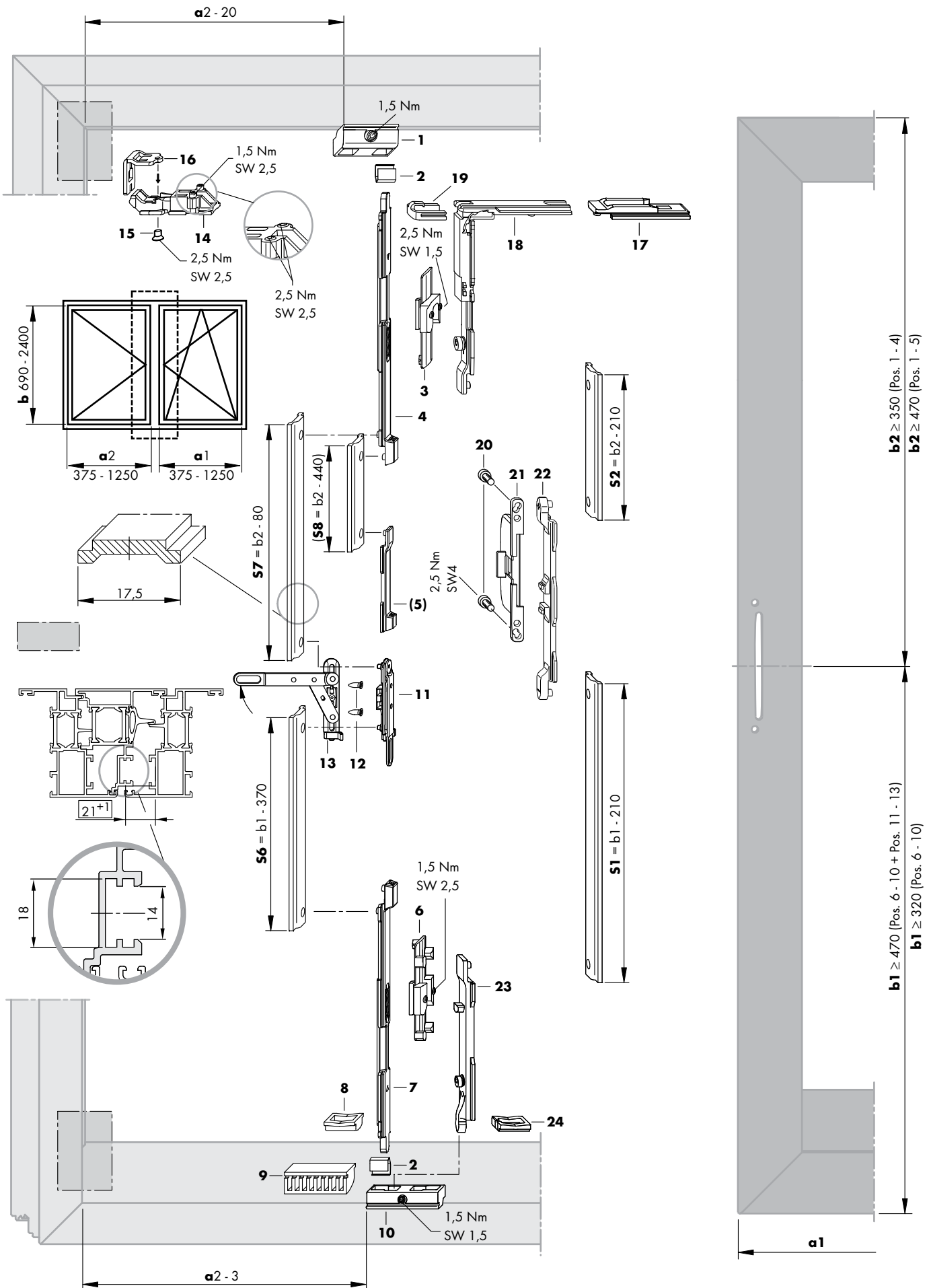




**LM 2200-DS** Hardware layout and installation dimensions

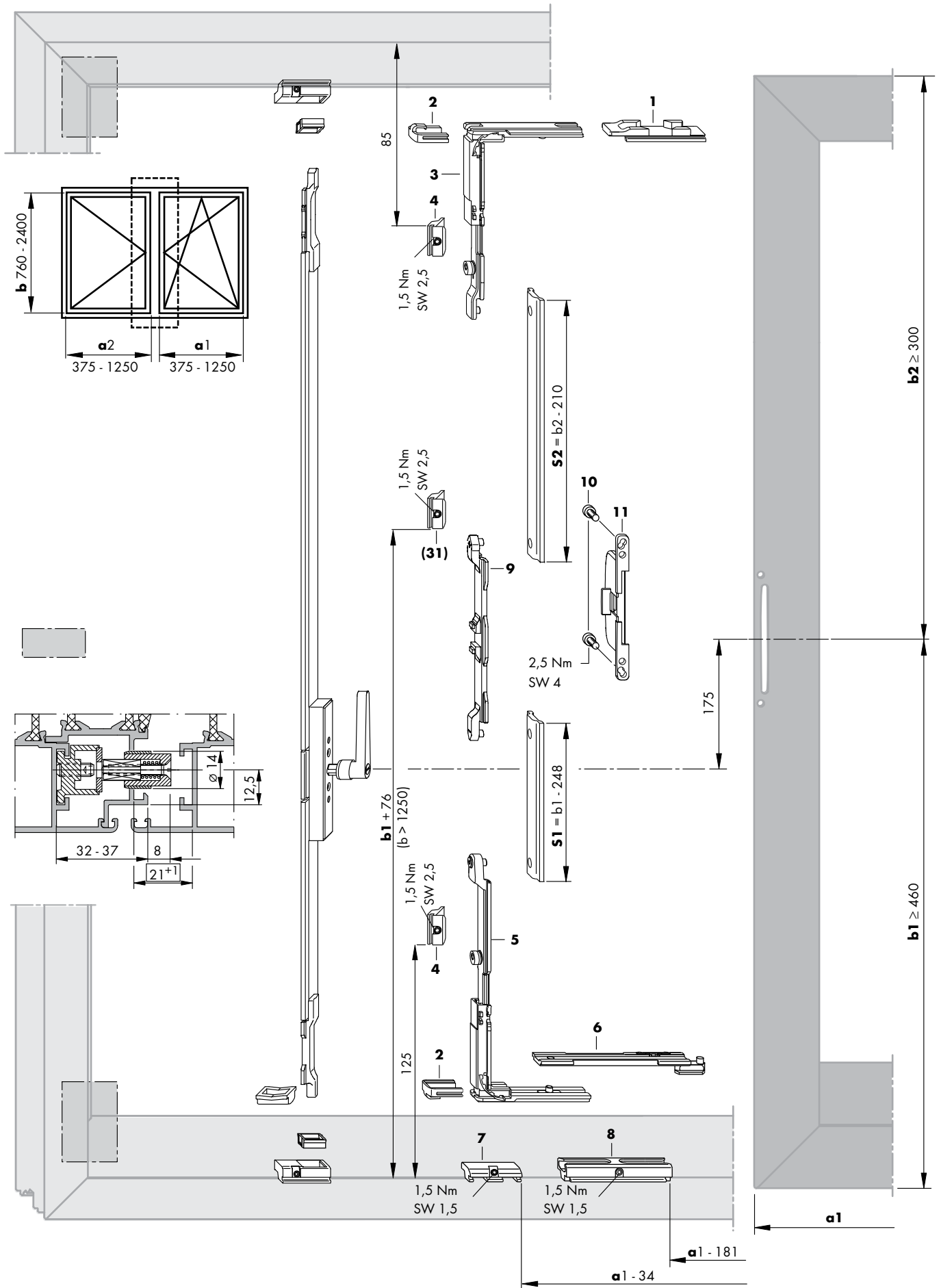


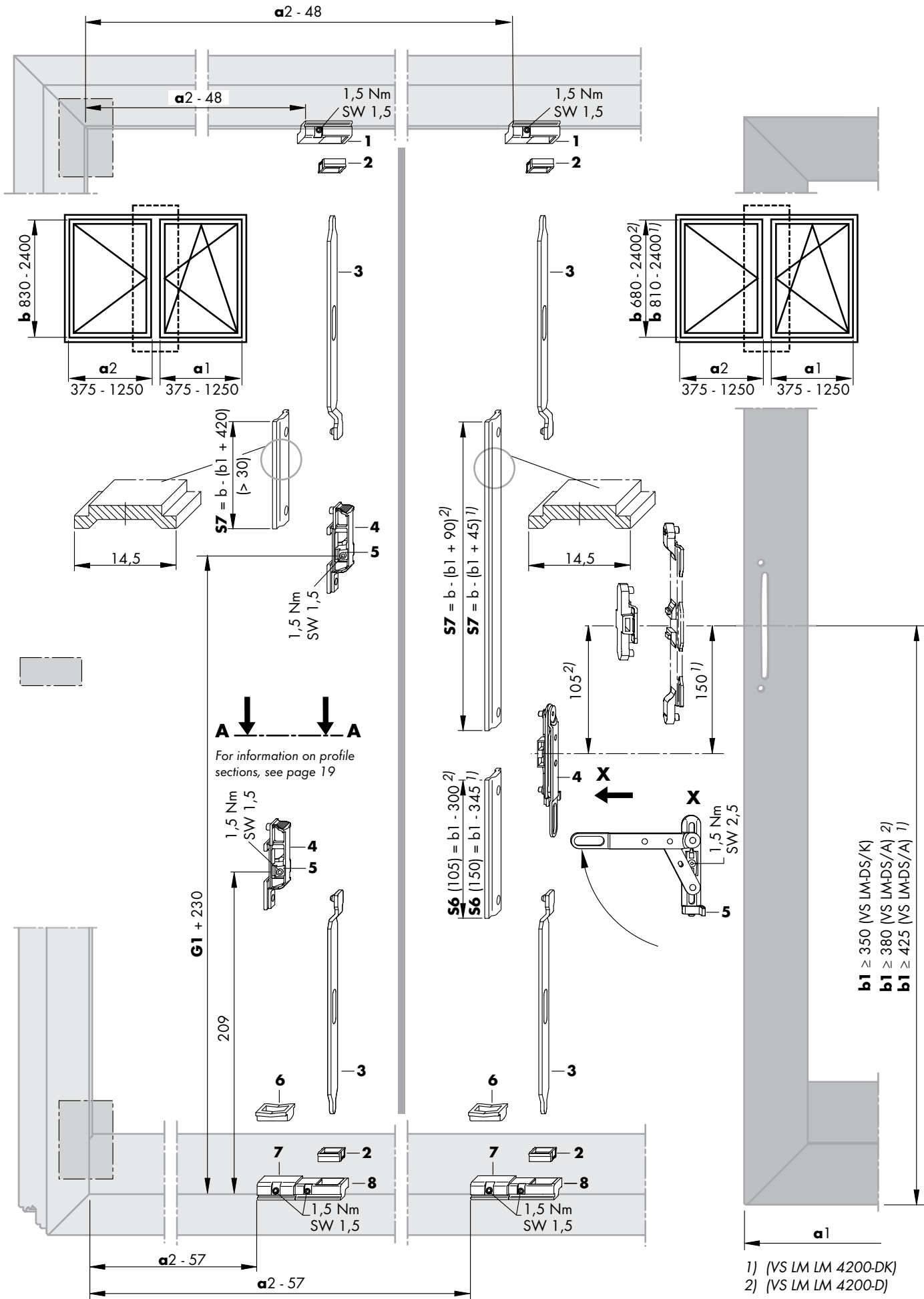
**VS LM 2200-DS/K A0004** Hardware layout and installation dimensions





**VS LM 2200-TBT/DS** Hardware layout and installation dimensions





## LM 2200 Diagram for determining allowable sash sizes, abbreviations

### Glass thickness in mm without air gap

12 mm glass thickness (equivalent to 30 kg/m<sup>2</sup>)

16 mm glass thickness (equivalent to 40 kg/m<sup>2</sup>)

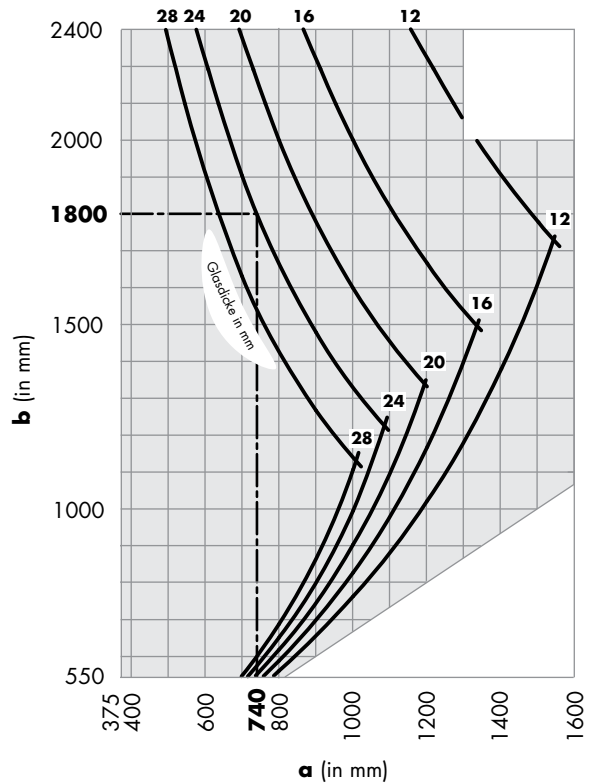
20 mm glass thickness (equivalent to 50 kg/m<sup>2</sup>)

24 mm glass thickness (equivalent to 60 kg/m<sup>2</sup>)

28 mm glass thickness (equivalent to 70 kg/m<sup>2</sup>)

1 mm/m<sup>2</sup> glass thickness = 2.5 kg

Example (---): sash height = 1,800 mm  
 glass thickness = 24 mm  
 maximum allowable sash width = **740 mm**



For glass thicknesses under 12 mm, all sash sizes can be used, as long as they are within the size range and do not exceed a width to height ratio of 1.5.

### Abbreviations

The following abbreviations are used in these assembly instructions:

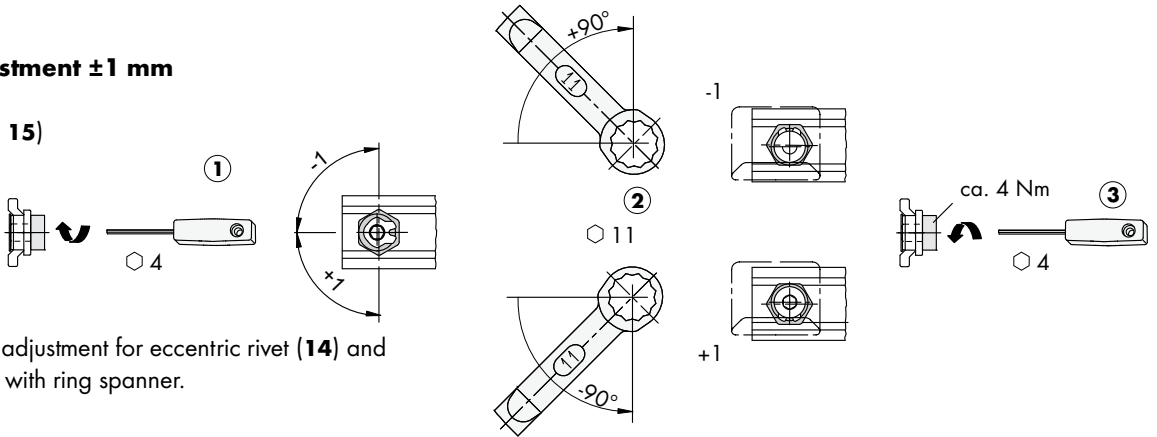
BS	Hinge side
BSO	Hinge side, top
a	Sash width
a1	Sash width of main sash
a2	Sash width of secondary sash
b	Sash height
b1	Handle height, bottom
b2	Handle height, top
FBS-G	Mishandling device on handle
MV	Centre lock
SV	Width adjustment
VS	Locking side
VSO	Locking side, top
VSU	Locking side, bottom
S1	Operating rod, locking side on bottom
S2	Operating rod, locking side on top
S3	Operating rod, top horizontal
S4	Operating rod, hinge side
S5	Operating rod, bottom horizontal
S6	Operating rod, secondary sash locking side on bottom
S7	Operating rod, secondary sash locking side on top



# LM 2200 Pressure adjustment and setting options

## Pressure adjustment $\pm 1$ mm

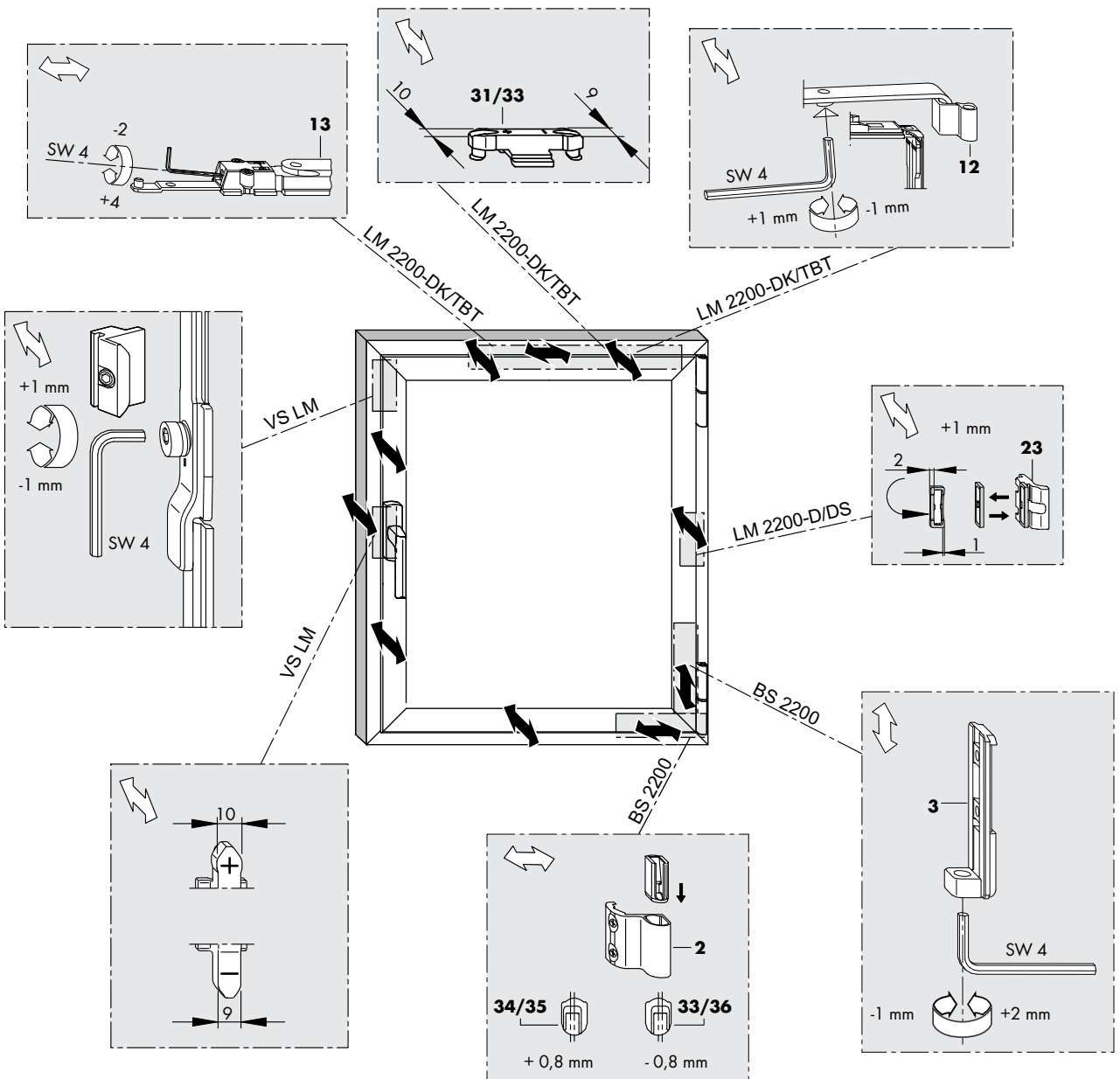
(for items 14 and 15)



Perform pressure adjustment for eccentric rivet (14) and locking cam (15) with ring spanner.

## LM 2200 setting options

LM 4200-D stay, not pictured (key dimension 2.5)



# LM 2200-TBT Hardware list and installation notes

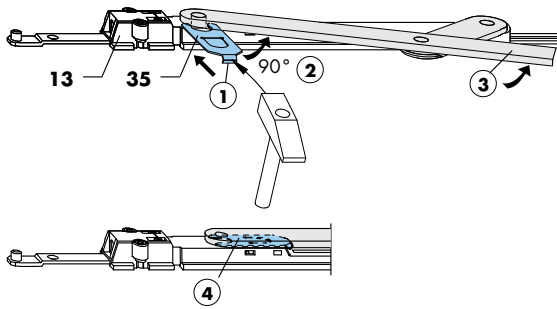
Item	Qty	Description		Material no.		Material no.		
1	1	LM Globe handle, lockable/TBT		See handle overview LM Drawing no.: H48.ZubhLS007de				
	2-12	BS LM 2200	Silver	1	MMSB0060-525010	10	MMSB0060-525020	
			Brown	1	MMSB0060-533010	10	MMSB0060-533020	
			White RAL 9016	1	MMSB0060-504010	10	MMSB0060-504020	
			Black RAL 9005	1	MMSB0060-523010	10	MMSB0060-523020	
			Mill finish	-	-	10	MMSB0060-500020	
13	1	Stay LM 2200	Size	a (in mm)	1	MSKK0010-000010	20	MSKK0010-000030
			20	375 - 600	1	MSKK0210-000010	20	MSKK0210-000030
			35	601 - 1,250	1	MSKK0210-000010	20	MSKK0210-000030
		1) with additional stay LM	35 <sup>1)</sup>	1,251 - 1,600	1	MSKK0210-000010	20	MSKK0210-000030
14-17	1	Additional stay LM 4200	a > 1,250 mm + stay 35	1	857076	10	247006	
18	1	Stay striker MV	a > 1,250 mm	1	MXSK0010-100010	20	MXSK0010-100030	
19-27	1	VS LM-TBT KPS		1	MMV50270-100010	20	MMV50270-100030	
28-30	1	Coupling set FBS-G 9 mm		1	MMKL0030-100010	20	MMKL0030-100030	

31-33	2	MV LM 4200-DK	a/b > 1,250 mm	1	857045	20	246979
31-33	2	MV LM 4200-DK A0172	a/b > 1,250 mm (see fig.)	1	MMMVO010-100010	20	MMMVO010-100030

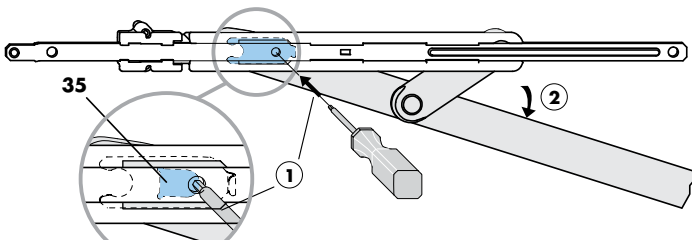
### Accessories

34	1	MV stay striker	(a 601 - 1,600) Stay size 35 only	1	(see item 18).	-	(see item 18).
35	1	LM 2200 tilt restrictor	(a 601 - 1,250) Stay size 35 only	1	MXSK0030-000010	200	MXSK0030-000200
36	1	Pressure piece SV right	Width adjustment: 0.8 mm	1	MBDR0021-100010	100	MBDR0021-100060
37	1	Pressure piece SV left	Width adjustment: 0.8 mm	1	MBDR0022-100010	100	MBDR0022-100060
38	1	Striker	Stay size 35 only	1	859322	20	265413

### Mounting the tilt restrictor (35)

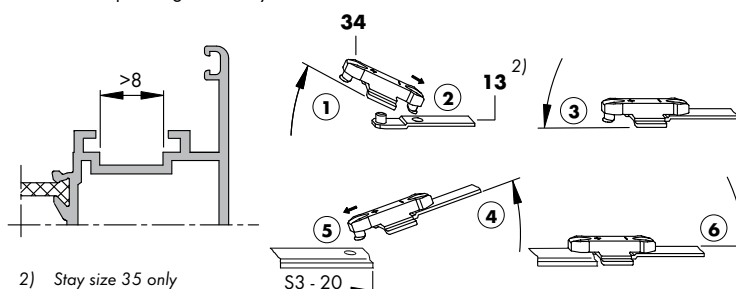


### Removing the tilt restrictor (35)



### Installation instructions for items 34 and 19

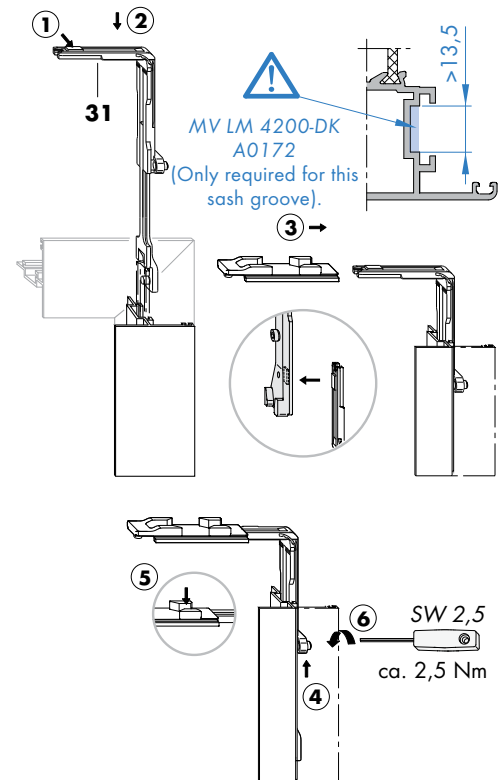
- If necessary, the MV stay striker (34) can be used as an additional locking point. Striker (38) must be ordered separately.
- Stay striker (33) is required for the sash groove (see fig.).
- Shorten operating rod S3 by 20 mm.






2) Stay size 35 only

S3 - 20

### Instructions for installing the VSU/BSO corner drive (31) A0172



# VS LM 2200-TBT/DS Hardware list and function notes

Item	Qty	Description		Material no.		Material no.	
1-8	1	<b>VS LM-DK-TBT KPW</b> <i>Main sash</i>		<b>MMV50400-100010</b>		<b>MMV50400-100030</b>	
9-11	1	<b>LM FBS-G 9MM coupling set</b> <i>Main sash</i>		<b>MMKL0030-100010</b>		<b>MMKL0030-100010</b>	
-	1	<b>Stay LM 2200</b> (See fig. on pages 11 - 12)	Size <i>a (in mm)</i> 20 375 - 600	1	<b>M5KK0010-000010</b>	20	<b>M5KK0010-000030</b>
	1			35 601 - 1,250		1	
-	0 to 1	<b>MV LM 4200-DK</b> <i>b &gt; 1,250 mm</i>	(See fig. on page 12, items 31 - 33)	1	<b>857045</b>	20	<b>246979</b>
-	0 to 1	<b>MV LM 4200/2200-DK A0172</b> <i>b &gt; 1,250 mm</i>	(See fig. on page 12, items 31 - 33)	1	<b>MMMV0010-100010</b>	20	<b>MMMV0010-100030</b>
-	0 to 1	<b>Stay striker MV</b> <i>Stay size 35 only (a 601 - 1,250)</i>	(See fig. on page 12, item 34)	1	<b>MXSK0010-100010</b>	20	<b>MXSK0010-100030</b>
-	0 to 1	<b>LM 2200 tilt restrictor</b> <i>Stay size 35 only (a 601 - 1,250)</i>	<i>For information on installation, see page 17 item 35)</i>	1	<b>MXSK0030-000010</b>	200	<b>MXSK0030-000200</b>

For information on the secondary sash, see pages 4 and 9

## Function notes for handle, lockable/TBT

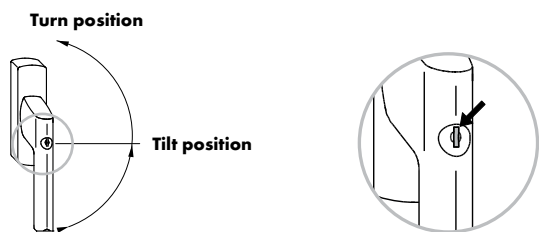


Locked position



Tilt position

Locked position





Turn position

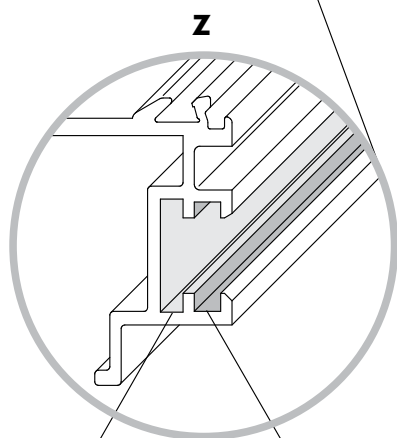
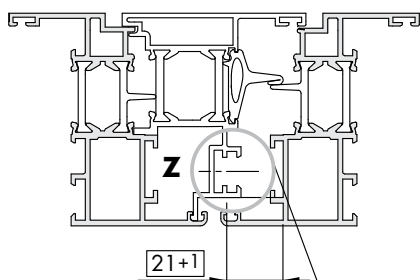
Tilt position

Locked position

# VS LM 2200-DS/K/A Hardware list, suggested profiles for secondary sash

Item	Qty	Description		Material no.		Material no.
1-8	1	VS LM-DS/K secondary sash	1	860830	20	249338
1-8	1	VS LM-DS/A A0026 secondary sash	1	864425	20	252192
	1	VS LM-DS/A A0006 secondary sash	1	860823	20	249321
-	1	LM 4200/2200-D stay (See fig. on page 10, item 12)	1	MSKD0010-100010	100	MSKD0010-100060
-	1	Accessories - LM 2200 turn-only stay (See fig. on page 10, items 13 - 14)	1	MZBS0040-000010	20	MZBS0040-000030
-	1	MV LM 4200-D VS/BS (b > 1,250 mm) (See fig. on page 8, items 22 - 23)	1	857052	20	246986

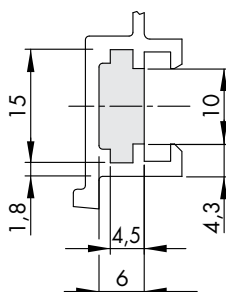
## Suggested profiles for secondary sash



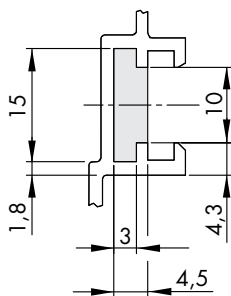
Groove for shoot bolt of the second sash

Groove for locking parts of the first sash

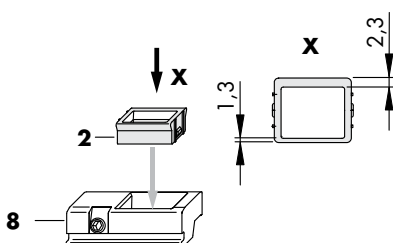
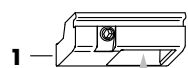
**Z**  
Version A0026



**Z**  
Version A0006



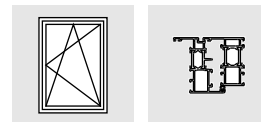
## Pressure adjustment of the pressure pieces (2) + 1 mm





# LM-DK/TBT200

The screw-fixed Tilt&Turn hardware for aluminium windows and balcony-doors



More details and specifications/guidelines on the product and on liability (Guidelines: 'VHBH, TBDK and VHBE') are to be checked without fail in the Aluminium Specifiers Manual (H4006.0125DE).

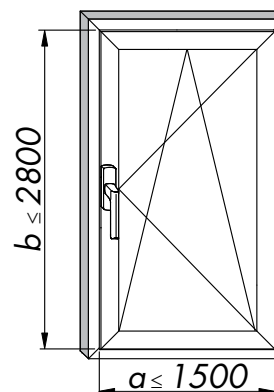
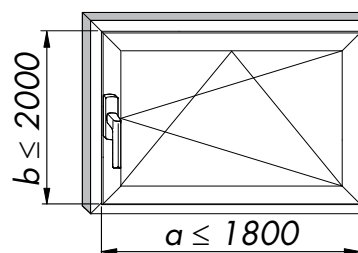
The specified dimensions are finished dimensions after the surface treatment of the profiles e.g. painting, powder coating etc.!

## All dimensions in mm

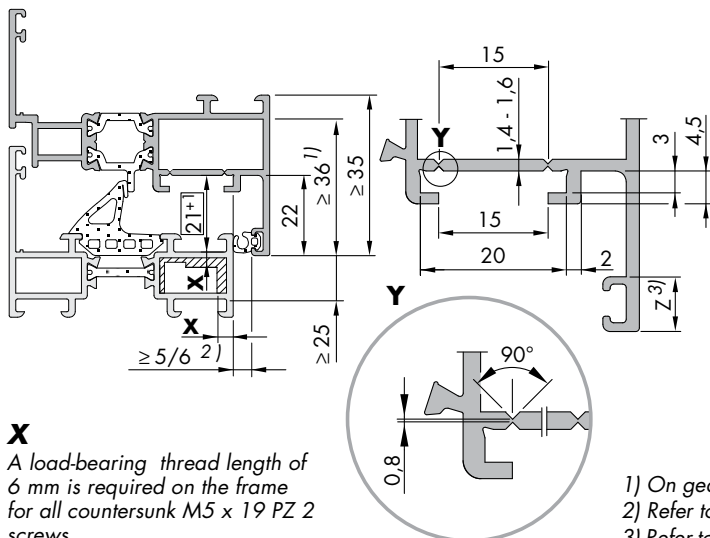
Sash width	(a)	min. 550 - max. 1800
Sash height	(b)	min. 1100 - max. 2800
Sash weight	(G)	max. 200 kg

## Sash dimensions

$$a/b \leq 1,2$$



## Profile dimensions

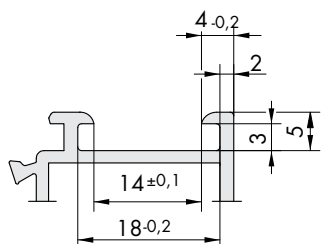


**X**  
A load-bearing thread length of 6 mm is required on the frame for all countersunk M5 x 19 PZ 2 screws.

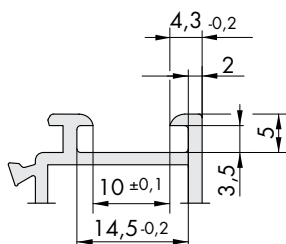
- 1) On gearbox M6
- 2) Refer to page 4
- 3) Refer to table on page 15 for dimension Z

## Frame groove dimensions

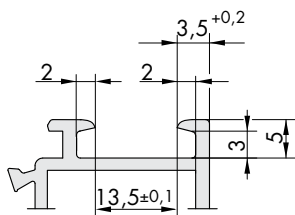
**A0004**



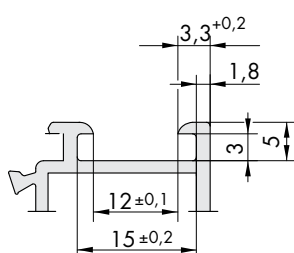
**A0006**



**A0016**



**A0022**



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Installation instructions

LMde1378

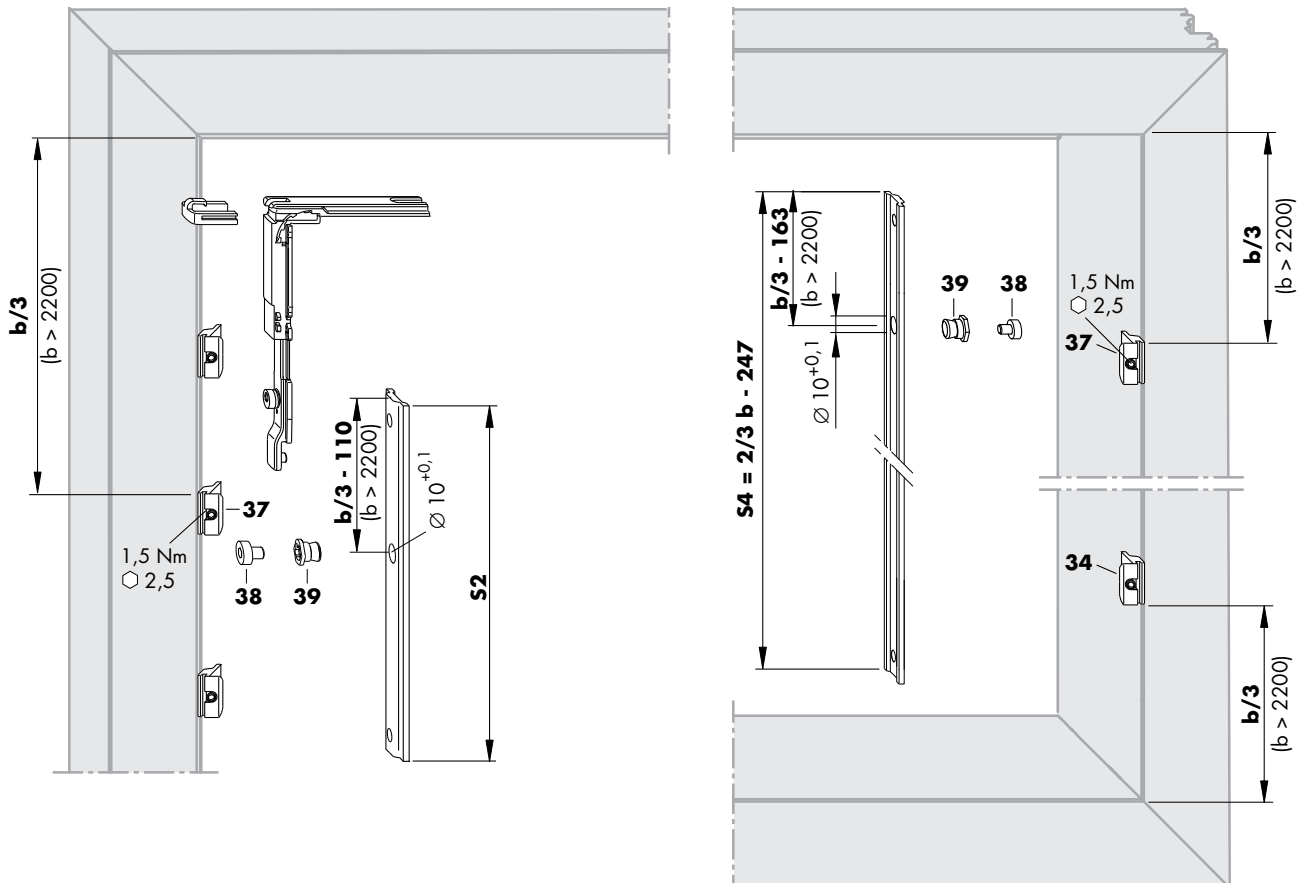
Technical specifications and colours are subject to change

LMde1378\_3\_2010-12/0

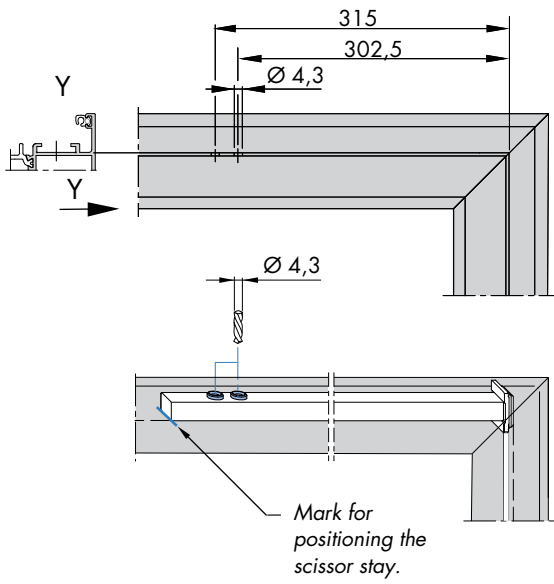
# LM-DK200 Hardware list and additional calculation measurements $b > 2200$

Pos.	Qty.	Material short text		Material no.		Material no.		
Generally required	1a	0...1	Handle LM		Refer to handle overview LM Drawing no.: LMen1337 in the Aluminium Specifiers Manual			
	1b	0...1	Window handle	(□7mm x 25, lugs Ø 10 mm)				
		1	BS LM-DK200 right	silver	1	MMBS0151-525010	5	MMBS0151-525120
		1	BS LM-DK200 left	silver	1	MMBS0152-525010	5	MMBS0152-525120
	2-14	1	BS LM-DK200 right	white RAL 9016	1	MMBS0151-504010	5	MMBS0151-504120
		1	BS LM-DK200 left	white RAL 9016	1	MMBS0152-504010	5	MMBS0152-504120
		1	BS LM-DK200 right	unpainted	1	MMBS0151-500010	5	MMBS0151-500120
		1	BS LM-DK200 left	unpainted	1	MMBS0152-500010	5	MMBS0152-500120
	15	1	Scissor stay LM-DK200 size 30		1	MSKK0020-000010	20	MSKK0020-000030
	16-19	0...1	Additional scissor-stay LM 4200	$a > 1100$ mm + scissor stay 30	1	857076	10	247006
	20-27	1	VS LM-DK KPW		1	MMVS0220-100010	20	MMVS0220-100030
	28-30	0...1	Coupling set FBS-G 9 mm	Refer to table on page 15 in conjunction with (1a) for profile suggestion	1	MMKL0030-100010	20	MMKL0030-100030
		0...1	10 mm		1	MMKL0010-100010	20	MMKL0010-100030
		0...1	USH 12 mm		1	MMKL0040-100010	20	MMKL0040-100030
	31-33	0...1	Gear set FBS M6 in conjunction with (1b)	Different components coloured background	1	MMGI0040-100010	20	MMGI0040-100030
34-36	0...1	MV LM 4200-DK	$b > 1250$ mm	1	857045	20	246979	
37-39	0...1	Locking point LM	$b > 2200$ mm	1	-	20	317556	
40-42	0...1	CL LM A/P	$a > 1100$ mm	1	894316	20	303917	
43-46	0...1	Limit stay LM with brake, short	$a$ 550 mm - 1300 mm Refer to page 16 for installation dimensions	1	721063	50	312896	
43-46	0...1	Limit stay LM with brake, long	$a$ 1301 mm - 1800 mm Refer to page 16 for installation dimensions	1	721070	50	312926	

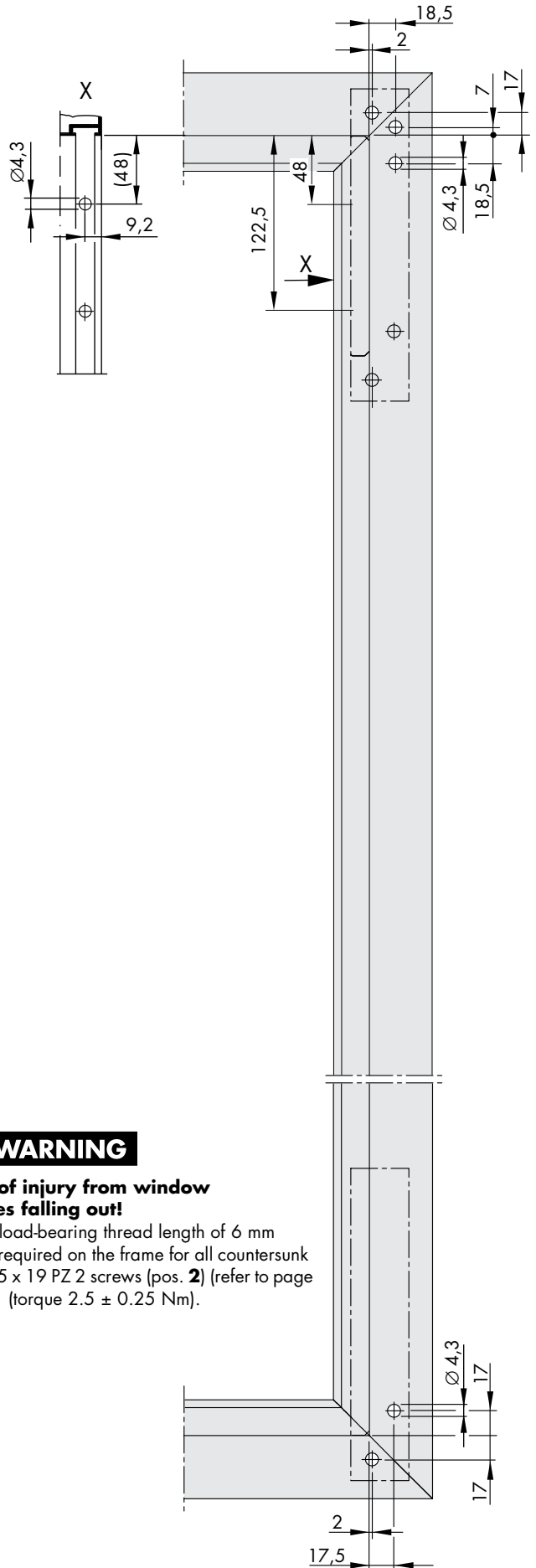
## Additional locking point LM (Pos. 37-39) on $b > 2200$



Sash drilling details



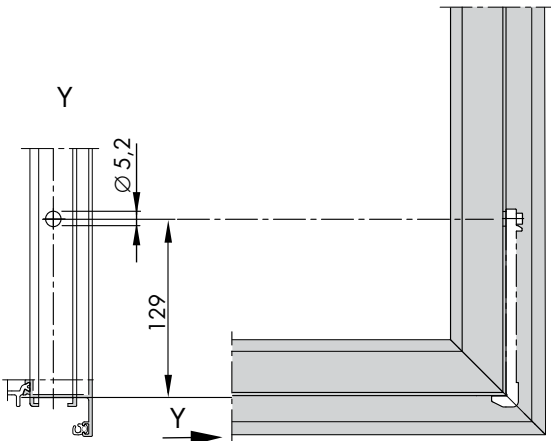
Frame drilling details



**⚠ WARNING**

**Risk of injury from window sashes falling out!**

- On sash weights larger than 160 kg additionally screw in the coupling screw (pos. **8**) (refer to pages 7 and 11) into the clamping support-strip E (pos. **10**) (torque  $2.75 \pm 0.25$  Nm).



**⚠ WARNING**

**Risk of injury from window sashes falling out!**

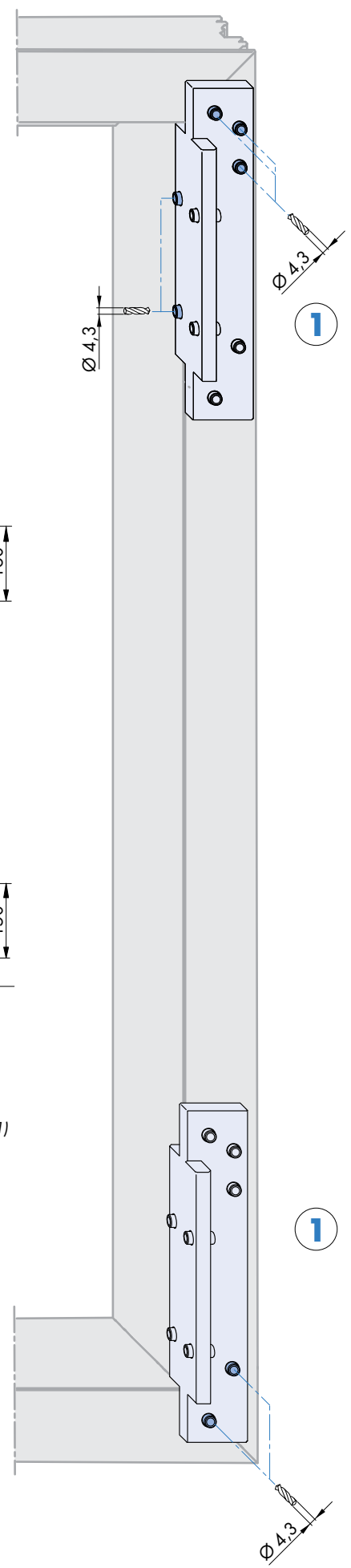
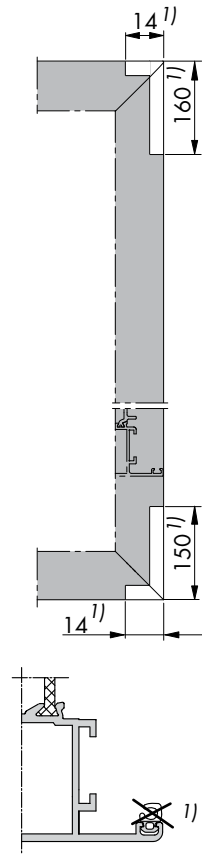
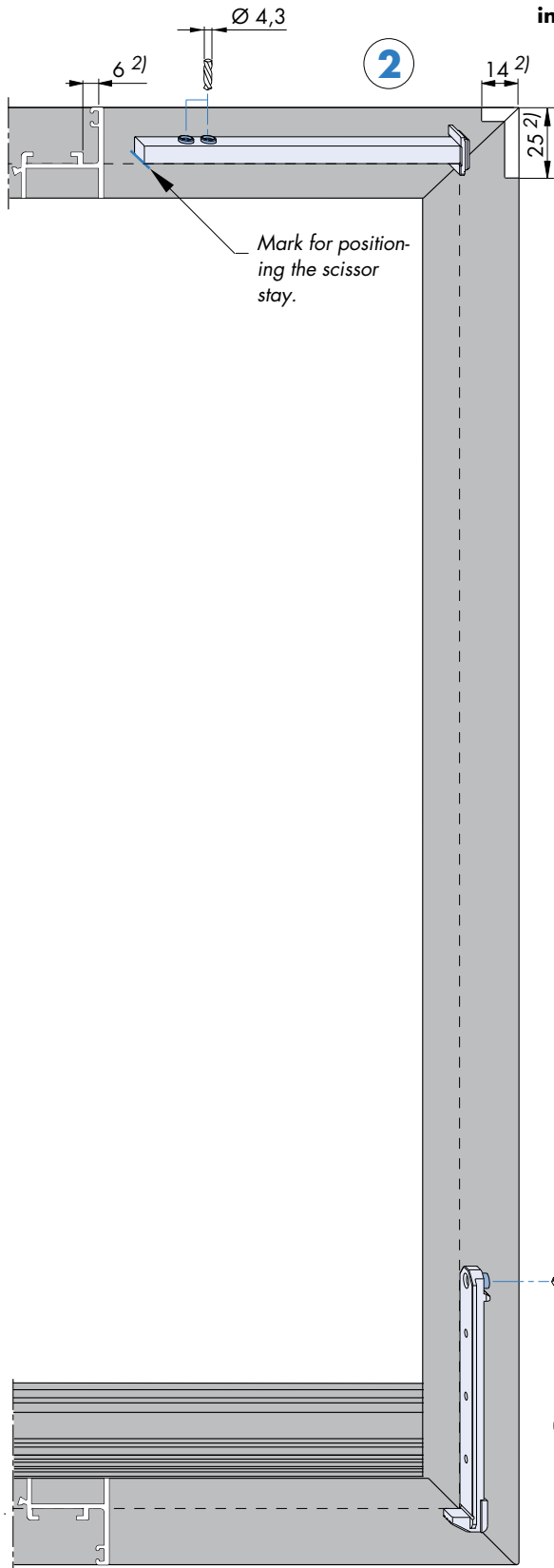
- A load-bearing thread length of 6 mm is required on the frame for all countersunk M5 x 19 PZ 2 screws (pos. **2**) (refer to page 7) (torque  $2.5 \pm 0.25$  Nm).



# LM-DK/TBT200 Application of the jigs on the sash and frame

Please note the installation sequence! ① ③

Refer to page 8 for installation jigs



- 1) Notch the overlap gasket in the hinges' passage area.
- 2) Profile machining for hinge passage 6 mm (refer to page 1).

# LM-DK/TBT200 Diagram 200 kg and removing the top hinge pin

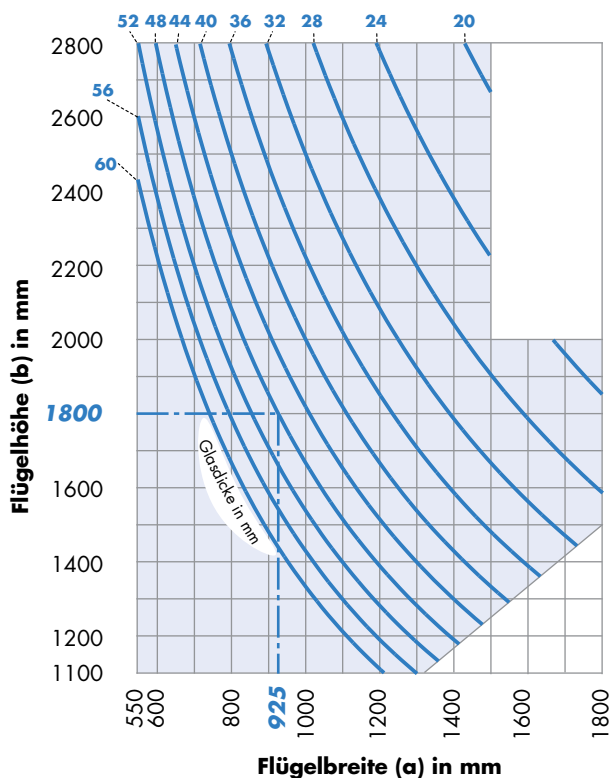
## Glass thickness in mm without air space

- 20 mm glass thickness (equal to 50 kg/m<sup>2</sup>)
- 24 mm glass thickness (equal to 60 kg/m<sup>2</sup>)
- 28 mm glass thickness (equal to 70 kg/m<sup>2</sup>)
- 32 mm glass thickness (equal to 80 kg/m<sup>2</sup>)
- 36 mm glass thickness (equal to 90 kg/m<sup>2</sup>)
- 40 mm glass thickness (equal to 100 kg/m<sup>2</sup>)
- 44 mm glass thickness (equal to 110 kg/m<sup>2</sup>)
- 48 mm glass thickness (equal to 120 kg/m<sup>2</sup>)
- 52 mm glass thickness (equal to 130 kg/m<sup>2</sup>)
- 56 mm glass thickness (equal to 140 kg/m<sup>2</sup>)
- 60 mm glass thickness (equal to 150 kg/m<sup>2</sup>)

1 mm/m<sup>2</sup> glass thickness = 2.5 kg

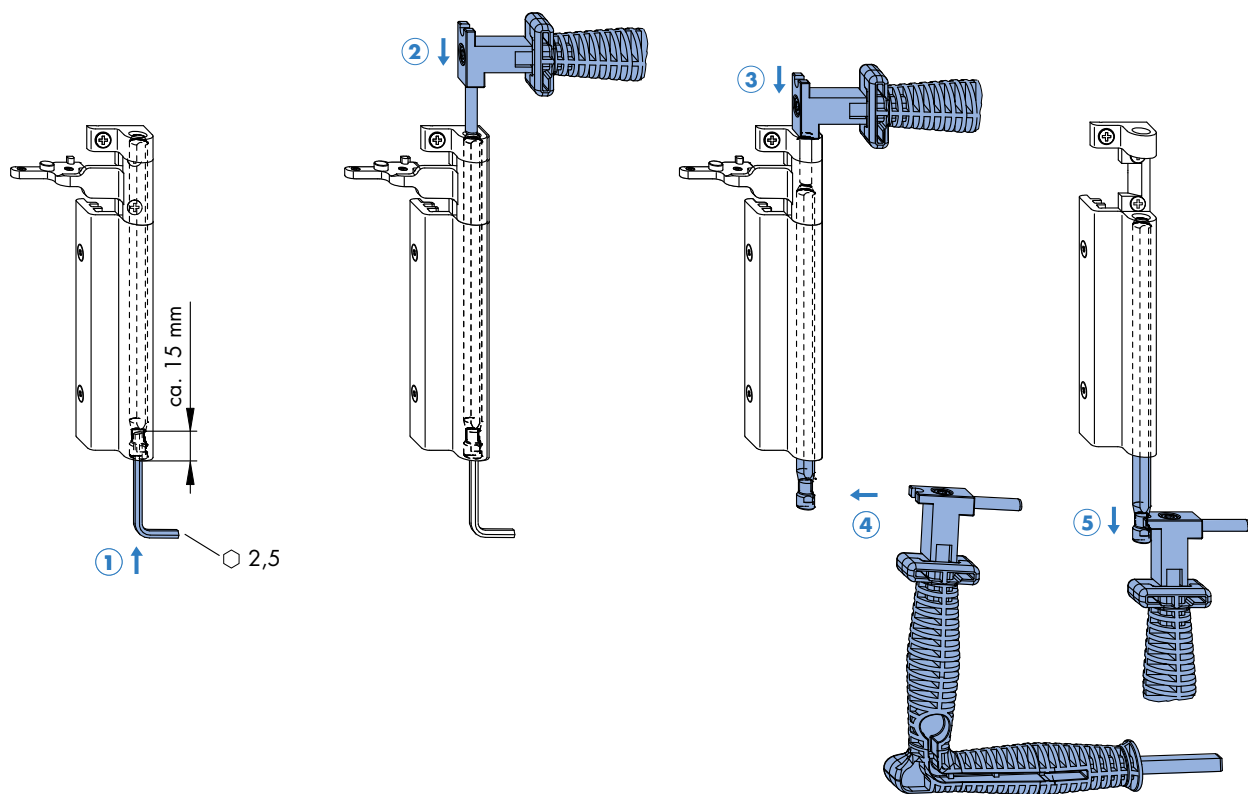
Example (---): Sash height = 1800 mm  
 Glass thickness = 48 mm  
 Permissible sash width = **925 mm**

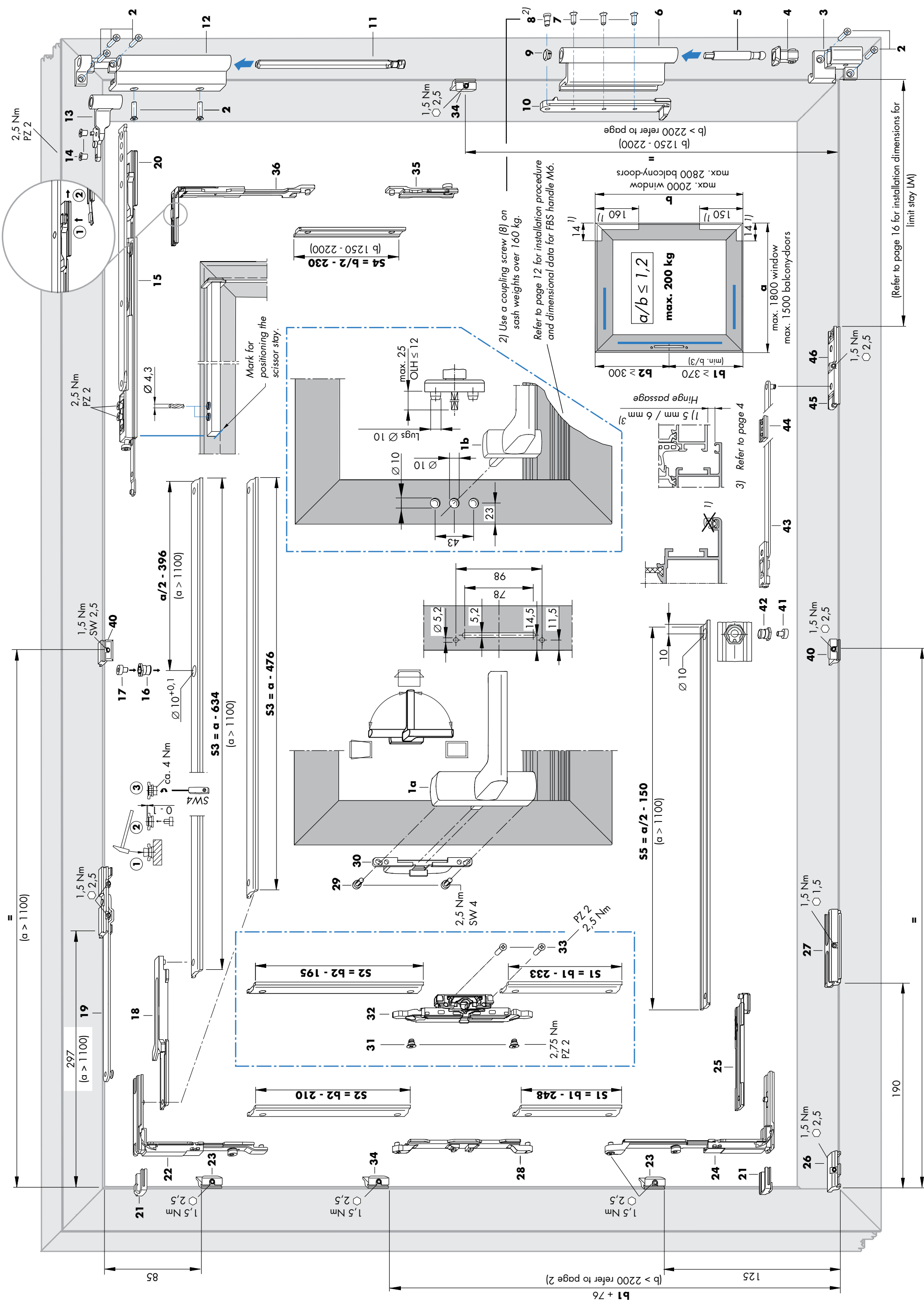
In the case of glass thicknesses less than 20 mm, all sash sizes are permissible that lie within the application range and do not exceed a width-to-height ratio a/b of 1.2.




## Removing the top hinge pin (pos. 11)

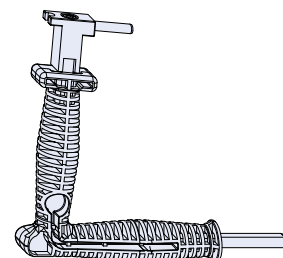
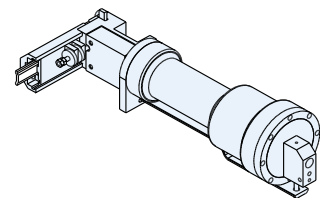
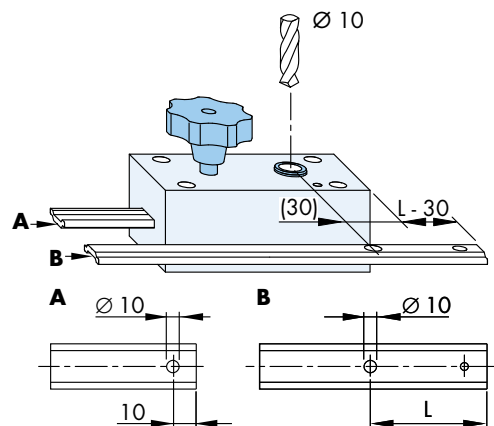
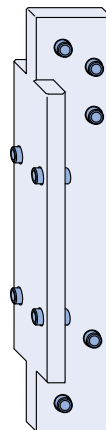
(Refer to page 8 for installation jigs ordering data)





# LM-DK/TBT200 Installation jigs

Material short text		Material no.
<b>Jig LM-DK200</b> For scissor stay size 35 (Pos. 15) Ø 4.3 mm	1	MASB0010-500010
<b>Jig HS LM-DK200 EB</b> Sash weight > 160 kg for coupling screw (Pos. 8) Ø 5.2 mm	1	MABB0020-100010
<b>Jig HS LM-DK200 Black</b> For pivot rest (pos. 3) and top hinge (pos. 12) Ø 4.3 mm	1	MABB0010-099010
<b>Jig LM</b> For connecting rod's punched holes Ø 10 mm	1	130001
<b>Hand-cropper LM</b> For connecting rod's punched holes Ø 10 mm 6 - 7 bar	1	130018
<b>Pin removal tool LM 200/300</b> For removing the the top hinge pin (pos. 11)	1	MAEW0030-000010



## **Basic safety advice**

### **Stipulated use**

The specified hardware in this document is intended for installation in aluminium window frames by a specialised fenestration company in accordance with these instructions. The windows may only be vertically installed. The specialised fenestration company must ensure the suitability of the hardware for the intended purpose, based on the specifications in both these instructions and in the other specified documents.

### **Avoid overstressing**

Hinge components can break from overstressing. As a result, the sash can fall out and cause severe injuries.

- If a high level of stress is expected on the hinge components, limit the opening angle with a limit stay LM with brake.  
A high level of stress is to be expected for example in schools and kindergardens.

### **Do not mix hardware components**

The hardware components are technically coordinated with each other. The secure function of the hardware is not warranted if hardware components from other systems or from other manufacturers are intermixed on a window. Hardware components can break and cause accidents.

- Only use the hardware components stated in these instructions together in one window.

### **Only apply the window's surface-finish prior to installation**

- Surface treatment of the window after the installation of the hardware components can restrict the operational reliability of the hardware components.

### **Avoid damage caused by rust and deposits**

Hardware components can be damaged by corrosion-promoting substances, dirt and wetness and can cause hazards.

- Do **not** use any acetic-acid or cross-linked acidic sealing compounds.
- Do **not** use the hardware components in environments where aggressive or corrosion-promoting constituent elements are in the air.
- Keep all rebates free from deposits and soiling, in particular from cement or plaster residue.
- Protect the hardware against moisture.

### **Clean the hardware carefully**

- Clean the hardware only with a soft cloth and mild, pH-neutral cleaning agents in diluted form.
- Avoid having the hardware in contact with scouring agents or aggressive, acidiferous cleaning agents.
- Dry the hardware after cleaning.

### **Pass on all information to the window user**

- Display the user information (order no. 05083) visibly on the installed window or door unit.
- Hand over the following printed material to the user:
  - Maintenance & care instructions SI-AU order no. 17772
  - Operating instructions SI-AU order no. 05766

### **Liability exclusion**

We are not liable for malfunctions and damage to the hardware, as well as to the windows and balcony doors equipped with the same, if this has been caused by inadequate tendering procedures, non-compliance with these installation instructions, or physical effect of force on the hardware (e.g. due to non stipulated use).

### **Feedback on documentation**

We would be pleased to receive your advice and suggestions on how to improve our documentation. Please send your suggestions by e-mail to 'dokumentation@siegenia-aubi.com'.



# LM-DK/-TBT200 - Installation procedure and dimensional data for gear set FBS M6

## Preparation

1. Carry out profile machining for window handle (pos. **1b**) (figure 1+2).
2. Open up the connecting rod's guide-groove (figure 2).
3. Machine the connecting rods S1 and S2 according to the specifications on pages 5 - 6 (DK) or 10 - 11 (TBT).

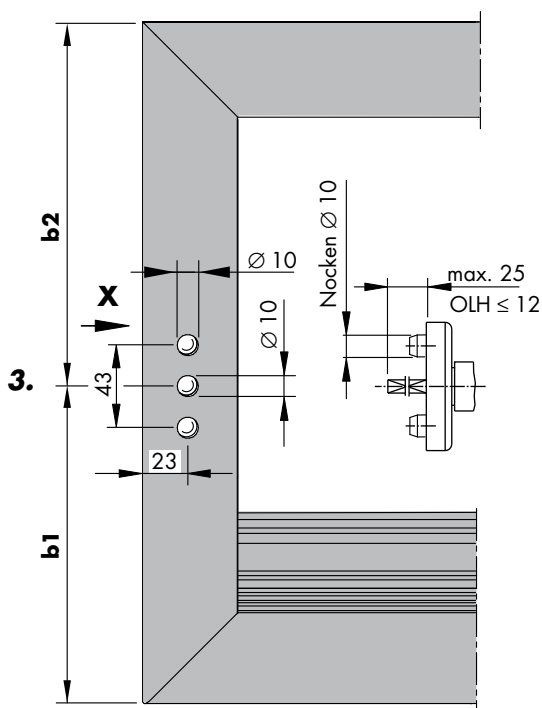


Figure 1

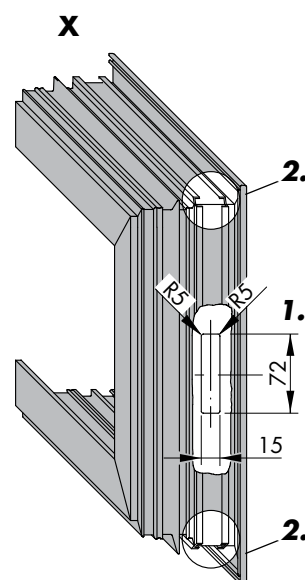


Figure 2

## Sash

4. Insert the R-I DG LM M6 (pos. **32/33**) into the machined profile recess 72 x 15 (figure 3).
5. Screw-fix the R-I DG LM M6 (pos. **32/33**) with coupling screw M6 (pos. **31/32**) into the connecting rod's punched holes Ø 5.2 (PZ 2, torque 2.75 Nm ± 0.25 Nm) (figure 3).
6. Screw on the window handle (pos. **1b**) with countersunk screws M5 x 35 (pos. **33/34**) (PZ 2, torque 2.5 ± 0.25 Nm) (figure 4).

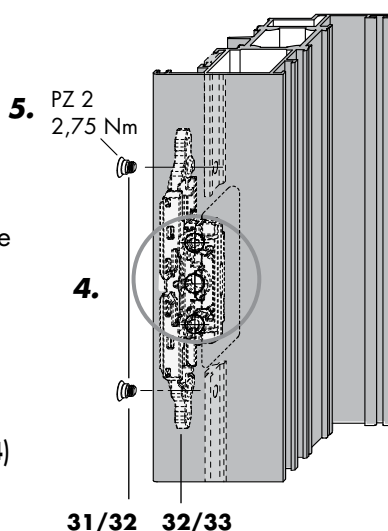


Figure 3

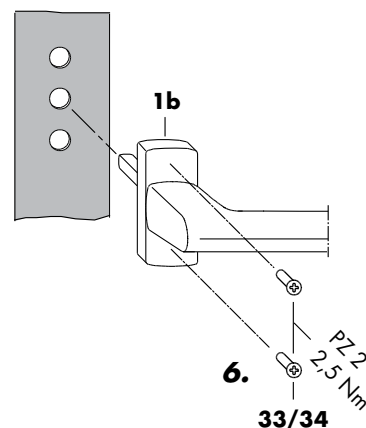


Figure 4

## Frame

7. If  $b > 1250$  mm, position the striker in accordance with the specified dimension (figure 5) and clamp with grub screw  $\diamond$  (2.5, torque 1.5 ± 0.25 Nm).

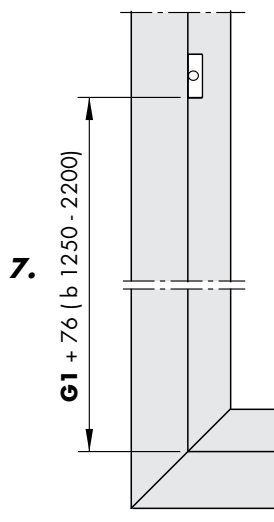


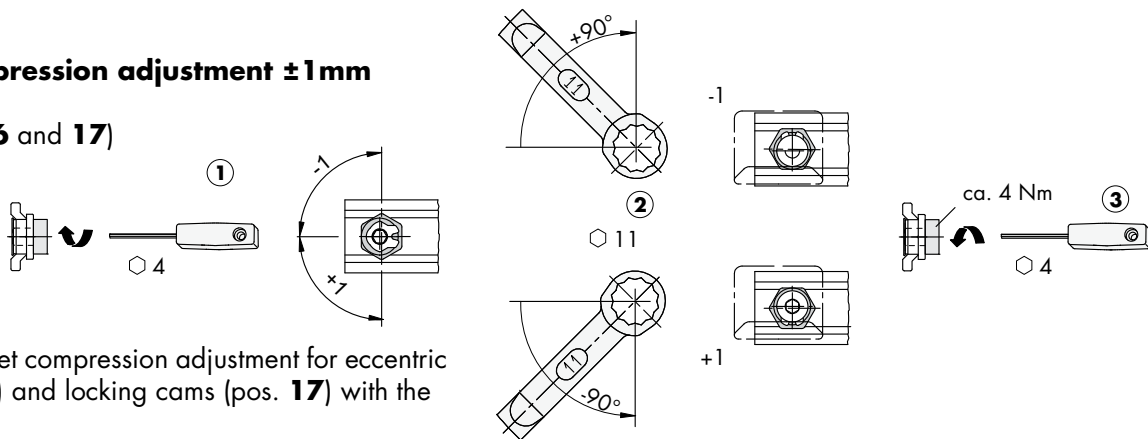
Figure 5

**Note:** For more machining instructions please refer to Drawing no.: LMde1361 in the Aluminium Specifiers Manual

# LM-DK/TBT200 Gasket compression adjustment and adjustment possibilities

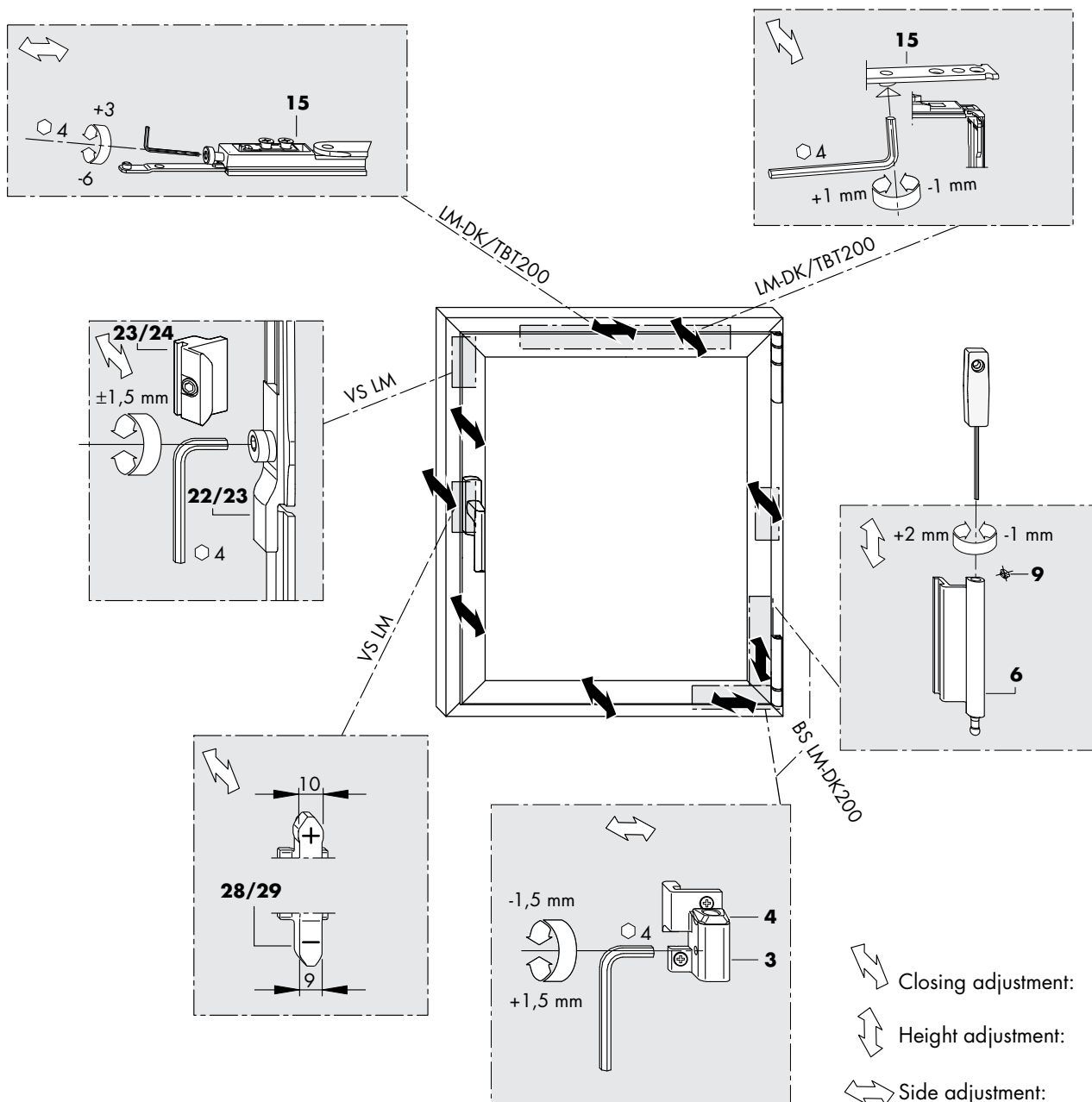
## Gasket compression adjustment $\pm 1$ mm

(for position **16** and **17**)





Carry out gasket compression adjustment for eccentric rivets (pos. **16**) and locking cams (pos. **17**) with the ring spanner.

## Adjustment possibilities

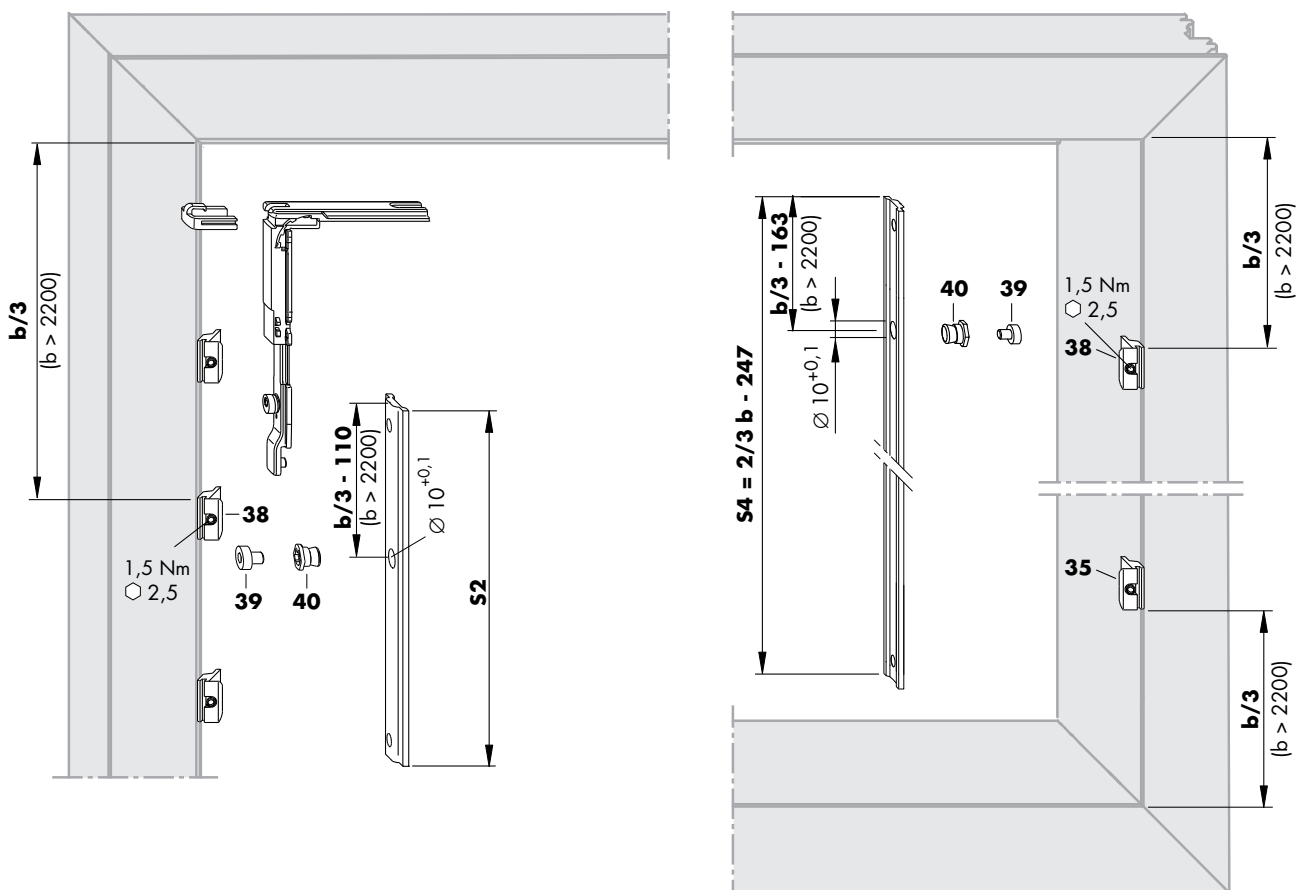




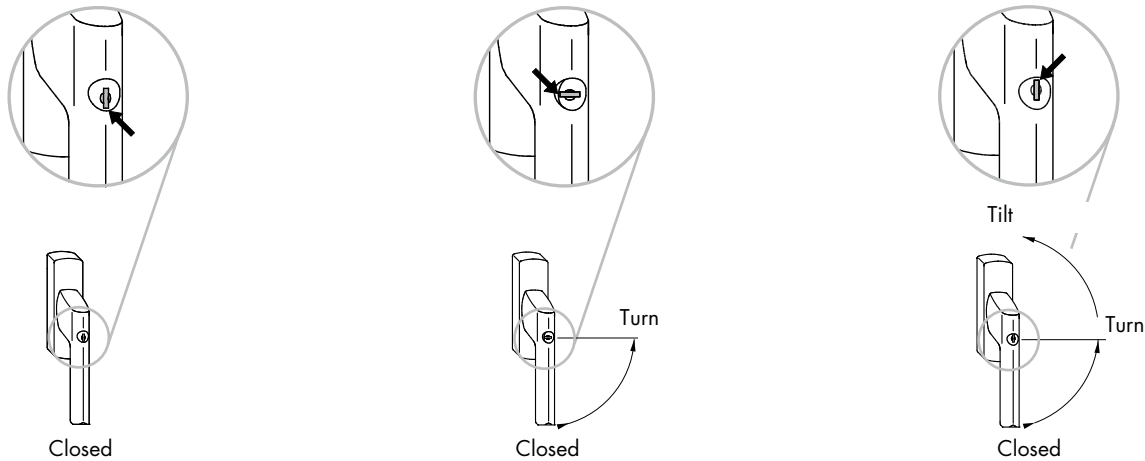
# LM-TBT200 Hardware list and additional calculation measurements $b > 2200$

Pos.	Qty.	Material short text		Material no.		Material no.	
1a	1	Handle LM lockable/TBT		Refer to handle overview LM Drawing no.: LMen1337 in the Aluminium Specifiers Manual			
1b	1	Window handle lockable/TBT ( 7mm x 25, lugs $\varnothing$ 10 mm)					
	1	BS LM-DK200 right	silver	1	MMBS0151-525010	5	MMBS0151-525120
	1	BS LM-DK200 left	silver	1	MMBS0152-525010	5	MMBS0152-525120
	1	BS LM-DK200 right	white RAL 9016	1	MMBS0151-504010	5	MMBS0151-504120
2-14	1	BS LM-DK200 left	white RAL 9016	1	MMBS0152-504010	5	MMBS0152-504120
	1	BS LM-DK200 right	unpainted	1	MMBS0151-500010	5	MMBS0151-500120
	1	BS LM-DK200 left	unpainted	1	MMBS0152-500010	5	MMBS0152-500120
15	1	Scissor stay LM-DK200 size 30		1	MSKK0020-000010	20	MSKK0020-000030
16-19	0...1	Additional scissor-stay LM 4200	$a > 1100$ mm + scissor stay 30	1	857076	10	247006
20	0...1	Stay striker MV	$a > 1100$ mm	1	MXSK0010-100010	20	MXSK0010-100030
21-28	1	VS LM-TBT KPW		1	MMVS0230-100010	20	MMVS0230-100030
29-31	0...1	Coupling set FBS-G 9 mm	Refer to table on page 15 for profile suggestion	1	MMKL0030-100010	20	MMKL0030-100030
	0...1	in conjunction with (1a) 10 mm		1	MMKL0010-100010	20	MMKL0010-100030
	0...1	OLH 12 mm		1	MMKL0040-100010	20	MMKL0040-100030
32-34	0...1	Gear set FBS M6	in conjunction with (1b) Different components coloured background	1	MMGI0040-100010	20	MMGI0040-100030
35-37	0...1	MV LM 4200-DK	$b > 1,250$ mm	1	857045	20	246979
38-40	0...1	Locking point LM	$b > 2200$ mm	1	-	20	317556
41-43	0...1	CL LM A/P	$a > 1100$ mm	1	894316	20	303917
44-47	0...1	Limit stay LM with brake, short	$a$ 550 mm - 1,300 mm Refer to page 16 for installation dimensions	1	721063	50	312896
44-47	0...1	Limit stay LM with brake, long	$a$ 1301 mm - 1800 mm Refer to page 16 for installation dimensions	1	721070	50	312926

## Additional locking point LM (Pos. 38-40) on $b > 2200$

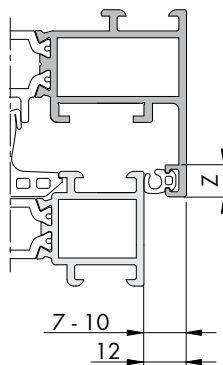


**Operational advice for lockable handle/TBT**



**Coupling set versions  
FBS-G (28/29 - 30/31)**

OLH	Z	Material no.
7 - 10 mm	≤ 8.5 mm	MMKL0030-100030
7 - 10 mm	≤ 7.5 mm	MMKL0010-100030
12 mm	≤ 7 mm	MMKL0040-100030



**Abbreviations**

The following abbreviations are used in these installation instructions:

a	Sash width	S1	Connecting rod, bottom handle side
H-S	Hinge-side	S2	Connecting rod, top handle side
THS	Top hinge-side	S3	Connecting rod, top horizontal
BHS	Bottom hinge-side	S4	Connecting rod, hinge-side
b	Sash height	S5	Connecting rod, bottom horizontal
b1	Bottom handle position		
b2	Top handle position		
DJ	Drilling jig		
R-I DG	Routed-in drive gear		
HTP	Horizontal tilting point		
CL	Centre lock		
Nm	Torque in Nm		
AW	Arched window		
PW	Pitched window		
SS	Spanner size		
OLH	Overlap height		
H.S	Handle side		

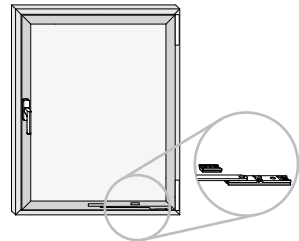
# LM-DK/-TBT200 Hardware list and installation dimensions for limit stay LM

Pos.	Qty.	Material short text		Material no.	Material no.		
38-41	0...1	Limit stay LM with brake, short	a 550 mm - 1300 mm	1	721063	50	319896
	0...1	Limit stay LM with brake, long	a 1301 mm - 1800 mm	1	721070	50	319926

## Installation dimensions for limit stay LM with brake, long (refer to pages 6 - 7 (DK) and 10 - 11 (TBT) for hardware installation)

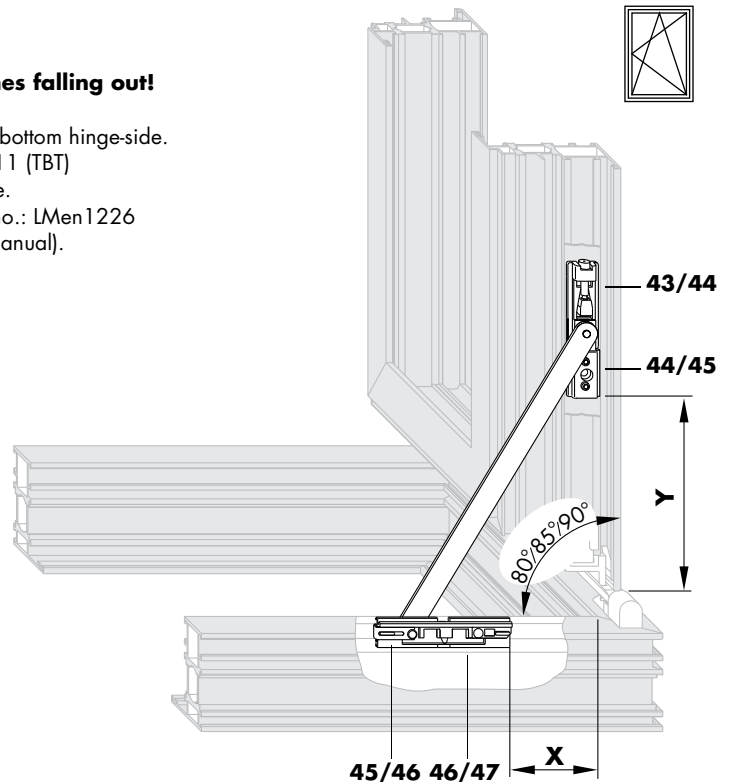
	Opening angle Dimensions in mm	X	80°	85°	90°
			Y	Y	Y
Limit stay LM with brake, short (SW	550 - 1300)	60	143	131	119
Limit stay LM with brake, long (SW	1301 - 1800)	124	262	244	227

### ⚠ WARNING



#### Risk of injury from window sashes falling out!

- Only install the limit stay LM on the bottom hinge-side.
- Refer to pages 6 - 7 (DK) and 10 - 11 (TBT) to install the limit stay LM with brake.
- Limit stay LM with brake: Drawing no.: LMen1226 (refer to the Aluminium Specifiers Manual).



Print date 14.12.2010

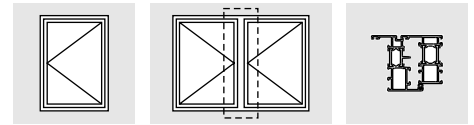
SIEGENIA-AUBI KG - Hardware and ventilation technology  
 PO box 10 05 51 - D-57005 Siegen  
 Telephone +49 271 39 31-0 - Fax +49 271 39 31-3 33

**SIEGENIA AUBI**

LMen1378  
 Page 16

# LM-D300

The screw-fixed Turn-Only hardware for aluminium windows and balcony-doors



More details and specifications/guidelines on the product and on liability (Guidelines: 'VHBH, TBDK and VHBE') are to be checked without fail in the Aluminium Specifiers Manual (H4006.0125DE).

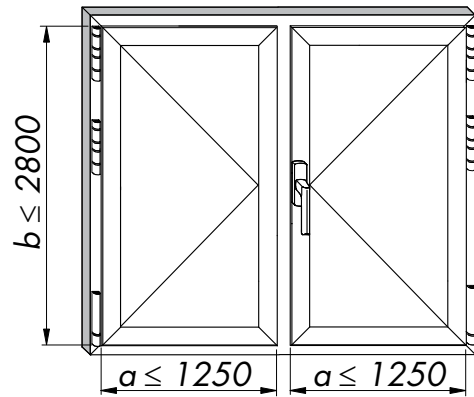
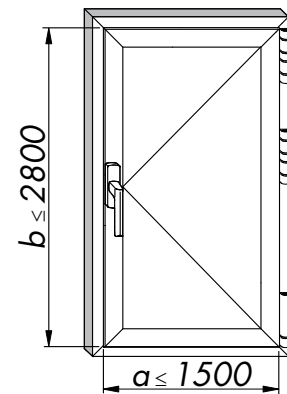
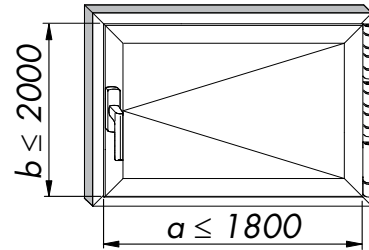
The specified dimensions are finished dimensions after the surface treatment of the profiles e.g. painting, powder coating etc.!

## All dimensions in mm

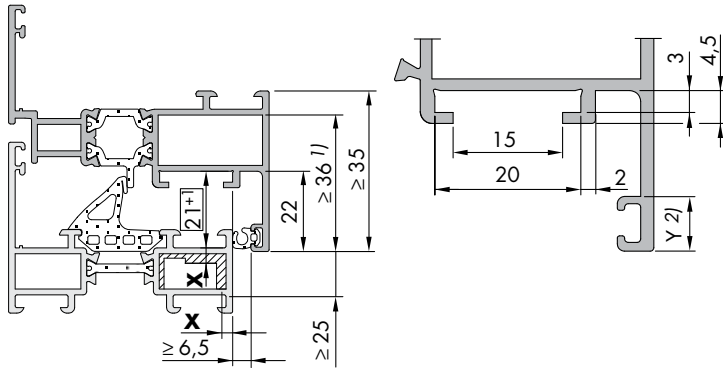
Sash width	(a)	min. 350 - max. 1800
Sash height	(b)	min. 1100 - max. 2800
Sash weight	(c)	max. 300 kg

## Sash dimensions

$$a/b \leq 1,2$$



## Profile dimensions

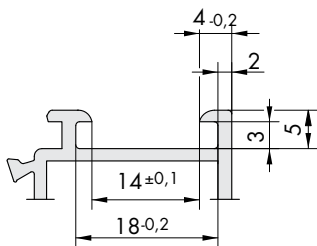


**X**

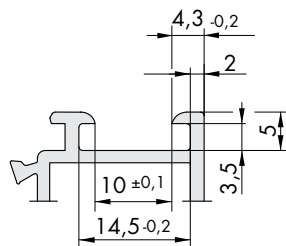
A load-bearing thread length of 6 mm is required on the frame for all countersunk M5 x 19 PZ 2 screws.

## Frame groove dimensions

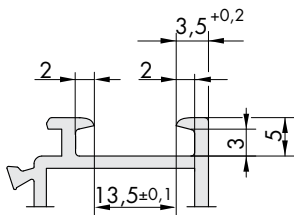
**A0004**



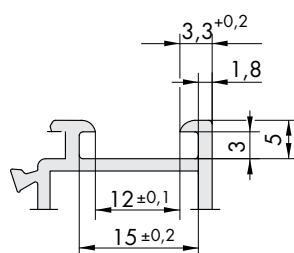
**A0006**



**A0016**



**A0022**



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**Installation instructions**  
 LMen1379

Technical specifications and colours are subject to change

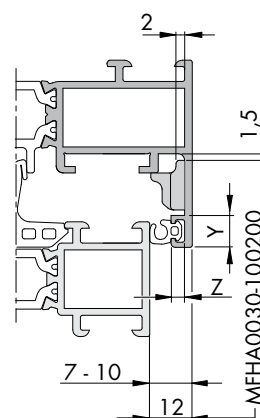
LMen1379\_3\_2010-04/0

# LM-D300 Hardware list and accessories

Pos.	Qty.	Material short text		Material no.		Material no.		
Generally required	1a	0...1	Handle LM		Refer to handle overview LM Drawing no.: LMde1337 in the Aluminium Specifiers Manual			
	1b	0...1	Window handle (□7mm, lugs Ø 10 mm)					
		1	BS LM-D300 BD 6.5 right	silver	1	MMBS0141-525010	5	MMBS0141-525120
		1	BS LM-D300 BD 6.5 left	silver	1	MMBS0142-525010	5	MMBS0142-525120
	2-12	1	BS LM-D300 BD 6.5 right	white RAL 9016	1	MMBS0141-504010	5	MMBS0141-504120
		1	BS LM-D300 BD 6.5 left	white RAL 9016	1	MMBS0142-504010	5	MMBS0142-504120
		1	BS LM-D300 BD 6.5 right	unpainted	1	MMBS0141-500010	5	MMBS0141-500120
		1	BS LM-D300 BD 6.5 left	unpainted	1	MMBS0142-500010	5	MMBS0142-500120
	13-17	1	VS LM-D		1	MMVS0240-100010	20	MMVS0240-100030
	18-19	0...1	Coupling set LM-D in conjunction with (pos. 1a)		1	MMKL0020-100010	20	MMKL0020-100030
20-22	0...1	Gear set M6 in conjunction with (pos. 1b)	Different components coloured background	1	MMGI0050-100010	20	MMGI0050-100030	
23-25	0...1	MV LM 4200-D VS/BS	b > 1250 mm	1	857052	20	246986	
26-30	0...1	MV LM 4200/2200-D VSU/VSO	a > 1250 mm	1	MMMV0040-100010	20	MMMV0040-100030	
31-32	0...1	Locking point LM-MV	b > 2200 mm	1	MMVR0040-100010	20	MMVR0040-100030	
Accessories	33-36	0...1	Hinge set LM Universal b > 2200 > 200 kg	silver	1	MMDB0050-525010	5	MMDB0050-525120
		0...1	Hinge set LM Universal b > 2200 > 200 kg	white RAL 9016	1	MMDB0050-504010	5	MMDB0050-504120
		0...1	Hinge set LM Universal b > 2200 > 200 kg	unpainted	1	MMDB0050-500010	5	MMDB0050-500120
	37	0...1	Connector Si-line LM 34 mm (pos. 1a)	OLH 13 - 21 mm	1	MHSM0010-100010	-	-
	38-41	0...1	Limit stay LM with brake, short	a 350 mm - 900 mm Refer to page 16 for installation dimensions	1	721063	50	312896
	38-41	0...1	Limit stay LM with brake, long	a 901 mm - 1800 mm Refer to page 16 for installation dimensions	1	721070	50	312926
	42	0...1	Handle support LM (pos. 1a)		-	-	200	Refer to the table
	43	0...1	Pressure piece SV	For lateral adjustment ± 0.8 mm	1	818138	20	222041
	44	0...1	Pressure piece AV	For lateral compression ± 0.5 mm	1	855133	20	249796

## Handle support versions (pos. 42)

OLH	Z	Y < 7 mm	Y 7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-



# LM-D300 Diagrams for determining the permissible sash sizes

## Diagram for 200 kg sash weight

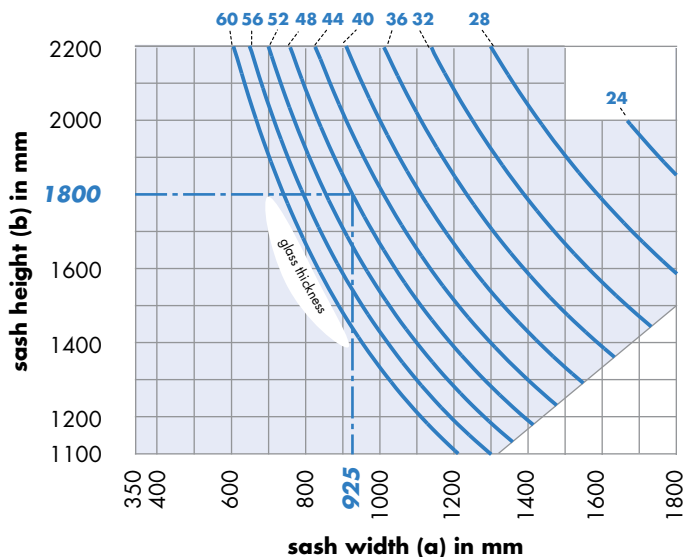
(Glass thickness in mm without air space)

- 20 mm glass thickness (equal to 50 kg/m<sup>2</sup>)
- 24 mm glass thickness (equal to 60 kg/m<sup>2</sup>)
- 28 mm glass thickness (equal to 70 kg/m<sup>2</sup>)
- 32 mm glass thickness (equal to 80 kg/m<sup>2</sup>)
- 36 mm glass thickness (equal to 90 kg/m<sup>2</sup>)
- 40 mm glass thickness (equal to 100 kg/m<sup>2</sup>)
- 44 mm glass thickness (equal to 110 kg/m<sup>2</sup>)
- 48 mm glass thickness (equal to 120 kg/m<sup>2</sup>)
- 52 mm glass thickness (equal to 130 kg/m<sup>2</sup>)
- 56 mm glass thickness (equal to 140 kg/m<sup>2</sup>)
- 60 mm glass thickness (equal to 150 kg/m<sup>2</sup>)

1 mm/m<sup>2</sup> glass thickness = 2.5 kg

Example (---): Sash height= 1800 mm  
 Glass thickness= 48 mm  
 Permissible  
 sash width= **925 mm**

In the case of glass thicknesses less than 20 mm, all sash sizes are permissible that lie within the application range and do not exceed a width-to-height ratio a/b of 1.2



## Diagram for 300 kg sash weight

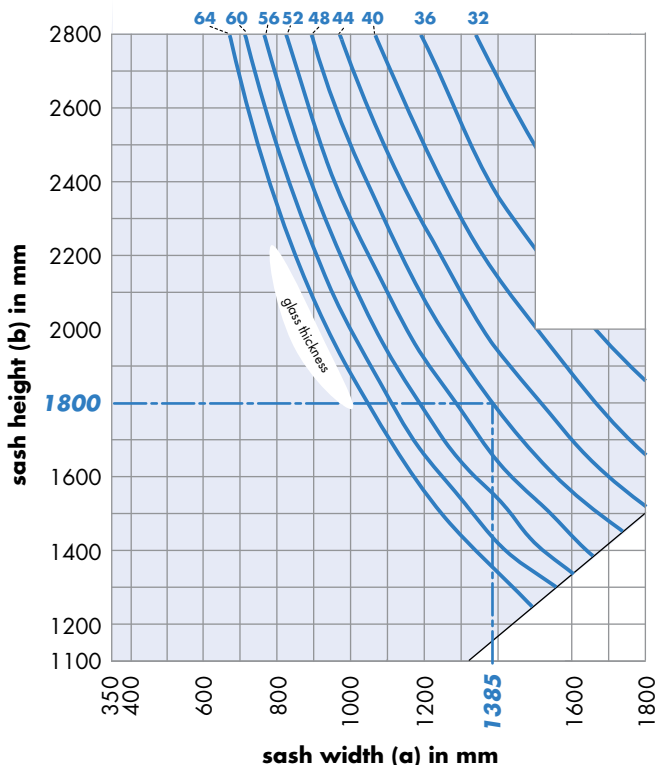
(Glass thickness in mm without air space)

- 24 mm glass thickness (equal to 60 kg/m<sup>2</sup>)
- 28 mm glass thickness (equal to 70 kg/m<sup>2</sup>)
- 32 mm glass thickness (equal to 80 kg/m<sup>2</sup>)
- 36 mm glass thickness (equal to 90 kg/m<sup>2</sup>)
- 40 mm glass thickness (equal to 100 kg/m<sup>2</sup>)
- 44 mm glass thickness (equal to 110 kg/m<sup>2</sup>)
- 48 mm glass thickness (equal to 120 kg/m<sup>2</sup>)
- 52 mm glass thickness (equal to 130 kg/m<sup>2</sup>)
- 56 mm glass thickness (equal to 140 kg/m<sup>2</sup>)
- 60 mm glass thickness (equal to 150 kg/m<sup>2</sup>)
- 64 mm glass thickness (equal to 160 kg/m<sup>2</sup>)

1 mm/m<sup>2</sup> glass thickness = 2.5 kg

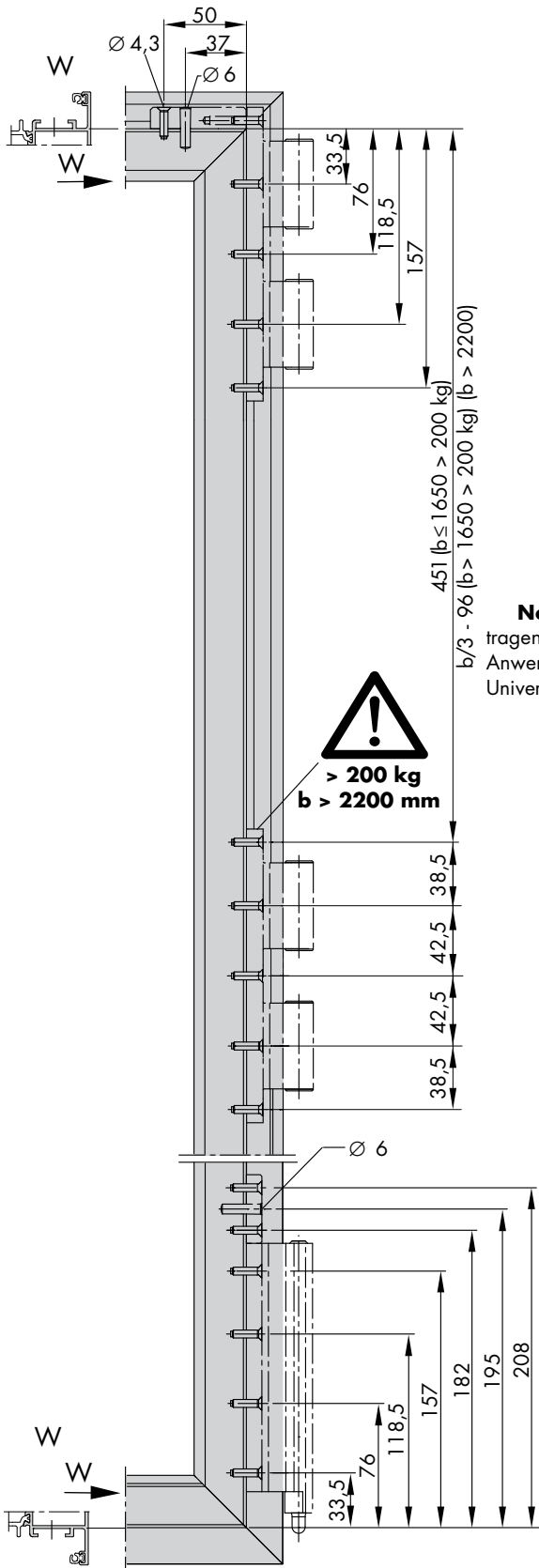
Example (---): Sash height = 1800 mm  
 Glass thickness = 48 mm  
 Permissible  
 sash width = **1385 mm**

In the case of glass thicknesses less than 28 mm, all sash sizes are permissible that lie within the application range and do not exceed a width-to-height ratio a/b of 1.2

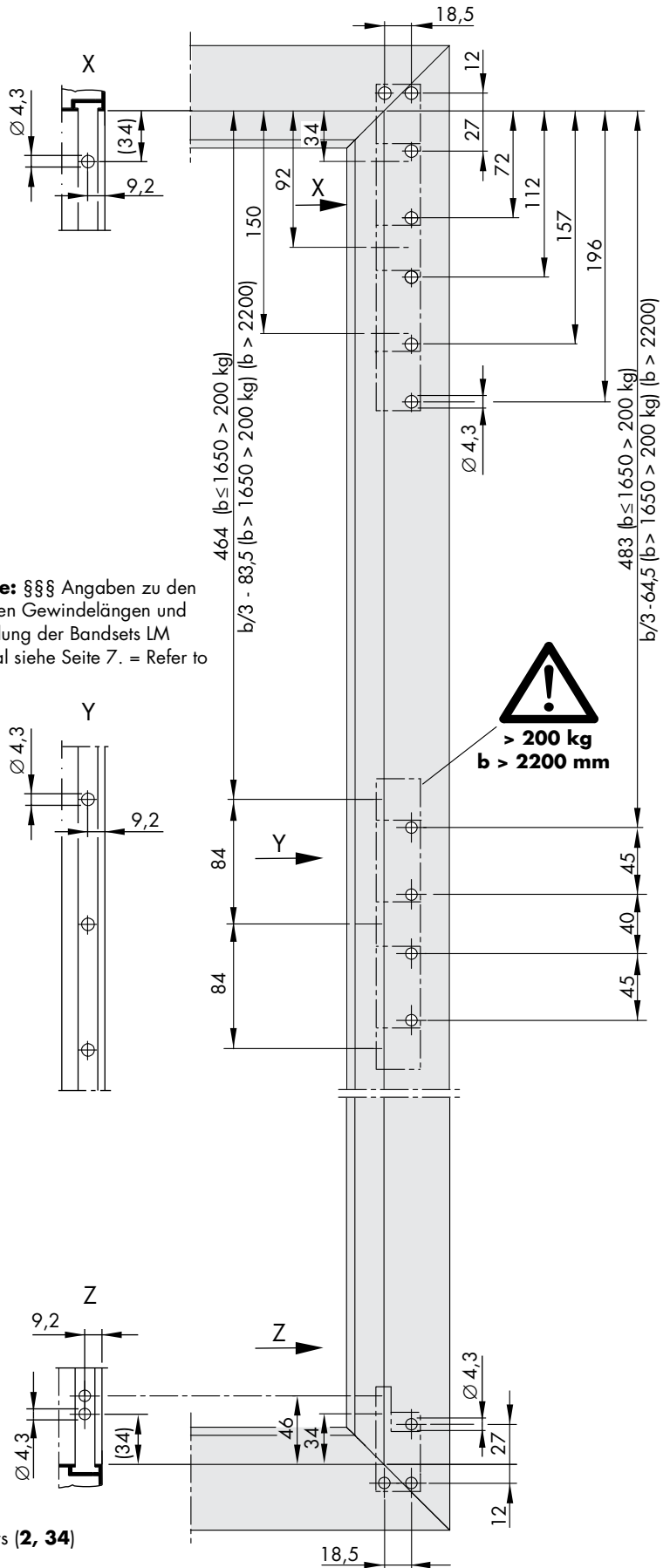


# LM-D300 Drilling details

## Sash drilling details



## Frame drilling details



**Note:** §§§ Angaben zu den tragenden Gewindelängen und Anwendung der Bandsets LM Universal siehe Seite 7. = Refer to

 **> 200 kg**  
**b > 2200 mm**

 **> 200 kg**  
**b > 2200 mm**

**Note:** Drill all drilling-holes for M5 x 19 countersunk screws (2, 34) with a 4.3 mm drill.





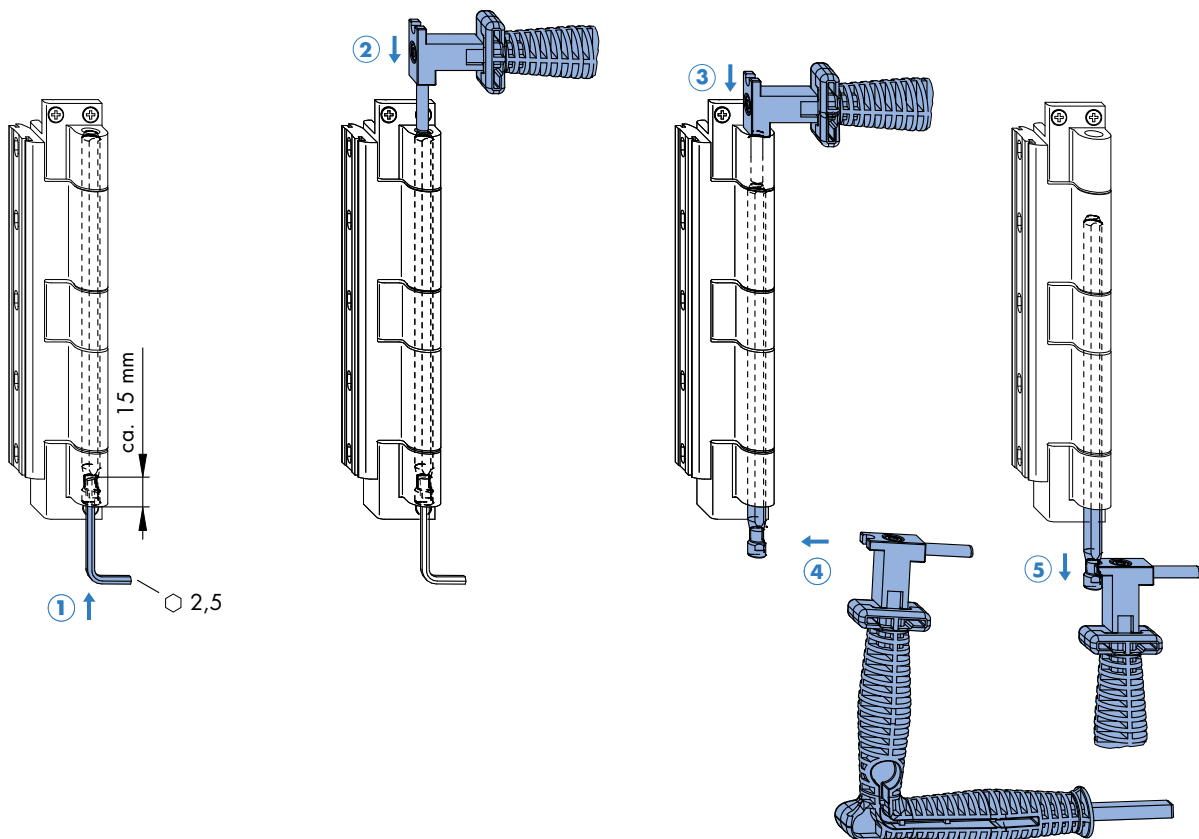


## Abbreviations

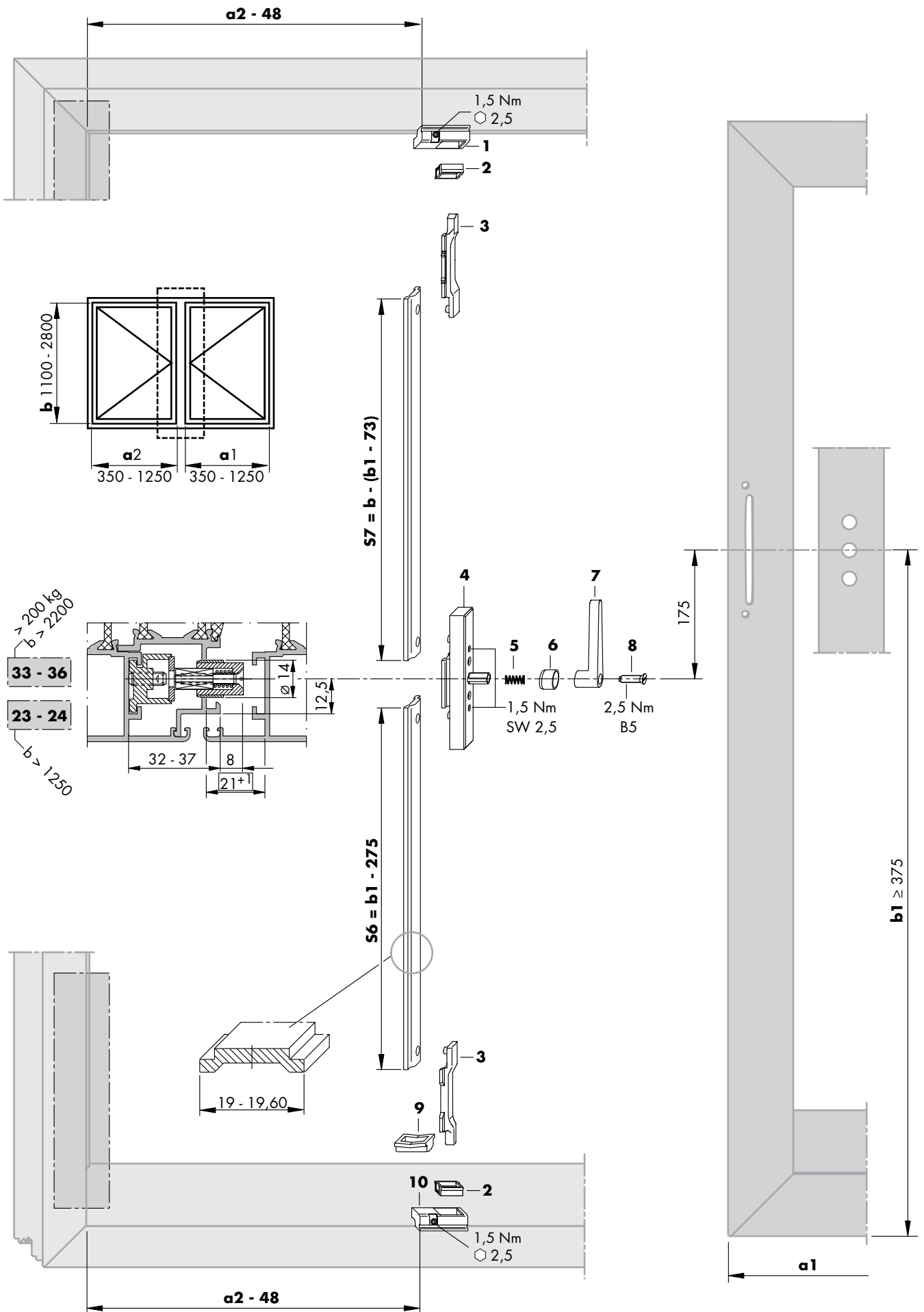
The following abbreviations are used in these installation instructions:

GCA	Gasket compression adjustment	S1	Connecting rod, bottom handle side
H-S	Hinge-side	S2	Connecting rod, top handle side
THS	Top hinge-side	S3	Connecting rod, top horizontal
BHS	Bottom hinge-side	S5	Connecting rod, bottom horizontal
a	Sash width	S6	Connecting rod, passive sash, bottom handle side
a1	Active sash width	S7	Connecting rod, passive sash, top handle side
a2	Passive sash width		
b	Sash height		
b1	Bottom handle position		
b2	Top handle position		
TU-ON	Turn-Only sash		
TU-ON DM	Turn-Only dummy mullion		
R-I DG	Routed-in drive gear		
CL	Centre lock		
Nm	Torque in Nm		
LA	Lateral adjustment		
SS	Spanner size		
OLH	Overlap height		
H.S	Handle side		
THS	Top handle side		
BHS	Bottom handle side		

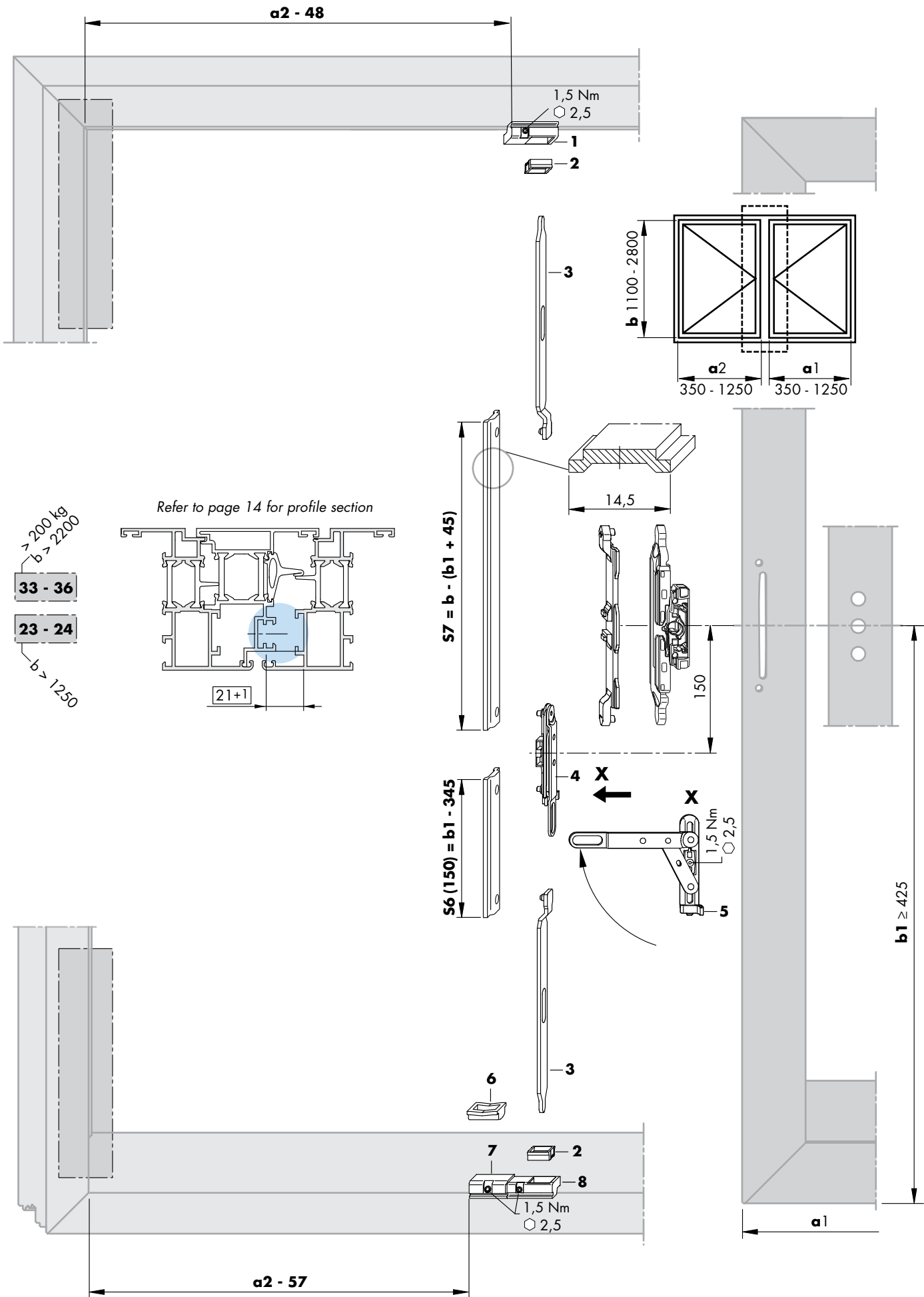
## Removing the top hinge pin (pos. 9)



# LM-D300 VS-DS Hardware overview and installation dimensions



# LM-D300 VS-DS/A Hardware overview and installation dimensions



# LM-D300 - Installation procedure and dimensional data for gear set M6

## Preparation

1. Carry out profile machining for window handle (pos. **1b**) (figure 1+2).
2. Open up the connecting rod's guide-groove (figure 2).
3. Machine the connecting rods S1 and S2 according to the specifications the specifications on pages 5 - 6.

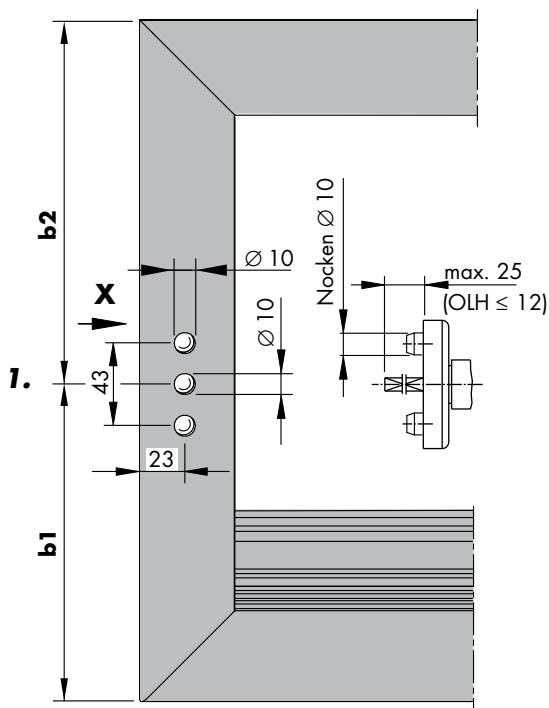


Figure 1

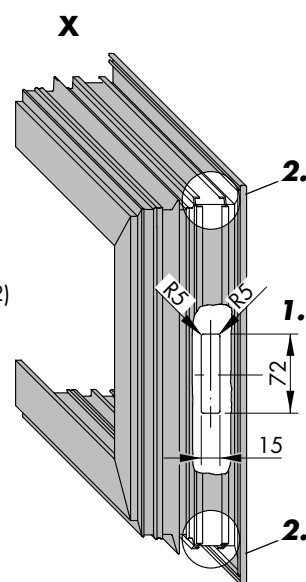


Figure 2

## Sash

4. Insert the R-I DG LM M6 (pos. **21**) into the machined 72 x 15 profile recess strapping (figure 3).
5. Screw-fix the R-I DG LM M6 (pos. **21**) with coupling screw M6 (pos. **20**) into the connecting rod's Ø 5.2 punched holes (PZ 2, torque 2.75 Nm ± 0.25 Nm) (figure 3).
6. Screw on the window handle (pos. **1b**) with countersunk screws M5 x 35 (pos. **22**) (PZ 2, torque 2.5 ± 0.25 Nm) (figure 4).

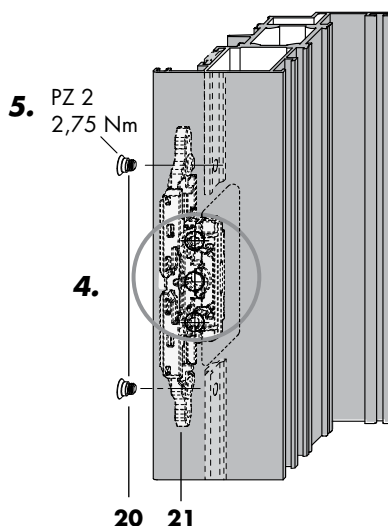


Figure 3

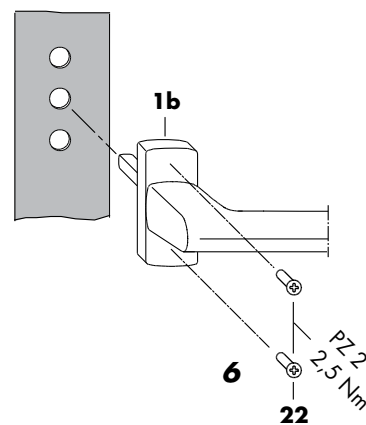


Figure 4

## Frame

7. If  $b > 1250$  mm position the striker in accordance with the specified dimension (figure 5) and clamp with grub screw (SS 2.5, torque 1.5 ± 0.25 Nm).

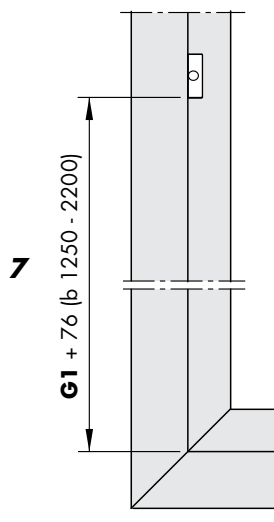

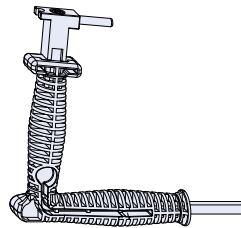
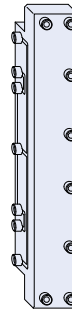
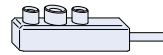


Figure 5

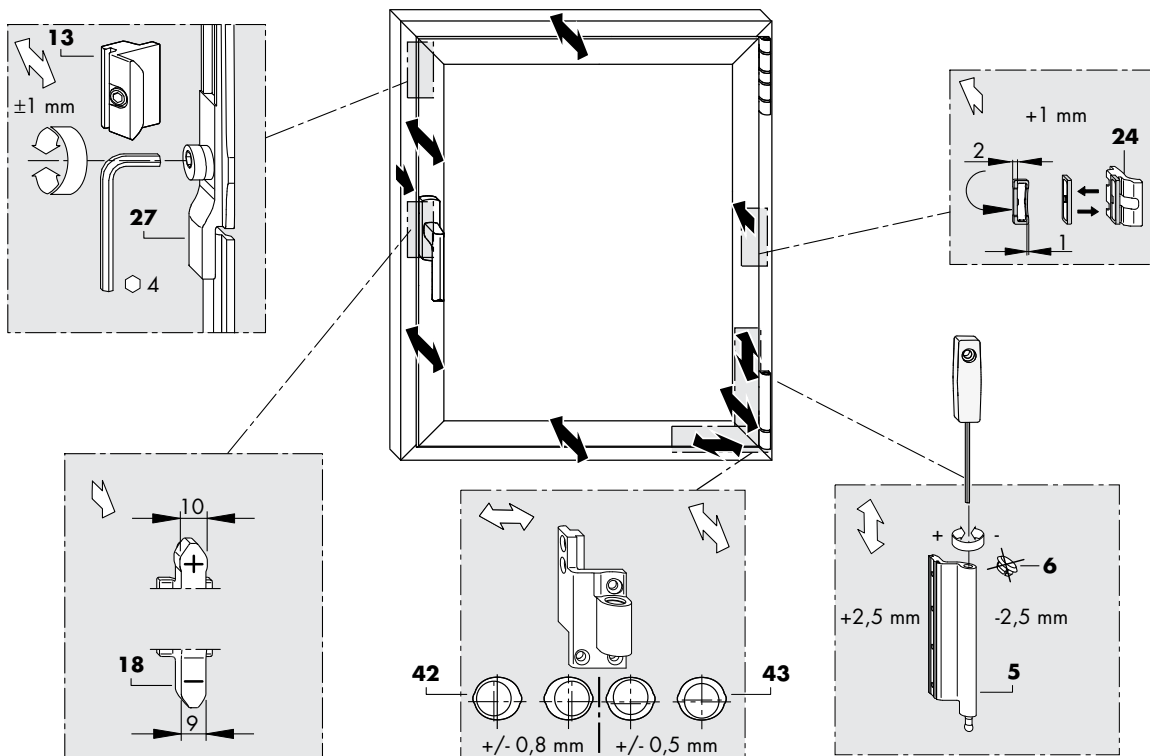
**Note:** For more machining instructions please refer to drawing no.: LMen1361 in the Aluminium Specifiers Manual

# LM-D300 Installation jigs and adjustment possibilities



Material short text		Material no.
<b>Jig supporting piece</b> <i>For supporting piece BHS</i> <b>BS LM-D300 grey</b> <i>(pos. 8) and supporting piece THS (pos. 12)</i> Ø 4.3 mm Ø 6 mm	1	MABB0040-097010
<b>H-S sash jig</b> <i>For BHS sash hinge (pos. 5) and sash hinge (pos. 11, pos. 36)</i> Ø 4.3 mm	1	MABB0030-097010
<b>H-S frame jig</b> <i>For pivot rest (pos. 3), bearing block (pos. 10) and bearing block M (pos. 35)</i> Ø 4.3 mm	1	MABB0050-097010
<b>Pin removal tool</b> <i>For removing the top hinge pin (pos. 9, pos. 33)</i> <b>LM 200/300</b>	1	MAEW0030-000010



## Adjustment possibilities



## LM-D300 VS DS hardware list and Important advice

Pos.	Qty.	Material short text		Material no.		Material no.
1-10	1	VS LM 4200-DS A0109 <i>Passive sash</i>	1	879368	20	266885
-	1	BS 300-D BD 6.5 <i>(Refer to ill. on page 7 - 8)</i>		<i>(Refer to page 2 for material no.)</i>		
23-24	0...1	MV LM 4200-D VS/BS <i>(b &gt; 1250 mm)</i> <i>(Refer to ill. on page 5 - 6)</i>	1	857052	20	246986
33-36	0...1	Hinge set LM Universal <i>(b &gt; 2200 mm)</i> <i>(Refer to ill. on page 7 - 8)</i> <i>(&gt; 200 kg)</i>		<i>(Refer to page 2 for material no.)</i>		

### Basic safety advice

#### Stipulated use

The specified hardware in this document is intended for installation in aluminium window frames by a specialised fenestration company in accordance with these instructions. The windows may only be vertically installed. The specialised fenestration company must ensure the suitability of the hardware for the intended purpose, based on the specifications in both these instructions and in the other specified documents.

#### Avoid overstressing

Hinge components can break from overstressing. As a result, the sash can fall out and cause severe injuries.

- If a high level of stress is expected on the hinge components, limit the opening angle with a limit stay LM with brake.  
A high level of stress is to be expected for example in schools and kindergardens.

#### Do not mix hardware components

The hardware components are technically coordinated with each other. The secure function of the hardware is not warranted if hardware components from other systems or from other manufacturers are intermixed on a window. Hardware components can break and cause accidents.

- Only use the hardware components stated in these instructions together in one window.

#### Only apply the window's surface-finish prior to installation

- Surface treatment of the window after the installation of the hardware components can restrict the operational reliability of the hardware components.

#### Avoid damage caused by rust and deposits

Hardware components can be damaged by corrosion-promoting substances, dirt and wetness and can cause hazards.

- Do **not** use any acetic-acid or cross-linked acidic sealing compounds.
- Do **not** use the hardware components in environments where aggressive or corrosion-promoting constituent elements are in the air.
- Keep all rebates free from deposits and soiling, in particular from cement or plaster residue.
- Protect the hardware against moisture.

#### Clean the hardware carefully

- Clean the hardware only with a soft cloth and mild, pH-neutral cleaning agents in diluted form.
- Avoid having the hardware in contact with scouring agents or aggressive, acidiferous cleaning agents.
- Dry the hardware after cleaning.



#### Pass on all information to the window user

- Display the user information (order no. 05083) visibly on the installed window or door unit.
- Hand over the following printed material to the user:
  - Maintenance & care instructions SI-AU order no. 17772
  - Operating instructions SI-AU order no. 05766

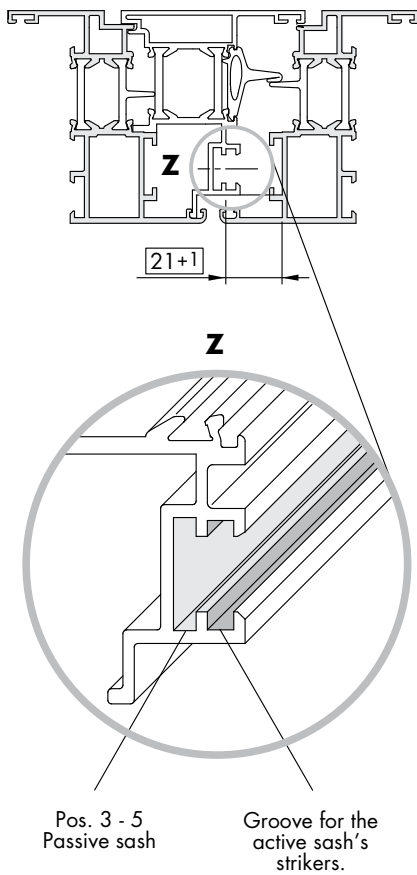
#### Liability exclusion

- We are not liable for malfunctions and damage to the hardware, as well as to the windows and balcony doors equipped with the same, if this has been caused by inadequate tendering procedures, non-compliance with these installation instructions, or physical effect of force on the hardware (e.g. due to non stipulated use).

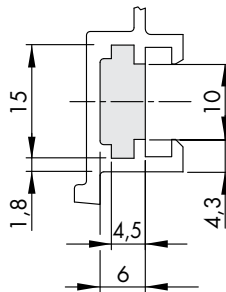
# LM-D300 VS-DS/A Hardware list, profile suggestions and gasket compression adj.

Pos.	Qty.	Material short text		Material no.		Material no.
1-8	1	VS LM-DS/A A0026 Passive sash	1	864425	20	252192
	1	VS LM-DS/A A0006 Passive sash	1	860823	20	249321
-	1	BS 300-D BD 6.5		(Refer to page 2 for material no.)		
23-24	0...1	MV LM 4200-D VS/BS (b > 1250 mm)	(Refer to ill. on page 5 - 6)	1	857052	20 246986
33-36	0...1	Hinge set LM Universal (b > 2200 mm) (> 200 kg)	(Refer to ill. on page 7 - 8)	(Refer to page 2 for material no.)		

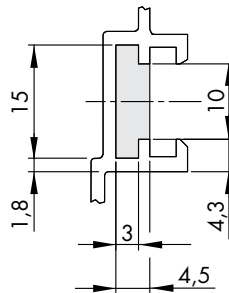
## Profile suggestions for dummy mullion sash



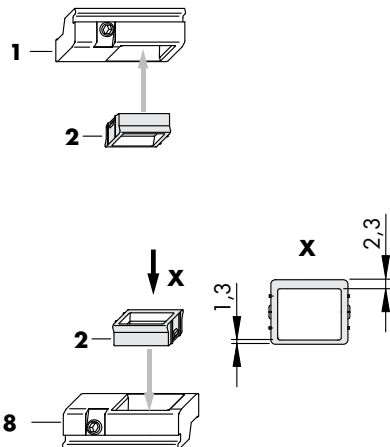
**Z**  
Version A0026



**Z**  
Version A0006



## Gasket compression adjustment of the pressure pieces (pos. 2) +1 mm





# LM-D300 Hardware list and installation dimensions for limit stay LM

Pos.	Qty.	Material short text		Material no.	Material no.		
38-41	0...1	Limit stay LM with brake, short	a 450 mm - 900 mm	1	721063	50	319896
	0...1	Limit stay LM with brake, long	a 901 mm - 1800 mm	1	721070	50	319926

## Installation dimensions for limit stay LM with brake, long

(refer to pages 5 - 6 for hardware installation)

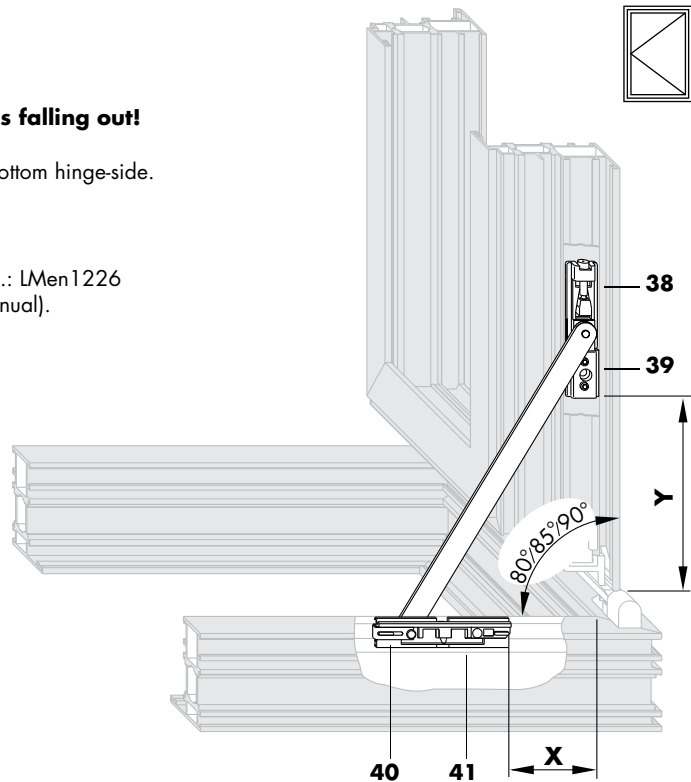
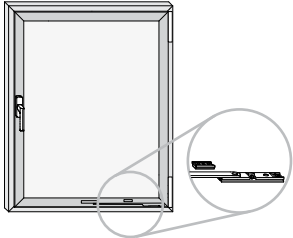
Opening angle			80°	85°	90°
Dimensions in mm		X	Y	Y	Y
Limit stay LM with brake, short (SW	450 - 900)	60	143	131	119
Limit stay LM with brake, long (SW	901 - 1800)	124	262	244	227

### ⚠ WARNING

#### Limit stay LM installation on the bottom hinge-side (BHS)

##### Risk of injury from window sashes falling out!

- Only install the limit stay LM on the bottom hinge-side.
- Refer to pages 5 - 6 to install the limit stay LM with brake.
- Limit stay LM with brake: Drawing no.: LMen1226 (refer to the Aluminium Specifiers Manual).



Print date 30.04.2010

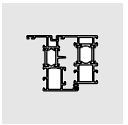
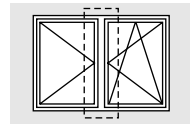
SIEGENIA-AUBI KG - Hardware and ventilation technology  
 PO box 10 05 51 - D-57005 Siegen  
 Telephone +49 271 39 31-0 - Fax +49 271 39 31-3 33

**SIEGENIA AUBI®**

LMen1379  
 Page 16

# VS LM-DS/A

Locking side LM-DS/A for  
Aluminium windows



## .... with decisive advantages:

- can be combined with BS LM 4200  
BS LM 2200  
BS axxent-D  
LM-D
- DIN right and DIN left can be used
- universally applicable module packing units

## Size Range (dependant on fittings)

			Window	
			min.	max.
Sash width, second sash	(FB2)	(mm)	350 to 1250 <sup>1)</sup>	
Sash height	(FH)	(mm)	680 to 2400	
Sash height	(FH)	(mm) <i>only with routed-in drive gear LM, internal</i>	725 to 2400	

1) N.B.: The sash width must not exceed 1.5 times the sash height!

The details for LM Euro-groove (Pages 5 and 6) with a chamber size of 21 mm (Aluminium profiles for windows and french doors) apply to the SIEGENIA-AUBI locking side. In addition to this the details given by the system manufacturer must be complied with.  
If the dimensions of windows or french doors differ from this please consult SIEGENIA-AUBI.

## Supplement to the Installation Instructions:

LM 4200-DK	LMgb1096	axxent-DK/TBT	LMen1274
LM 4200-D	LMgb1097	axxent-D/DS	LMen1275
LM 2200	LMen1253	LM-D	LMen1236

## Contents

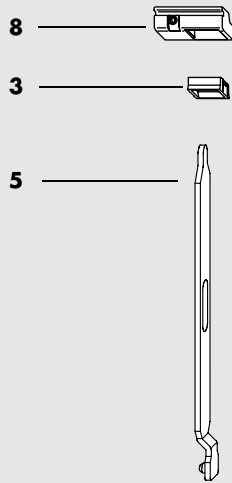
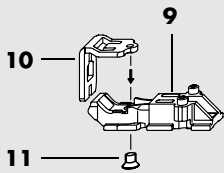
Size range.....	Page 1	Fitting instructions and important notes .....	Page 4
Fitting layout and list.....	Page 2	Sash dimensions.....	Page 5
Fitting aids, Abbreviations .....	Page 3	Frame dimensions.....	Page 6

Installation Instructions  
LMgb1106

Technical specifications and colours are subject to change

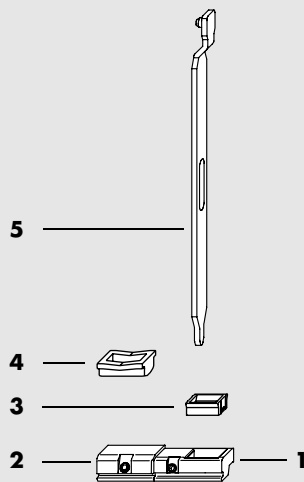
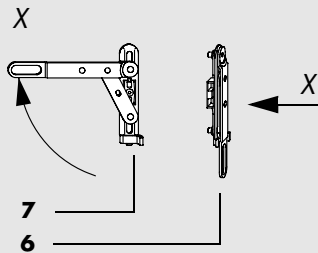
LMgb1106\_3\_2006-05/1

# VS LM-DS/A Beschlagübersicht und -liste



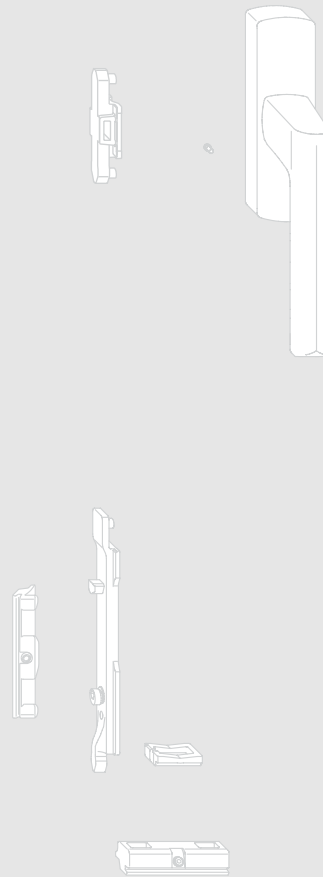
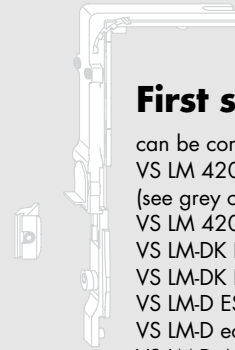
## Second sash

- 1 Locking part DS l.h.
- 2 Run up block TBT
- 3 Pressure piece
- 4 Run up block
- 5 Shoot bolt
- 6 Slave sash gear
- 7 Stop
- 8 Locking part DS r.h.
- 9 Stay LM 4200/2200-D
- 10 Adapter LM 2200-D
- 11 Csk screw M5 x 7



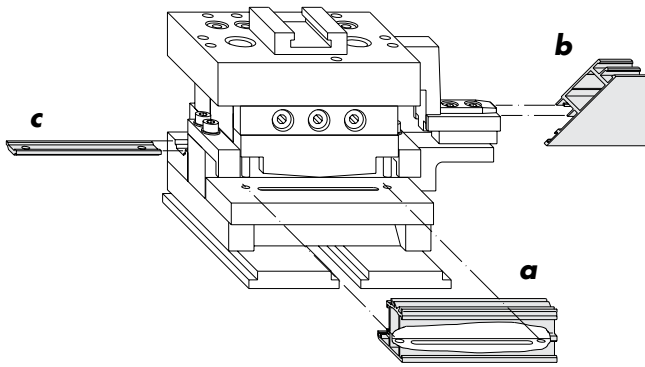
## First sash

can be combined with  
 VS LM 4200-DK  
 (see grey contoured illust.)  
 VS LM 4200-D  
 VS LM-DK FBS-G A0040  
 VS LM-DK ESG-23 A0040  
 VS LM-D ESG-23 A0040  
 VS LM-D economic  
 VS LM-D A109

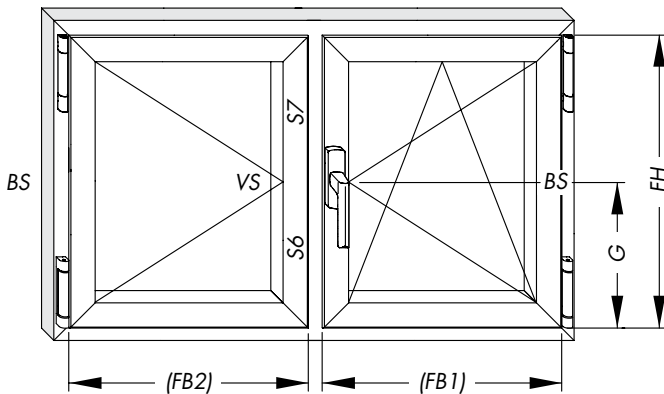


Pos.	Qty		Description		Part code		Part code
	A0026	A0006					
1 - 8	1	-	VS LM-DS/A A0026	1	864425	20	252192
	-	1	VS LM-DS/A A0006	1	860823	20	249321
9	1	1	Stay LM 4200/2200-D	1	MSKD0010-100010	100	MSKD0010-100060
10-11	1	1	Accessories - Turn sash stay LM 2200	1	MZBS0040-000010	20	MZBS0040-000030

## VS LM-DS/A Fitting aids, Abbreviations



Description		EAN 40 12453
<b>Combi-tool</b>	<b>a</b> Punching out - lever	141243
	<b>b</b> Aperture for the operating rod guide groove	
	<b>c</b> Operating rod perforation and cropping	
suitable punching tool: BST 105 (15 mm stroke)		139295



### Abbreviations

The following abbreviations are used in these fitting instructions:

BS	Hinge side
FB1	Sash width, first sash
FB2	Sash width, second sash
FH	Sash height
G	Handle position
VS	Lock side
S6	Operating rod, lock side, bottom
S7	Operating rod, lock side, top

### Fitting Instructions

- Preparation**
- A** Open the operating rod guide groove.
  - B** Machine operating rods S6 - S7 in accordance with details given on Page 5.

- Sash**
- A** Fit stop (7) DIN right or DIN left onto the slave sash gear (6).
  - B** Push in shoot bolt (5) with operating rod S6 and operating rod S7 with shoot bolt (5) vertically on the lock side.
  - C** Fit slave sash gear (6) onto the operating rods S6 and S7 and clamp with countersunk screw.
  - D** Fit run up block (4).
  - E** Fit stays LM 4200-D (9) in accordance with the details given in the Fitting Instructions LMgb1097 or LMen1253.

- Frame**
- A** Position locking parts DS (1 and 8) DIN right or DIN left with run up block TBT (2) in accordance with details on Page 6 and lock with a grub screw in each case (Torque  $1.5 \pm 0.25$  Nm).
  - B** Insert pressure pieces (3) into locking parts DS (1 and 8) as shown on Page 6.

- Note**
- If repeating an installation shoot bolt (5) with operating rod S6, slave sash gear (6) and operating rod S7 with shoot bolt (5) must be pushed in vertically on the locking side

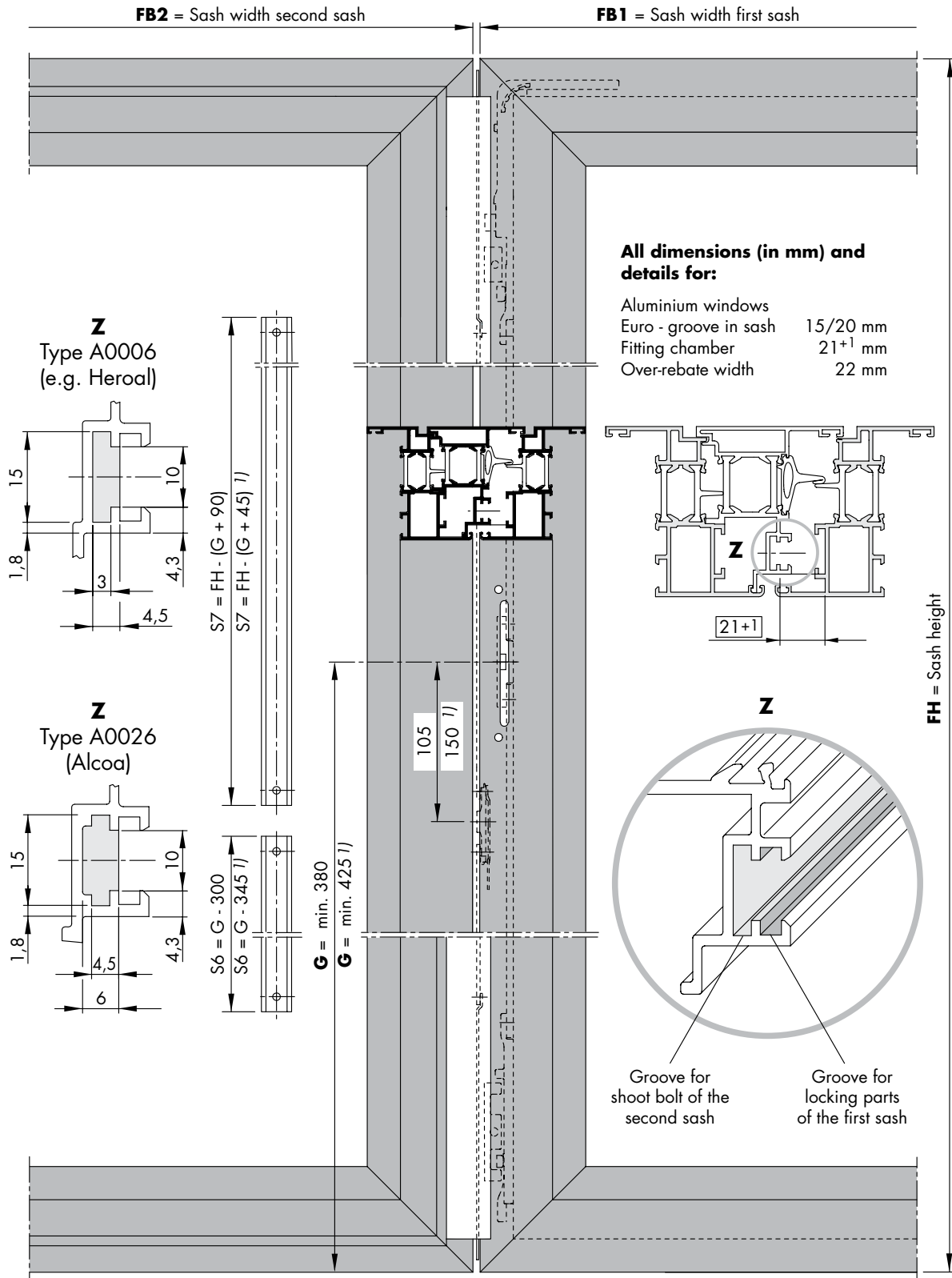
### Important notes

- Please consult our product information for tilt and turn fittings for windows and door height windows
- The information on profile sections is valid for the fittings described in these installation instructions. Please consult your SIEGENIA-AUBI representative if the dimensions of the windows are different.
- The hardware components described in this leaflet are made from non corroding material or have been galvanised to DIN 50 961. They must not be installed for use in aggressive, corrosion promoting air conditions
- We can accept no liability in respect of any damages or defects arising where the hardware assembly incorporates products not made by SIEGENIA-AUBI.
- Install the hardware components correctly by following closely the instructions on this page.
- The surface treatment of windows and doors must be performed before the hardware is assembled on the window. Post treatment could adversely affect the effective functioning of the components, in which case we accept no liability for such consequence.
- Please follow the standard techniques for packing and wedge the sealed glazing units within the sash / frame.
- Do not use acid based sealing compounds because they may lead to corrosion of the hardware. Keep rebates free of dirt and debris - in particular cement and plaster. Keep hardware dry and avoid contact with cleaning agents.
- Keep all grooves and rebates free from dirt and debris - especially residues of cement or plaster. Avoid the direct effect of moisture on the hardware and contact of the hardware with cleaning agents.

### Liability exclusions

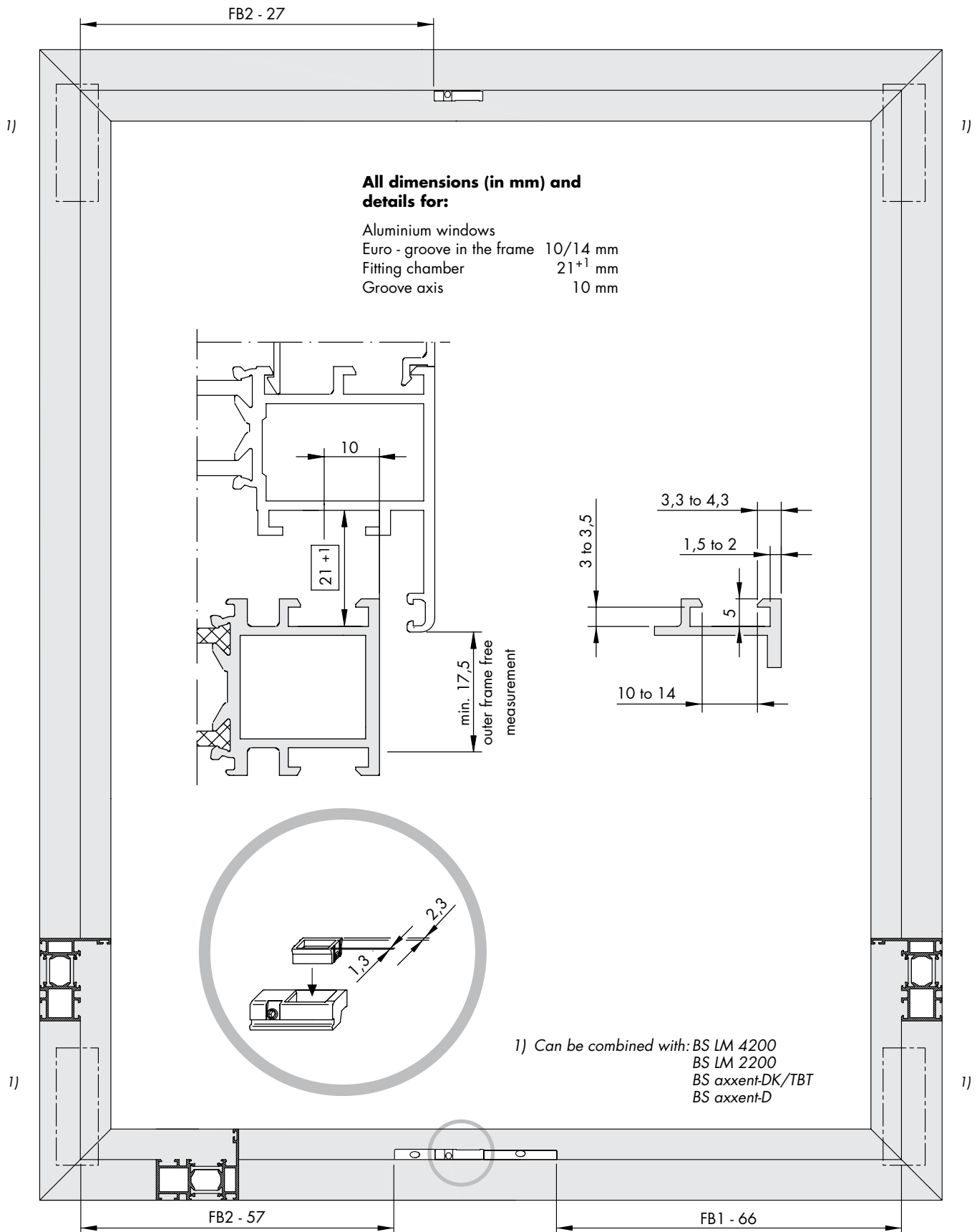
We accept no liability in respect of any damages or malfunctions caused by the hardware or the windows and French doors fitted with them, as a result of incorrect and inappropriate specifications or other information provided by the customer, failure to follow these instructions, wilful damage or negligence or misuse or alteration or repair of or an exertion of excessive force to the hardware by the user or customer.

# VS LM-DS/A Sash dimensions

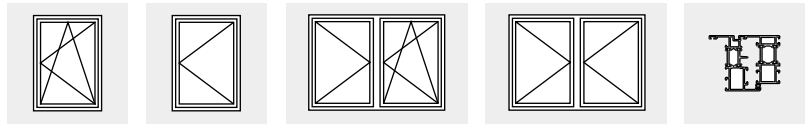


1) Only for routed in drive gear LM

# VS LM-DS/A Frame dimensions



# LM 4200-E RC1+2



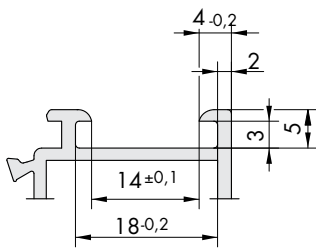
Anti-intruder hardware for aluminium windows and portal doors  
Application for electrical test according to DIN V ENV 1627 for RC1 and RC2

Further details and specifications/information regarding the product and liability (guidelines: VHBH, TBDK and VHBE) can be found in the aluminium planning manual (H4006.0125EN) and **must** be observed.

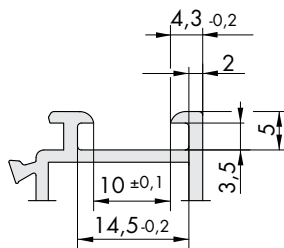
All dimensions given are final dimensions after the surface of the sections has been treated (painted, power coated etc.).

## Correct use Profile selection/alignment Frame designs

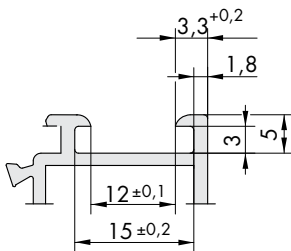
### A0004



### A0006

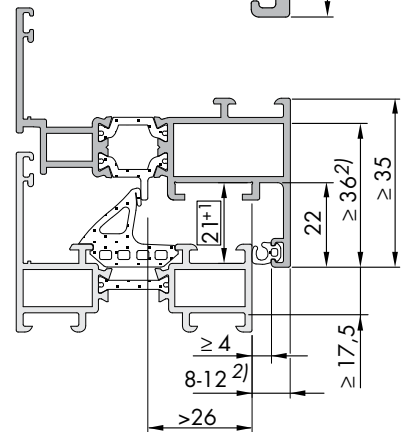
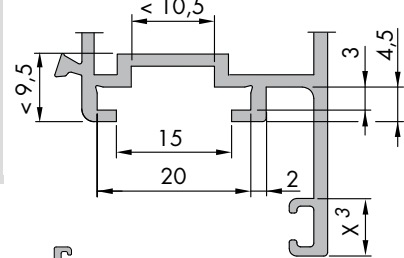


### A0022

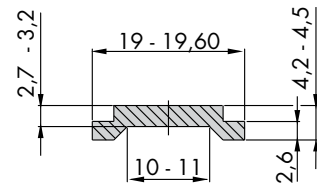


- 1) See diagram on page 2.
- 2) For gear set M6 LM-E.
- 3) See table on pages 3 and 16.

## Sash and frame dimensions



## min. - max.



## All dimensions in mm

Sash width <sup>1)</sup>	(1-sash)	(a)	min. 365 - max. 1,600
Sash width <sup>1)</sup>	(2-sash)	(a1+a2)	min. 565 - max. 1,250
Sash height <sup>1)</sup>	(handle LM lockable)	(b)	min. 730 - max. 2,400 <sup>1)</sup>
Sash height <sup>1)</sup>	(window handle)	(b)	min. 795 - max. 2,400 <sup>1)</sup>
Sash weight <sup>1)</sup>	(1-sash)	(c)	max. 130 kg
Sash weight <sup>1)</sup>	(2-sash)	(c)	max. 100 kg

The following assembly instructions are valid for:

LMen1361	Gear M6
LMen1362	LM 4200-DK
LMen1363	LM 4200-TBT

## Contents

Size ranges.....	Page 1
Locking parts, diagrams.....	Page 2
Hardware list DK/-DS, size ranges of limit stay LM.....	Page 3
Frame dimensions: main/second. sashes.....	Pages 4- 5
Important information.....	Page 6
Hardware layout: main/second. sashes.....	Pages 7- 8
Sash dimensions: main/second. sashes.....	Pages 9- 10
Hardware layout LM 4200-TBT.....	Page 11
Sash dimensions: LM 4200-TBT.....	Page 12
Hardware layout: LM 4200-D.....	Page 13
Sash dimensions: LM 4200-D.....	Page 14
Assembly instructions: gear set M6.....	Page 15
Hardware list: LM 4200-TBT, abbreviations..	Page 16
Frame dimensions: LM 4200-TBT.....	Page 17
Hardware list: LM 4200-D,	
AEROCNTROL WK 2 2-sash.....	Page 18
Frame dimensions: LM 4200-D.....	Page 19
Jigs.....	Page 20

# Assembly Instructions

LMen1366



# LM 4200-E RC1+2 Position of locking parts LM-E, diagrams

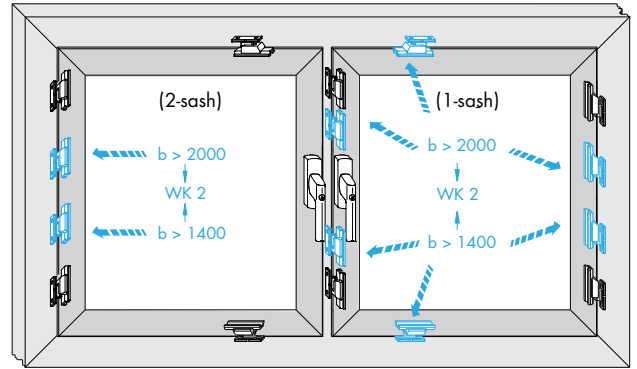
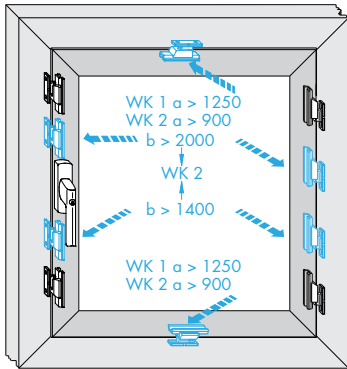
## Number and position of locking parts LM-E on main and secondary sashes

(1-sash)

b	WK1 a 365 - 900	WK 1 a > 1,250	WK 2 a 365 - 900	WK 2 a > 900
730 - 1,400	4	6	4	6
1,401 - 2,000	4	6	6	8
2,001 - 2,400	4	6	8	10

(2-sash)

b	WK 1 a 565 - 1,250	WK 2 a 565 - 1,250
730 - 1,400	8	10
1,401 - 2,000	8	13
2,001 - 2,400	8	16



## Diagrams for determining allowable sash size

Glass thickness (mm)	Weight (kg/m <sup>2</sup> )
28	70
24	60
20	50
16	40
12	30

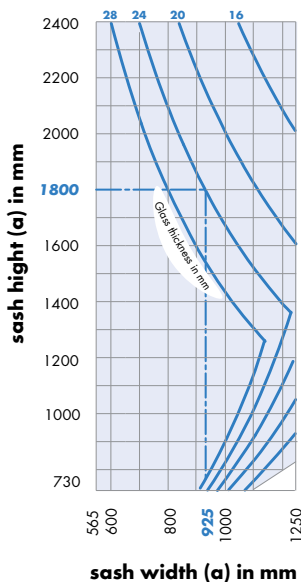
For glass thicknesses less than 12 mm, all sash sizes which are within the size range and which do not exceed a width to height ratio a/b of 1/1.5 are allowed.

Maximum allowable sash weight:

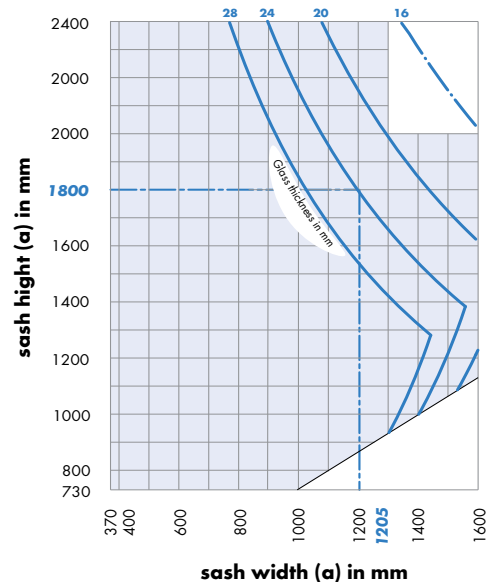
2-sash 100 kg

1-sash 130 kg

Sash weight 100 kg  
for 2-sash window
















Sash weight 130 kg  
for 1-sash window



Example (---): **100 kg**  
Sash height = 1,800 mm  
Glass thickness = 24 kg  
Maximum allowable sash width = **925 mm**

**130 kg**  
1,800 mm  
24 kg  
**1,205 mm**

## LM 4200-DK-DS-E RC1+2 Hardware list, size ranges

Item	Quantity		Description	Image	Material no.	Image	Material no.
	Secondary sash	Main sash					
1a	0...1	0...1	Handle LM lockable		See handle overview LM Drawing. no.: LMen1337 in aluminium planning manual		
1b	0...1	0...1	Window handle lockable (□ 7 mm x 25, cam Ø 10 mm)		-		
2	1	1	Corner drive VSU/BSO		859391	20	266076
3-11	-	1	VS LM-DK-TBT FBS-EUL KPW		MMV50340-100010	20	MMV50340-100030
12-14	0...1	0...1	Coupling set LM-E		MMKL0070-100010	20	MMKL0070-100030
15-19	0...1	0...1	Gear set M6 LM-E		MMGI0060-100010	20	MMGI0060-100030
20-22	4...6	4...10	Locking part LM-E (A0004) Locking part LM-E (A0006) Locking part LM-E (A0022)		838365 838372 MMVR0010-600010	20 20 20	231708 231722 MMVR0010-600030
23-25	0...1	0...2	Locking part LM		-	20	317556
26	-	1	Stay LM 4200				
			Size a (1-sash) (in mm)	Size a (2-sash) in mm			
			20 365 to 600	20 565 to 680	1	884805	20 273098
			35 <sup>1)</sup> 601 to 1,250	35 <sup>1)</sup> 681 to 1,250	1	884782	20 314203
			35 <sup>2)</sup> 1,251 to 1,600		1	884782	20 314203
			1) up to max. 100 kg sash weight (1-2 sash) 2) with additional stay LM up to max. 130 kg (1-sash)				
27-30	-	0...1	Additional stay LM 4200		857076	20	247006
31-33	-	0...1	MV LM-RB/SF		894316	20	303917
34-35	-	0...1	Accessories LM 4200 130 kg		-	20	247037
36	0...1	0...1	Handle support LM		-	200	See table
37-42	1	-	VS LM-D-DS		MMV50350-100010	20	MMV50350-100030
43	1	-	Stay LM 4200 size 20		848805	20	273098

### Design variations for handle support LM (36)

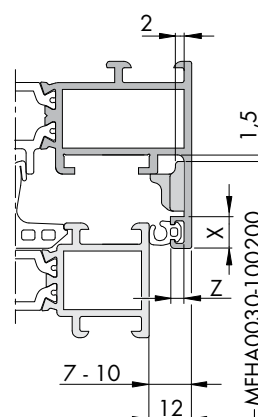
USH	Z	X	
		< 7 mm	7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-

### LM 4200-E WK 2 2-sash:

#### Size ranges for limit stay LM

Dimensions in mm	
Limit stay LM with friction, short	(FB 800 - 1,000)
Limit stay LM with friction, long	(FB 1,001 - 1,250)

For further information see limit stay LM with friction,  
Document no.: LMen1226 in aluminium planning manual.





## **Basic safety instructions**

### **Correct use**

The hardware described in this document is intended to be installed in an aluminium window frame by a certified window construction specialist in accordance with these instructions. The windows may only be installed vertically plumb. The certified window construction specialist must ensure that the hardware is suitable for the application based on the specifications in these instructions and in other documents that are cited.

### **Avoid excessive strain.**

Hinge parts may break if they are subject to excessive strain. This can cause the window sash to fall out, which may lead to serious injuries.

- If you anticipate that the hinge parts will be subject to excessive strain, limit the opening angle with an LM limit stay with friction. For example, excessive strain is to be expected in schools and kindergartens.

### **Do not mix hardware.**

The hardware is technically matched. When you mix hardware from different systems or manufacturers in one window, the safe functioning of the hardware is not guaranteed. The hardware can break and cause accidents.

- Use only the hardware that is named in these instructions in combination in one window.

### **Treat the window surface before installation only.**

- Treating the surface of the window after the hardware has been installed can reduce the functional capacity of the hardware.

### **Prevent damage caused by rust and deposits.**

Corrosive substances, dirt and moisture can damage the hardware and cause hazards.

- Do **not** use acetic or acid cure sealants.
- Do **not** use the hardware in environments where the air contains aggressive or corrosive components.
- Keep the rebates free from deposits and dirt, especially from remnants of cement and plaster.
- Keep the hardware dry.

### **Always clean the hardware gently.**

- Clean the hardware only with a soft cloth and mild, diluted pH-neutral cleaning agents.
- Keep the hardware from coming into contact with scouring agents or aggressive, acidic cleaning agents.
- Dry the hardware after cleaning it.

### **Pass the information on to the user of the window.**

- Affix the user information (order no. 05083) to the installed window or door element in a place that can be seen easily.
- Provide the user with the following documents:
  - Maintenance/care instructions SI-AU order no. 19748
  - Operating instructions SI-AU order no. 05766

### **Disclaimer of liability**

- We assume no liability for loss of function and damage to the hardware (and to the windows and portal doors that are equipped with these) resulting from insufficient tendering, failure to follow these assembly instructions or which result from force being applied to the hardware (e.g. through improper use).

1a	Handle Si-line LM lockable/TBT
1b	Window handle lockable
2	Corner drive VSU/BSO
12	Coupling bracket E M6
13	Coupling screw M6
14	Cheese head screw M5 x 12
15	Countersunk tapping screw PH
16	Coupling screw M6
17	Anti-drill guard
18	ESG LM M6
19	Countersunk screw M5 x 35 PZ
20	Countersunk screw M5 x 19
21	Striker E
22	Locking part E
23	Striker
24	Locking cam
25	Eccentric rivet
36	Handle support LM
37	Corner drive VSO
38	Clamping piece EUL
39	Run-up block
40	Striker
41	Stop
42	Locking bolt DK
43	Corner drive VSU
44	Stay LM 4200 SZ 20

**Torque specifications for main and secondary sashes**

- Striker (EUL) (6, 7, 23, 31, 40) (torque 1.5 ± 0.25 Nm, PZ 2)
- Coupling screw M6 (13, 16) (torque 2.75 ± 0.25 Nm, 4)
- Cheese head screw M5 x 12 (14) (torque 2.5 ± 0.25 Nm, 2.5)
- Tilt locking part (11) (torque 1.5 ± 0.25 Nm, PH 2)
- Countersunk screw M5 x 35 PZ (19) (torque 2.5 ± 0.25 Nm, 2.5)
- Run-up block (10, 39) (torque 1.5 ± 0.25 Nm, PH 2)
- Countersunk screw M5 x 19 (20) (torque 2.5 ± 0.25 Nm, 2.5)
- Additional stay (29) (torque 1.5 ± 0.25 Nm, PZ 2)
- Countersunk screw M5 x 13 (34) (torque 2.5 ± 0.25 Nm, 2.5)
- Stop(41) (torque 1.5 ± 0.25 Nm, 2.5)
- Striker (40/23) (torque 1.5 ± 0.25 Nm, 2.5)

For position of locking parts LM-E see page 9

1a	Handle Si-line LM lockable/TBT
1b	Window handle lockable
2	Corner drive VSU/BSO
3	Locking bolt DK
4	Clamping piece EUL
5	Corner drive VSO FBS
6	Striker EUL - FBS
7	Striker
8	Corner drive VSU
9	Tilt lock
10	Run-up block
11	Tilt locking part
12	Coupling bracket E M6
13	Coupling screw M6
14	Cheese head screw M5 x 12
15	Countersunk tapping screw PH
16	Coupling screw M6
17	Anti-drill guard
18	ESG LM M6
19	Countersunk screw M5 x 35 PZ
20	Countersunk screw M5 x 19
21	Striker E
22	Locking part E
23	Striker
24	Locking cam
25	Eccentric rivet
26	Stay LM 4200DK
27	Eccentric rivet
28	Locking cam
29	Additional stay
30	Striker plate
31	Striker
32	Locking cam
33	Eccentric rivet
34	Countersunk screw M5 x 13
35	Supporting piece
36	Handle support LM

**Only use for 1-sash**

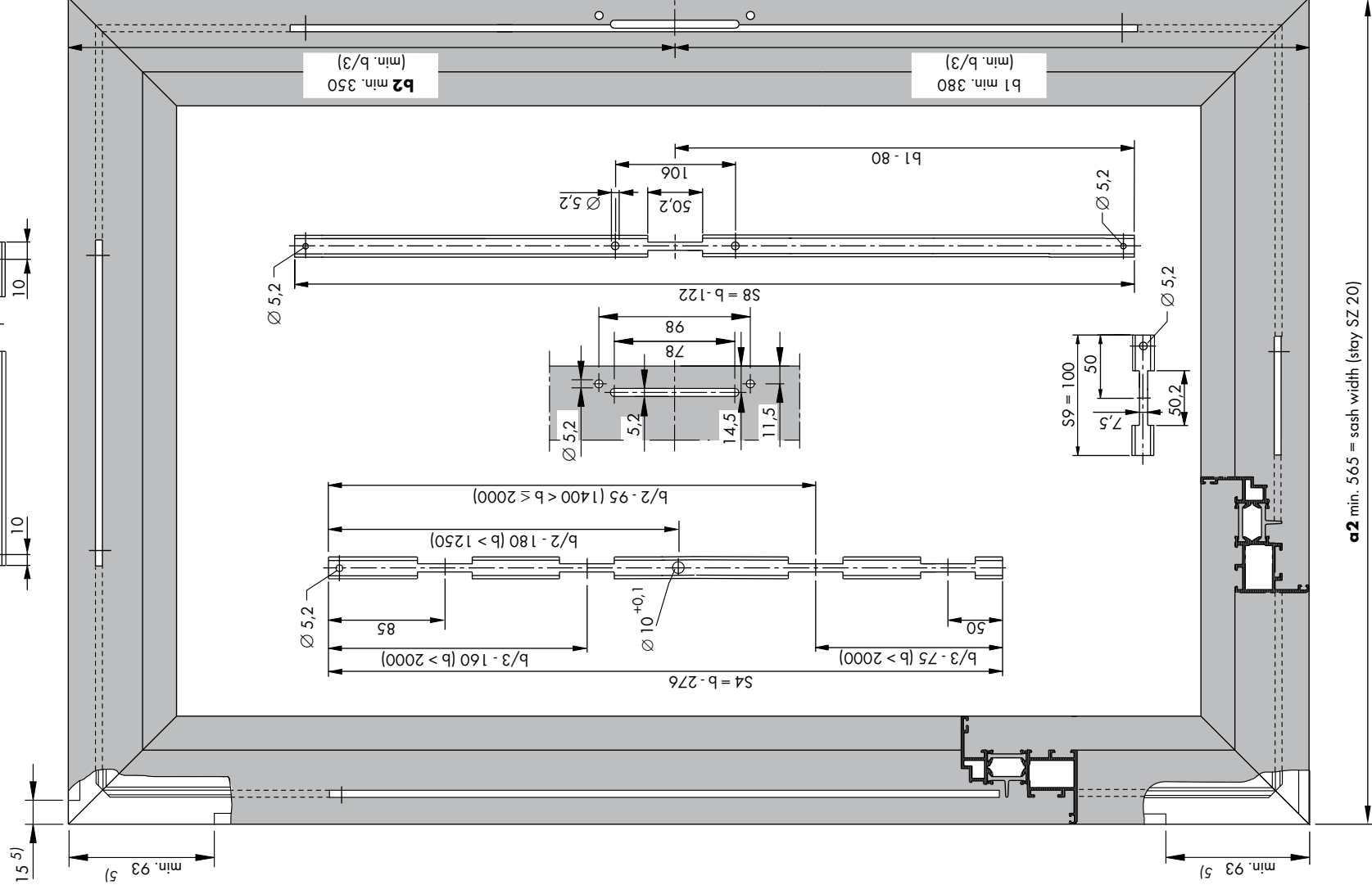
**Only use for 1-sash**

### LM 4200-DS-E RC1+2 Sash dimensions for secondary sash

All dimensions (in mm) and specifications for:

- Aluminium windows
- Eurogroove in sash
- Hardware cavity
- Rebate width

15/20 mm  
21<sup>+1</sup> mm  
22 mm



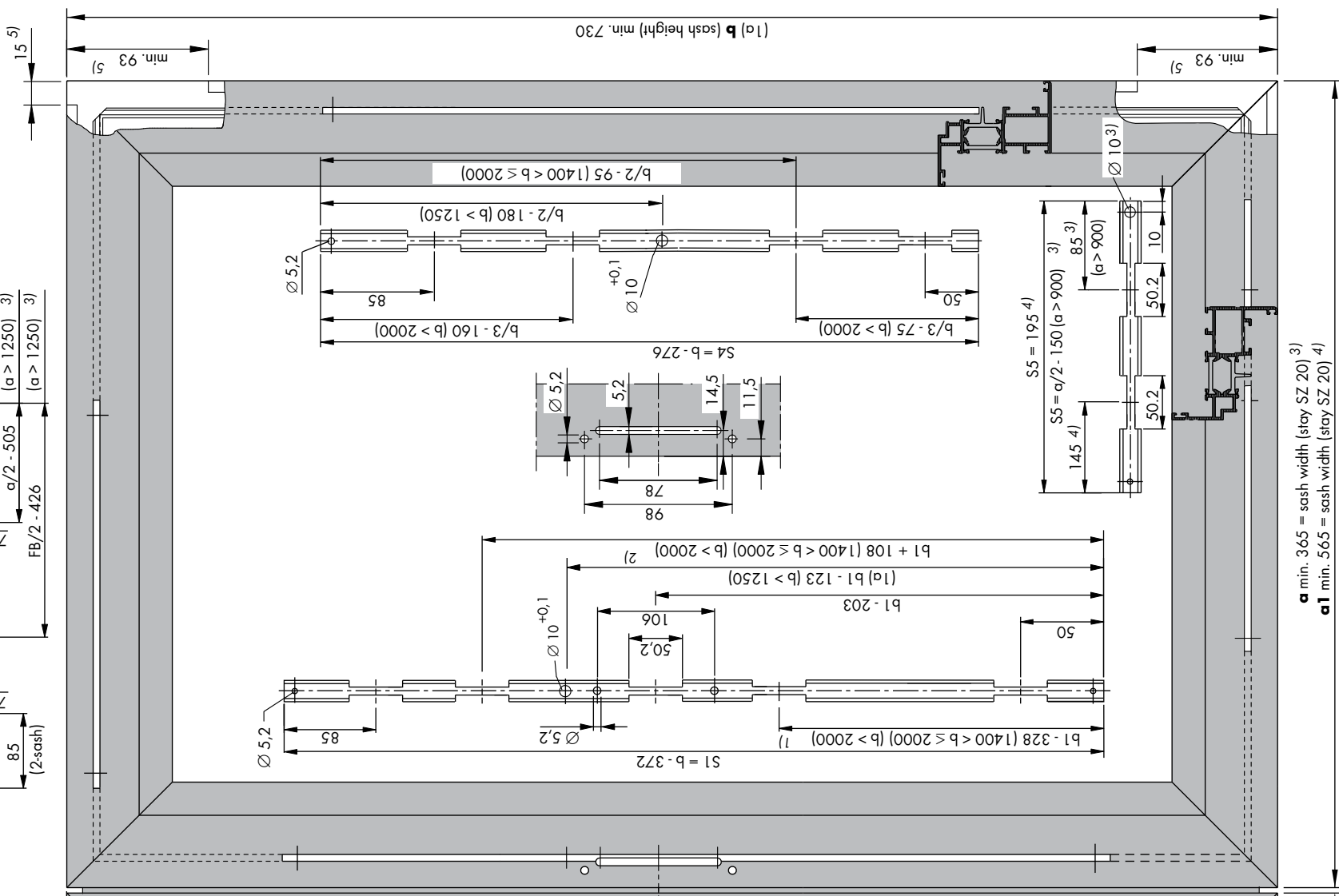
a2 min. 565 = sash width (stay SZ 20)

### LM 4200-DK-E RC1+2 Sash dimensions for main sash

All dimensions (in mm) and specifications for:

- Aluminium windows
- Eurogroove in sash
- Hardware cavity
- Rebate width

15/20 mm  
21<sup>+1</sup> mm  
22 mm



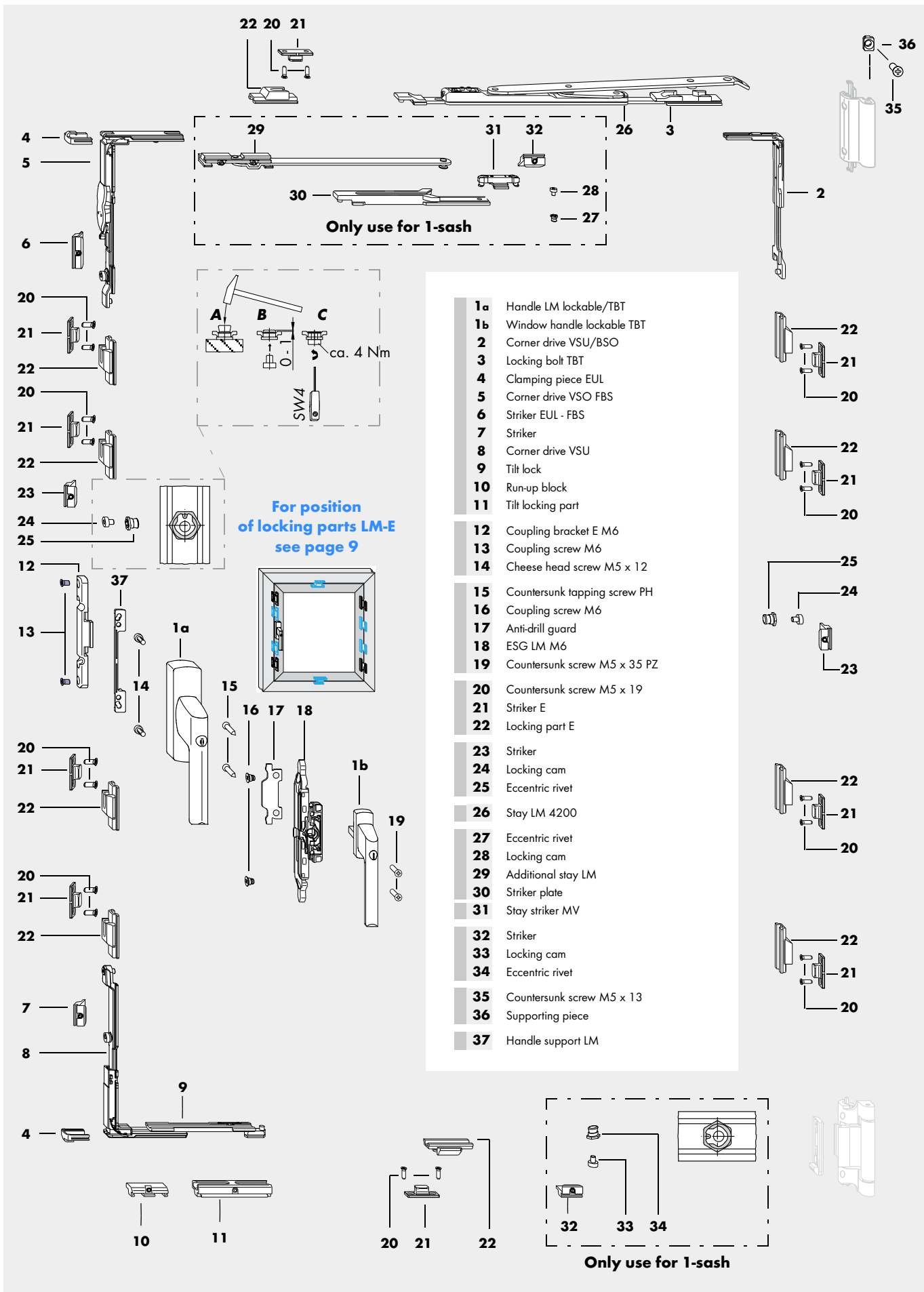
a min. 365 = sash width (stay SZ 20) 3)

a1 min. 565 = sash width (stay SZ 20) 4)

a1 min. 681 = sash width (stay SZ 35) 4)

- 1)  $b1 \geq b2$
- 2)  $b1 < b2$
- 3) 1-sash
- 4) 2-sash
- 5) Remove rebate seal in the area through which the hinges pass and rework the sash profiles. Minimum pass 4 mm.

# LM 4200-TBT-E RC1+2 Hardware layout



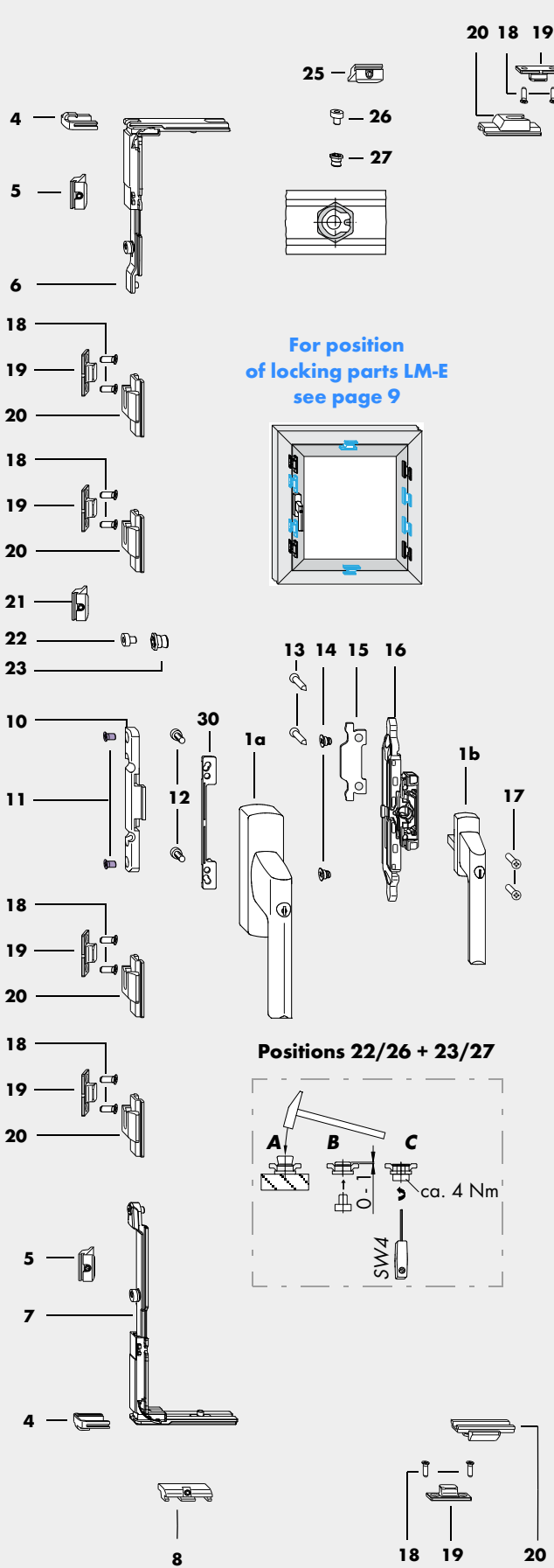
For torque specifications see page 5.

See page 16 for hardware list.





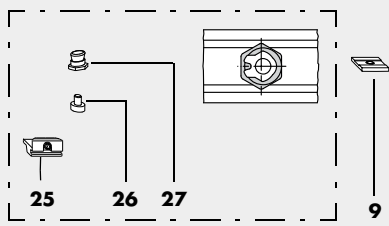
# LM 4200-D-E RC1+2 Hardware layout



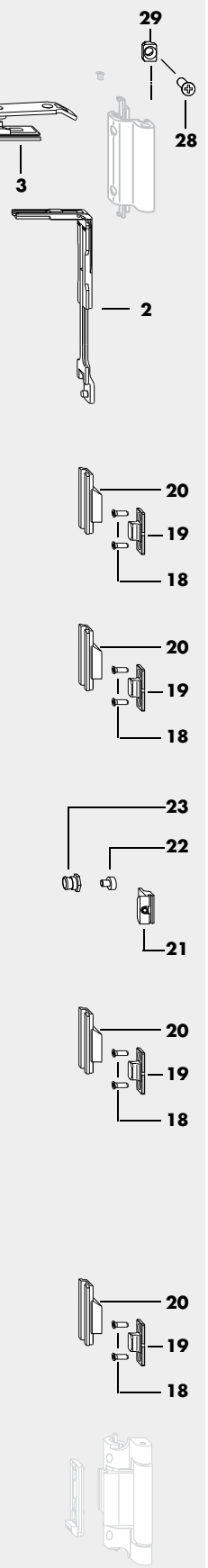
For position of locking parts LM-E see page 9

Positions 22/26 + 23/27

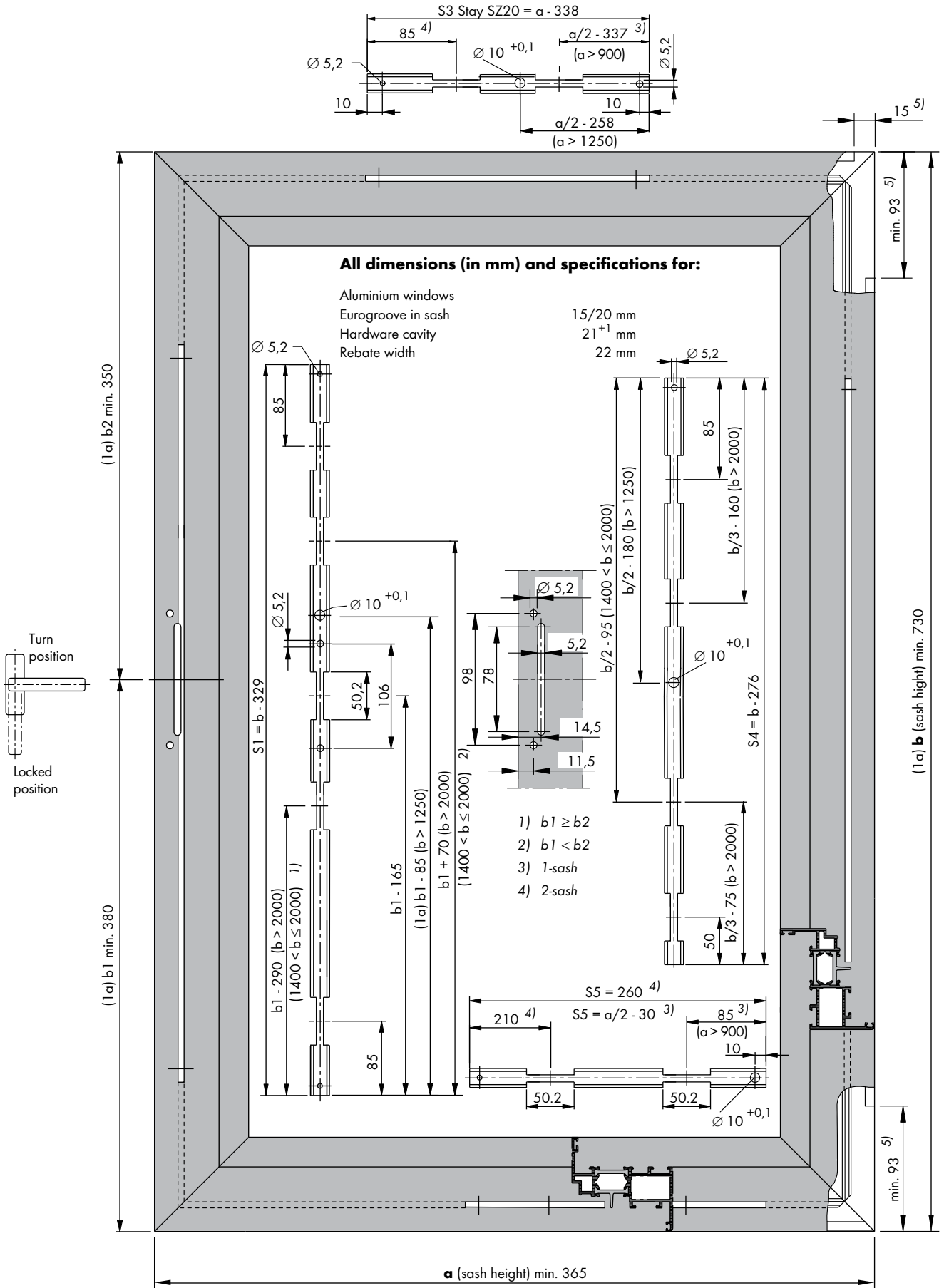
- 1a** Handle LM lockable/TBT
- 1b** Window handle lockable
- 2** Corner drive VSU/BSO
- 3** Locking bolt DK
- 4** Clamping piece EUL
- 5** Striker
- 6** Corner drive VSO
- 7** Corner drive VSU
- 8** Run-up block
- 9** Stop
- 10** Coupling bracket E M6
- 11** Coupling screw M6
- 12** Cheese head screw M5 x 12
- 13** Countersunk tapping screw PH
- 14** Coupling screw M6
- 15** Anti-drill guard
- 16** ESG LM M6
- 17** Countersunk screw M5 x 35 PZ
- 18** Countersunk screw M5 x 19
- 19** Striker E
- 20** Locking part E
- 21** Striker
- 22** Locking cam
- 23** Eccentric rivet
- 24** Stay LM 4200 SZ 20
- 25** Striker
- 26** Locking cam
- 27** Eccentric rivet
- 28** Countersunk screw M5 x 13
- 29** Supporting piece
- 30** Handle support LM



Only use for 1-sash



# LM 4200-D-E RC1+2 Sash dimensions



5) Remove the rebate seal in the area through which the hinges pass and rework the sash profiles. Minimum pass 4 mm.

## Assembly instructions

- Preparation**
- A** Rework window handle lockable (**1b**) and ESG LM M6 (**18**) on sash according to dimensions (Figures 1 and 4).
  - B** Adjust the length of the square spindle to the profile used. Shorten if necessary.
  - C** Process operating rods S1, S2, S6 and S7 according to dimensions (see table).
  - D** Attach anti-drill guard (**17**) with countersunk tapping screw. PH (**15**) to ESG LM M6 (**18**) (torque  $1.5 \pm 0.25$  Nm, PH1).
  - E** For positioning of locking parts E (**22**) see operating rods S1 and S2 (Figures 2+3).
- Sash**
- A** Insert ESG LM M6 (**18**) into milling groove provided (Figure 4).  
Attach ESG LM M6 (**18**) to operating rods using coupling screws M6 (**16**) (torque  $2.75 \pm 0.25$  Nm, PZ).
  - B** Attach window handle lockable (**1b**) using countersunk screw M5 x 35 PZ (**19**) (torque  $2.5 \pm 0.25$  Nm, PZ 2).
- Frame**
- For FH > 1,250 mm position striker (**23**) according to dimensions (Figure 5) and fix in place using grub screw (torque  $1.5 \pm 0.25$  Nm, SW 2.5).
- Note:**
- For position specifications see hardware layout on page 11, for example.
- For further information see gear set M6 (FBS), document no.: LMen1361 in aluminium planning manual.

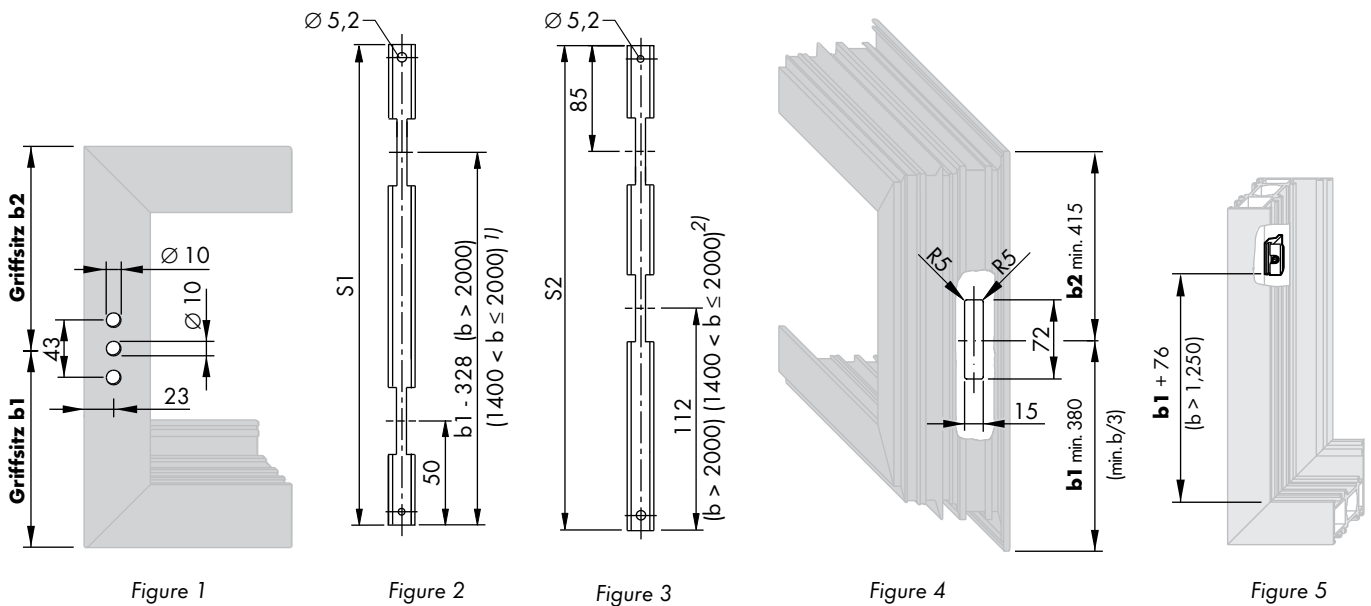


Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

## Table for cutting operating rods to length

WK 1+2	S1 (mm)	S2 (mm)	S6 (mm)	S7 (mm)
DK/TBT	b1 - 233	b2 - 238	-	-
D	b1 - 233	b2 - 195	-	-
DS	-	-	b1 - 110	b2 - 110

1)  $b1 \geq b2$

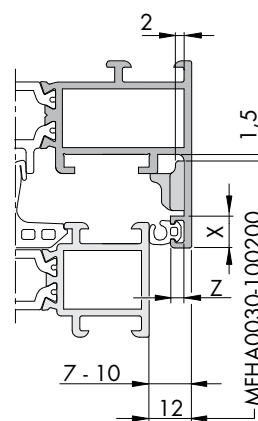
2)  $b1 < b2$

## LM 4200-TBT-E RC1+2 Hardware list

Item	Quantity	Description		Material no.		Material no.	
1a	0...1	Handle LM lockable TBT		See handle overview LM Drawing no.: LMen1337 in aluminium planning manual			
1b	0...1	Window handle, lockable (□ 7 mm x 25, cam Ø 10 mm)		-			
2	1	Corner drive VSU/BSO	1	859391	20	266076	
3-11	1	VS LM-DK-TBT FBS-EUL KPW	Main sash	1	MMVS0340-100010	20	MMVS0340-100030
12-14	0...1	Coupling set LM-E	Use handle LM lockable TBT (1a)	1	MMKL0070-100010	20	MMKL0070-100030
15-19	0...1	Gear set M6 LM-E	Use window handle lockable (1b)	1	MMGI0060-100010	20	MMGI0060-100030
20-22	4...10	Locking part LM-E (A0004)	For number of locking parts see page 9	1	838365	20	231708
		Locking part LM-E (A0006)		1	838372	20	231722
		Locking part LM-E (A0022)		1	MMVR0010-600010	20	MMVR0010-600030
23-25	0...2	Locking part LM	b > 1,250	1	-	20	317556
26	1	Stay LM 4200					
		Size a (1-sash) (in mm)	Size a (2-sash) in mm				
		20 365 to 600	20 565 to 680	1	884805	20	273098
		35 <sup>1)</sup> 601 to 1,250	35 <sup>1)</sup> 681 to 1,250	1	884782	20	314203
		35 <sup>2)</sup> 1,251 to 1,600		1	884782	20	314203
		1) Up to max. 100 kg sash weight (1-2 sashes)					
		2) With additional stay LM up to max. 130 kg (1-sash)					
27-30	0...1	Additional stay LM 4200	FB 1,250 mm and up with stay SZ 35 and/or 100 - 130 kg sash weight	1	857076	20	247006
31	0...1	Stay striker MV	a > 1,250 mm	1	MXSK0010-100010	20	MXSK0010-100030
32-34	0...1	MV LM-RB/SF	(1-sash) a > 1,250	1	894316	20	303917
35-36	0...1	Accessories LM 4200 130 kg	Sash weight 100 kg and up	1	-	20	247037
<b>Accessories</b>							
37	0...1	Handle support LM	(1a)	-	-	200	See table

### Design variations for handle support LM (37) for turning (30)

USH	Z	X < 7 mm	X 7.1 - 8.5 mm
7 - 10 mm	< 2 mm	MFHA0010-100200	MFHA0010-100200
7 - 10 mm	2.1 - 3 mm	MFHA0010-100200	MFHA0020-100200
7 - 10 mm	> 3 mm	MFHA0010-100200	-
12 mm	-	MFHA0030-100200	-



### Abbreviations

The following abbreviations are used in these assembly instructions:

a	Sash width	MV	Centre lock
a 1	Sash width, main sash	USH	Rebate height
a 2	Sash width, secondary sash	VS	Locking side
b	Sash height	VSO	Locking side, top
b1	Handle height, bottom	VSU	Locking side, bottom
b2	Handle height, top	S2	Operating rod, locking side top
BSO	Hinge side, top	S2	Operating rod, locking side top
EUL	Corner drive	S3	Operating rod, top horizontal
ESG	Routed-in drive gear	S4	Operating rod, hinge side
FBS	Mishandling device	S5	Operating rod, bottom horizontal

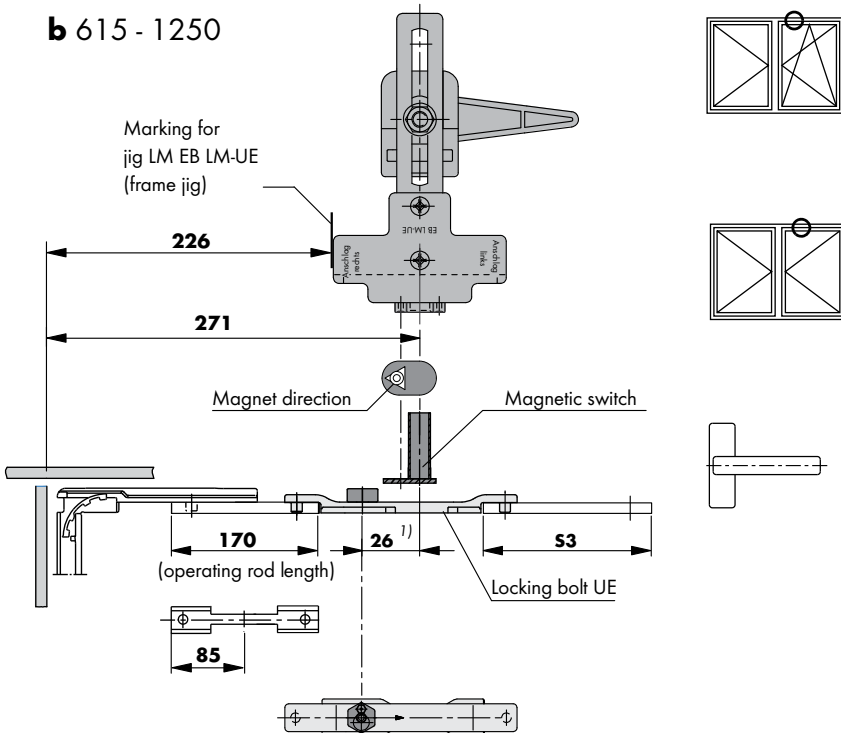


## LM 4200-D-E RC1+2 Hardware list

Item	Quantity	Description		Material no.		Material no.	
1a	0...1	Handle LM lockable/TBT		See handle overview LM Drawing no.: LMen1337 in aluminium planning manual			
1b	0...1	Window handle, lockable (□ 7 mm x 25, cam Ø 10 mm)		-			
2	1	Corner drive VSU/B50	1	859391	20	266076	
3-9	1	VS LM-D-D5	1	MMVS0350-100010	20	MMVS0350-100030	
10-12	0...1	Coupling set LM-E	Use handle LM lockable (1a)	1	MMKL0070-100010	20	MMKL0070-100030
13-17	0...1	Gear set M6 LM-E	Use window handle lockable (1b)	1	MMGI0060-100010	20	MMGI0060-100030
18-20	4...10	Locking part LM-E (A0004)	For number of locking parts see page 9	1	838365	20	231708
		Locking part LM-E (A0006)		1	838372	20	231722
		Locking part LM-E (A0022)		1	MMVR0010-600010	20	MMVR0010-600030
21-23	0...2	Locking part LM	b > 1,250	1	-	20	317556
24	1	Stay LM 4200					
		Size a (1-sash) (in mm)	Size a (1-2 sashes) in mm)				
		20      365 to 1,600	20      565 to 1,250	1	884805	20	273098
25-27	0...2	Locking part LM	a > 1,250	1	-	20	317556
28-29	0...1	Accessories LM 4200 130 kg	Sash weight 100 kg and up	1	-	20	247037
<b>Accessories</b>							
30	0...1	Handle support LM	Use handle LM lockable (1a) (for tables see 16)	-	-	200	See table

### LM 4200-E RC2 2-sash:

### Magnetic switch types UMS001, UMS002, UMS003



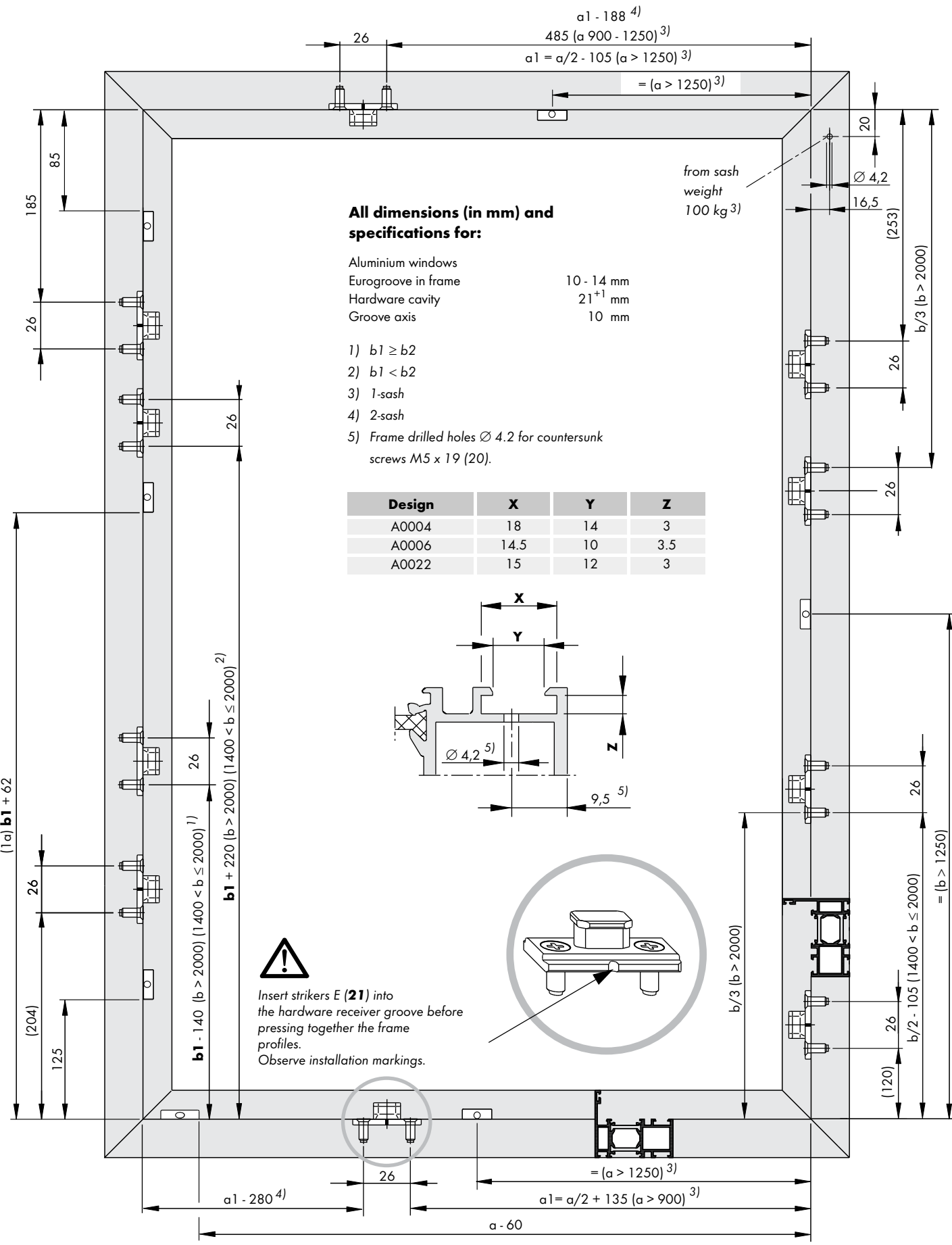
Stay	S3
size 20 a 615 - 785	a - 583
size 35 a 786 - 1,250	a - 751

Stay	S3
size 20 a 615 - 1,250	a - 583

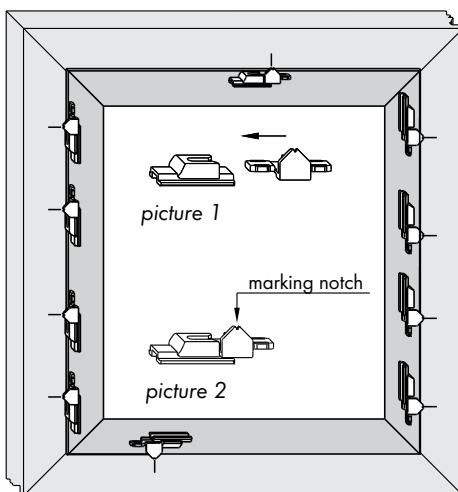
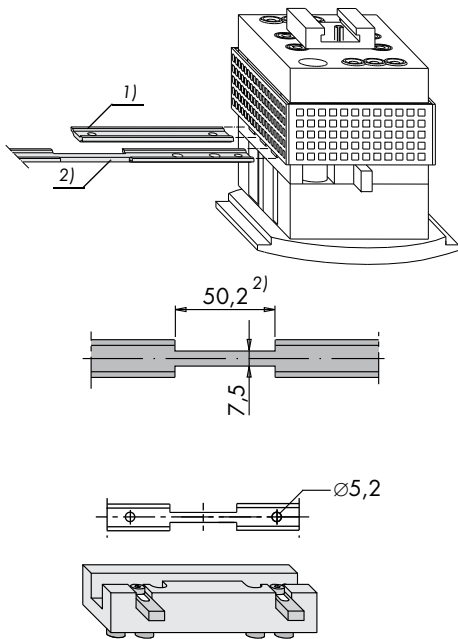
1) Magnetic switch drilled hole dimensions (handle position as shown in figure opposite)

For further information see AEROCONTROL LM,  
Document no.: H4003.2921 en\_LM  
in aluminium planning manual.

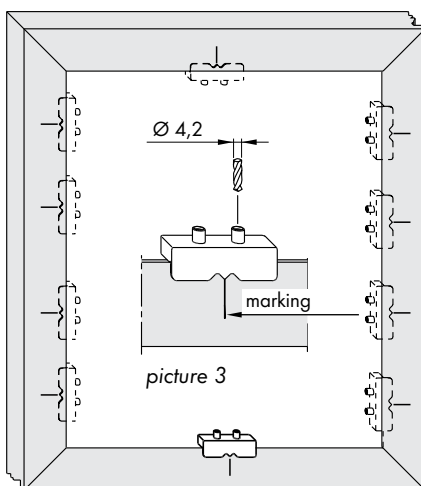
# LM 4200-D-E RC1+2 Frame dimensions



# LM 4200-E RC1+2 Jigs



Use of the jigs EL LM-E LM-E on the sash



Assembly of the jig EB LM-E on the frame

Description	Material no.
<b>Punching tool</b> 1) Operating rod punching and cropping 2) Press cutting LM-E  Suitable punching machine: BST 105 (15 mm travel)	<b>141267</b>
<b>Jig LM-E</b> for coupling bracket E (13) Ø5.2 for operating rod S1	<b>MAFB0020-000010</b>
<b>Jig Trial LM-ESG</b> (top fig.) For further information see LMen1361 page 4	<b>MMAH0010-000010</b>
<b>Jig LM-E</b> Jig EL LM-E for sash Contents: 12 pieces Jig EB LM-E for frame Contents: 1 piece	<b>863022</b> 156926 156919

## Installation on frame

- A** Insert jigs EL LM-E into locking parts E (**22/20**) (see Figure 1).
- B1** For DK-D-DS: move handle to turn position.
- B2** Close sash without changing handle position.
- B3** For TBT: close sash and move handle to tilt position.
- B4** Place markings for jig EB LM-E on frame (see Figure 2).
- C** Open sash.
- D** Remove jigs EL LM-E.

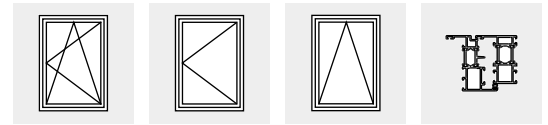
## Installation on frame

- A** Position jig EB LM-E and drill holes for strikers E (**21/19**) Ø 4.2 (see Figure 3).







# Handle summary

## Si-line LM / LM Globe



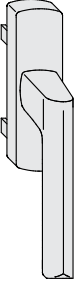
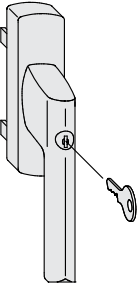
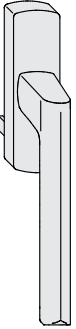
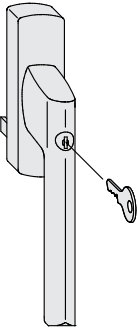


Subject to technical and colour changes



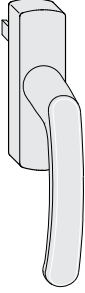
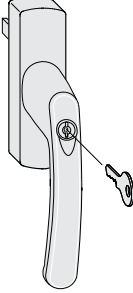
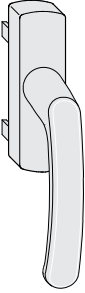
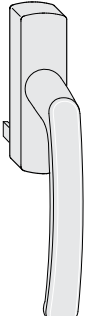
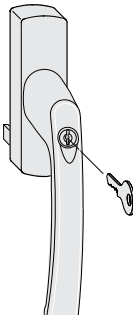
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View	Material brief description		Material No.		Material No.	
	<b>Handle Si-line LM</b>	<i>Si-silver</i>	<b>1</b>	<b>MHSS0010-525010</b>	<b>10</b>	<b>MHSS0010-525020</b>
		<i>EV1</i>	<b>1</b>	<b>865545</b>	<b>10</b>	<b>253137</b>
		<i>Si-brown</i>	<b>1</b>	<b>865521</b>	<b>10</b>	<b>253113</b>
		<i>white RAL 9010</i>	<b>1</b>	<b>865552</b>	<b>10</b>	<b>253144</b>
		<i>white RAL 9016</i>	<b>1</b>	<b>865507</b>	<b>10</b>	<b>253090</b>
		<i>black RAL 9005</i>	<b>1</b>	<b>865514</b>	<b>10</b>	<b>253106</b>
		<i>mill finish</i>	<b>1</b>	<b>875407</b>	<b>10</b>	<b>253083</b>
		<i>INOX-look</i>	<b>1</b>	<b>MHSS0010-800010</b>	<b>10</b>	<b>MHSS0010-800020</b>
	<b>Handle Si-line LM</b>	<i>Si-silver</i>	<b>1</b>	<b>MHSA0010-525010</b>	<b>10</b>	<b>MHSA0010-525020</b>
	<b>lockable/TBT</b>	<i>EV1</i>	<b>1</b>	<b>865484</b>	<b>10</b>	<b>253069</b>
	<i>(inc. reversible key)</i>	<i>Si-brown</i>	<b>1</b>	<b>865460</b>	<b>10</b>	<b>253045</b>
		<i>white RAL 9010</i>	<b>1</b>	<b>865491</b>	<b>10</b>	<b>253076</b>
		<i>white RAL 9016</i>	<b>1</b>	<b>865446</b>	<b>10</b>	<b>253021</b>
		<i>black RAL 9005</i>	<b>1</b>	<b>865453</b>	<b>10</b>	<b>253038</b>
		<i>mill finish</i>	<b>1</b>	<b>875414</b>	<b>10</b>	<b>253014</b>
		<i>INOX-look</i>	<b>1</b>	<b>MHSA0010-800010</b>	<b>10</b>	<b>MHSA0010-800020</b>
	<b>Rose Si-line LM</b>	<i>Si-silver</i>	<b>1</b>	<b>MHSR0010-525010</b>	<b>10</b>	<b>MHSR0010-525020</b>
		<i>EV1</i>	<b>1</b>	<b>869659</b>	<b>10</b>	<b>257234</b>
		<i>Si-brown</i>	<b>1</b>	<b>869697</b>	<b>10</b>	<b>257272</b>
		<i>white RAL 9010</i>	<b>1</b>	<b>869673</b>	<b>10</b>	<b>257258</b>
		<i>white RAL 9016</i>	<b>1</b>	<b>869666</b>	<b>10</b>	<b>257241</b>
		<i>black RAL 9005</i>	<b>1</b>	<b>869680</b>	<b>10</b>	<b>257265</b>
		<i>mill finish</i>	<b>1</b>	<b>869635</b>	<b>10</b>	<b>257210</b>
	<b>LM Rose socket wrench 7 mm</b>		<b>1</b>	<b>875544</b>	<b>-</b>	<b>-</b>
	<i>7 mm square</i>					



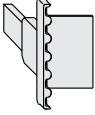
# Handle summary Si-line LM

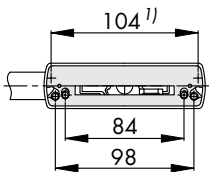
View	Material brief description		Material No.		Material No.	
	<b>Handle Si-line LM DG</b>	Si-silver	1	MHSS1000-525010	10	MHSS1000-525020
		Si-brown	1	869758	10	257333
		white RAL 9010	1	869734	10	257319
		white RAL 9016	1	869727	10	257302
		black RAL 9005	1	869741	10	257326
		mill finish	1	869703	10	257289
	<b>Handle Si-line LM DG</b>	Si-silver	1	MHSA1000-525010	10	MHSA1000-525020
	<b>lockable</b>	Si-brown	1	869819	10	257395
	<i>(inc. reversible key)</i>	white RAL 9010	1	869796	10	257371
		white RAL 9016	1	869789	10	257364
		black RAL 9005	1	869802	10	257388
		mill finish	1	869765	10	257340
	<b>Handle Si-line PSK LM</b>	Si-silver	1	MHSS2000-525010	10	MHSS2000-525020
		Si-brown	1	875476	10	262306
		white RAL 9010	1	875452	10	262283
		white RAL 9016	1	875445	10	262276
		black RAL 9005	1	875469	10	262290
		mill finish	1	875421	10	262252
	<b>Handle Si-line PSK LM</b>	Si-silver	1	MHSA2000-525010	10	MHSA2000-525020
	<b>lockable</b>	Si-brown	1	875537	10	262368
	<i>(inc. reversible key)</i>	white RAL 9010	1	875513	10	262344
		white RAL 9016	1	875506	10	262337
		black RAL 9005	1	875520	10	262351
		mill finish	1	875483	10	262313

## Handle summary LM Globe

View	Material brief description		Material No.		Material No.	
	<b>Handle LM Globe</b>	<i>Si-silver</i>	1	MHGS0010-525010	10	MHGS0010-525020
		EV1	1	MHGS0010-524010	10	MHGS0010-524020
		<i>Si-brown</i>	1	MHGS0010-533010	10	MHGS0010-533020
		<i>white RAL 9016</i>	1	MHGS0010-504010	10	MHGS0010-504020
		<i>black RAL 9005</i>	1	MHGS0010-523010	10	MHGS0010-523020
		<i>mill finish</i>	1	MHGS0010-500010	10	MHGS0010-500020
		<i>INOX-look</i>	1	MHGS0010-800010	10	MHGS0010-800020
	<b>Handle LM Globe</b>	<i>Si-silver</i>	1	MHGA0010-525010	10	MHGA0010-525020
	<b>lockable/TBT</b>	EV1	1	MHGA0010-524010	10	MHGA0010-524020
	<i>(inc. reversible key)</i>	<i>Si-brown</i>	1	MHGA0010-533010	10	MHGA0010-533020
		<i>white RAL 9016</i>	1	MHGA0010-504010	10	MHGA0010-504020
		<i>black RAL 9005</i>	1	MHGA0010-523010	10	MHGA0010-523020
		<i>INOX-look</i>	1	MHGA0010-800010	10	MHGA0010-800020
	<b>Handle LM Globe DG</b>	<i>Si-silver</i>	1	MHGS1000-525010	10	MHGS1000-525020
		<i>Si-brown</i>	1	MHGS1000-533010	10	MHGS1000-533020
		<i>white RAL 9016</i>	1	MHGS1000-504010	10	MHGS1000-504020
		<i>black RAL 9005</i>	1	MHGS1000-523010	10	MHGS1000-523020
		<i>mill finish</i>	1	MHGS1000-500010	10	MHGS1000-500020
	<b>Handle LM Globe PSK</b>	<i>Si-silver</i>	1	MHGS2000-525010	10	MHGS2000-525020
	<b>lockable/TBT</b>	<i>Si-brown</i>	1	MHGS2000-533010	10	MHGS2000-533020
		<i>white RAL 9016</i>	1	MHGS2000-504010	10	MHGS2000-504020
		<i>black RAL 9005</i>	1	MHGS2000-523010	10	MHGS2000-523020
		<i>mill finish</i>	1	MHGS2000-500010	10	MHGS2000-500020
	<b>Handle LM Globe PSK</b>	<i>Si-silver</i>	1	MHGA2000-525010	10	MHGA2000-525020
	<b>lockable/TBT</b>	<i>Si-brown</i>	1	MHGA2000-533010	10	MHGA2000-533020
	<i>(inc. reversible key)</i>	<i>white RAL 9016</i>	1	MHGA2000-504010	10	MHGA2000-504020
		<i>black RAL 9005</i>	1	MHGA2000-523010	10	MHGA2000-523020
		<i>mill finish</i>	1	MHGA2000-500010	10	MHGA2000-500020

## Technical instructions and functions

View	Material brief description		Material No..		Material No..
	<b>Catch 34</b> (for over-rebate height 13 - 23 mm)	1	<b>MHSM0010-100010</b>	-	-
	<b>Catch PSK</b> (for opposing closing directions) <i>(no illustration)</i>	1	<b>MHSM0030-100010</b>	-	-

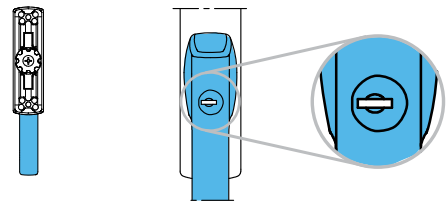


3 different drilling patterns are possible.

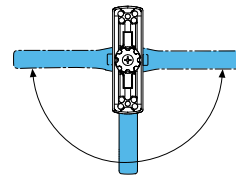
1) Dimension 104 does not apply for the lockable function, Handle Si-line PSK LM and Handle LM Globe PSK

When assembling the handle Si-line LM lockable/TBT and Handle LM Globe lockable/TBT, right hand or left hand, the following points are to be observed:

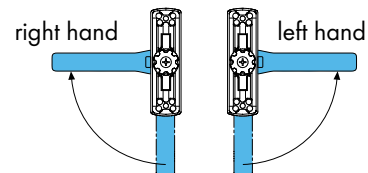
- Turn handle into locking position (see illustration)
- Turn lock cylinder with key into the position pictured (See illustration)



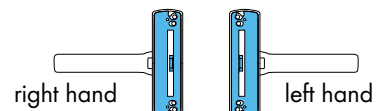
- Handle must be able to be turned 90° to both sides (see illustration)  
If the handle cannot be operated:
- Shift the key to the starting position
- Turn the rose through 180° and repeat the process



- Turn the handle 90° to the right or left (See illustration)



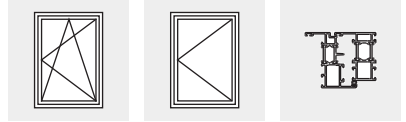
- Fit the catch and cover plate centrally (See illustration)



# ALU Accessories

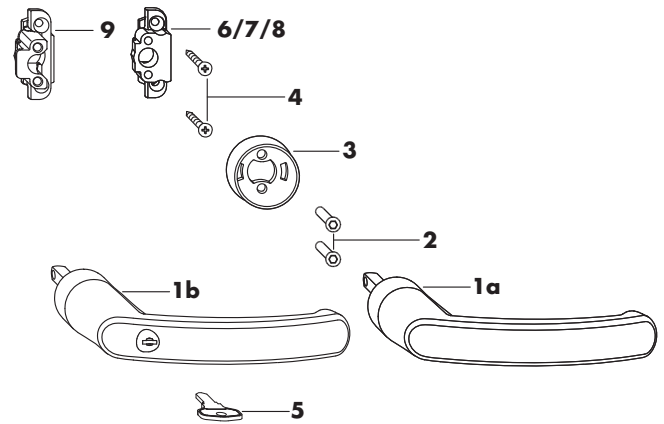
Handle Globe RR

Handle Globe RR lockable/TBT



**Always** check the planning manual on aluminium (H4006.3042EN) for further details and specifications/information regarding the product and liability (guidelines: VHBH, TDBK and VHBE).

All dimensions given are final dimensions after the surface of the sections has been treated (painted, powder coated etc.).



Item	Quantity (smallest packing unit)	Description		Material no.		Material no.	
	•	<b>Handle Globe RR</b>	<b>Silver</b>	1	MHGS0020-525010	10	MHGS0020-525020
			<b>White RAL 9016</b>	1	MHGS0020-504010	10	MHGS0020-504020
			<b>ESLG</b>	1	MHGS0020-800010	10	MHGS0020-800020
			<b>Mill finish</b>	1	MHGS0020-500010	10	MHGS0020-500020
	•	<b>Handle Globe RR ABS.</b>	<b>Silver</b>	1	MHGA0020-525010	10	MHGA0020-525020
			<b>White RAL 9016</b>	1	MHGA0020-504010	10	MHGA0020-504020
			<b>ESLG</b>	1	MHGA0020-800010	10	MHGA0020-800020
			<b>Mill finish</b>	1	MHGA0020-500010	10	MHGA0020-500020
1a	1	-	Handle RR				
1b	-	1	Handle RR lockable/TBT				
2	2	2	Cheese head screw				
3	1	1	Rose RR				
4	2	2	Countersunk tapping screw PH 3.9 x 13				
5	+	1	Key 2 W 145				

### Hardware depending on profile

	0...1	0...1	<b>Accessories Handle Globe RR USH-8 MM</b> (see page 2)	1	MZHG0010-100010	50	MZHG0010-100050
6	1	1	Adapter 8 mm				
	0...1	0...1	<b>Accessories Handle Globe RR USH-9 MM</b> (see page 2)	1	MZHG0020-100010	50	MZHG0020-100050
7	1	1	Adapter 9 mm				
	0...1	0...1	<b>Accessories Handle Globe RR USH10 MM</b> (see page 2)	1	MZHG0030-100010	50	MZHG0030-100050
8	1	1	Adapter 10 mm				
	0...1	0...1	<b>Accessories Handle Globe RR USH12 MM</b> (see page 2)	1	MZHG0040-100010	50	MZHG0040-100050
9	1	1	Adapter 12 mm				

### Essential Hardware

	0...1	0...1	<b>Gear set FBS M6 Trial/RR</b> (without illustration)	1	MMGI0080-100010	20	MMGI0080-100030
	0...1	0...1	<b>Gear set M6 Trial/RR</b> (without illustration)	1	MMGI0090-100010	20	MMGI0090-100030
<b>Jig</b>	-	-	<b>Disassembly device Handle RR</b> (see page 3)	1	MAEW0040-000010	10	MAEW0040-000020

### Contents

Layout of fittings, part list.....	Page 1
Sash and frame details.....	Page 2
Installation procedure.....	Page 3
Information on TBT function.....	Page 4

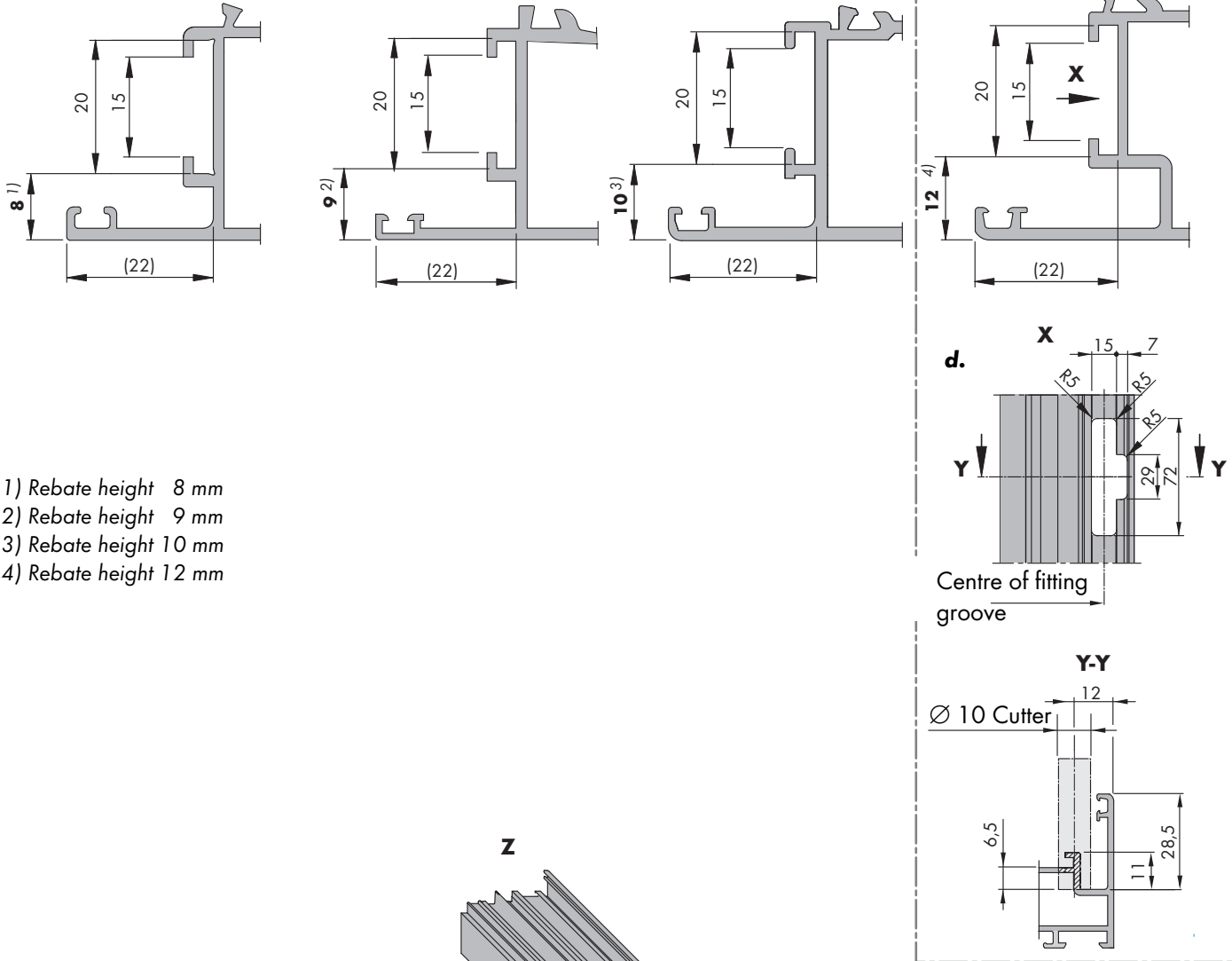
Technical specifications and colours are subject to change

H48.ZUBHLS006en/1

**Assembly instructions**  
H48.ZUBHLS006en

# Handle Globe RR / Handle Globe RR lockable /TBT – Sash and frame details

Section suggestion for rebate heights 8, 9, 10 and 12 mm.



- 1) Rebate height 8 mm
- 2) Rebate height 9 mm
- 3) Rebate height 10 mm
- 4) Rebate height 12 mm

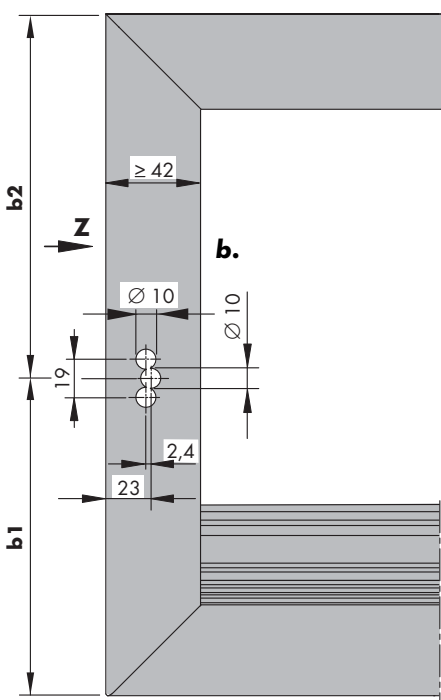


Figure 1

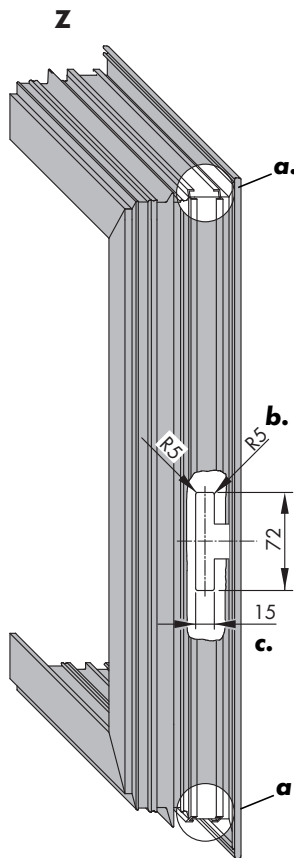


Figure 2

## Sash preparation

- a.** Open operating rod guiding groove (Figure 2).
- b.** Perform section processing for handle Globe RR (Figures 1+2).
- c.** Processing for rebate heights 8 mm, 9 mm and 10 mm (Figure 2).
- d.** Processing for rebate height 12 mm (see view X).
- e.** Processing of operating rods S1 and S2 (see assembly instructions on page 1).

**Note:** A sash width of  $\geq 42$  mm is required to install the Globe RR handle and the RR Globe lockable handle.

# Handle Globe RR / Handle Globe RR lockable – Installation procedure

## Installation

**a.** Position adapter (**6/7**) on ESG LM M6/ESG LM FBS M6 (Figure 1).

**b.** Secure adapter (**6/7**) to ESG LM M6/ESG LM FBS M6 using countersunk tapping screws B3.9 x 13 (PZ 2, torque 2.5 Nm ± 0.25 Nm) (Figure 1).

**c.** Insert ESG LM M6/ESG LM FBS M6 into processed section 72 x 15 (Figure 2).

**d.** Insert operating rod S1 on the VSU and operating rod S2 on the VSO into the guiding canal (Figure 3).

**e.** Screw ESG LM M6/ESG LM FBS M6 in the operating rod punch hole  $\varnothing 5.2$  using coupling screw M6 (PZ 2, torque 2.75 Nm ± 0.25 Nm) (Figure 2).

**f.** Position rose (**3**) on the notch in the sash section as shown and tighten using cheese head screw M5 x 19 (**2**) (key dimension 2.5), torque 2.5 ± 0.25 Nm) (Figure 4).

**g.** Place handle RR/handle RR lockable (**1**) on the rose as shown. Ensure that the square spindle locks into place when inserted (Figure 5).

**h.** Check that handle RR/handle RR lockable (**1**) is secure (Figure 6).

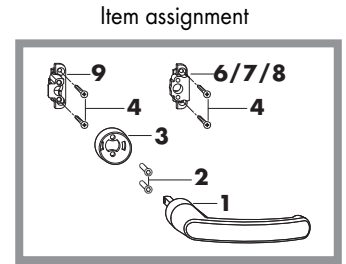
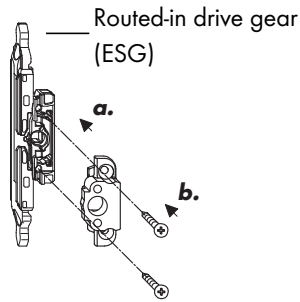


Figure 1

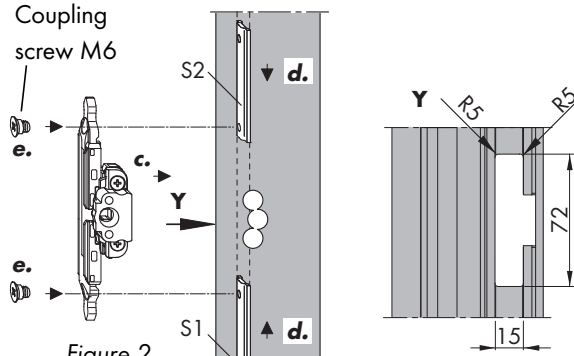


Figure 2

Figure 3

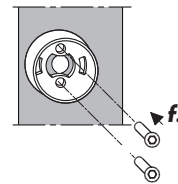


Figure 4

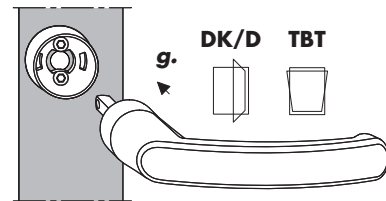


Figure 5

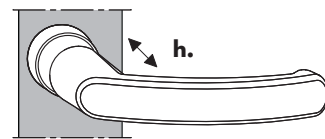


Figure 6

## Disassembly

**i.** Insert the disassembly pin into the designated opening in ESG LM M6/ ESG LM FBS M6 as shown (Figure 7).

**j.** Remove handle RR/handle RR lockable (**1**) as shown (Figure 7).

**k.** Remove disassembly pin (Figure 7).

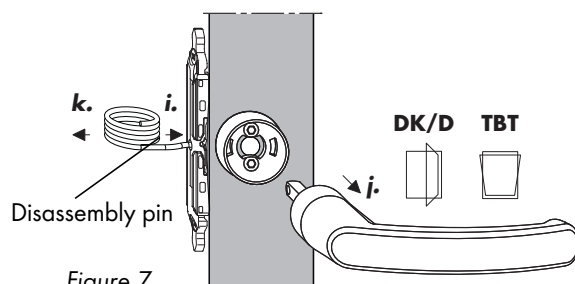
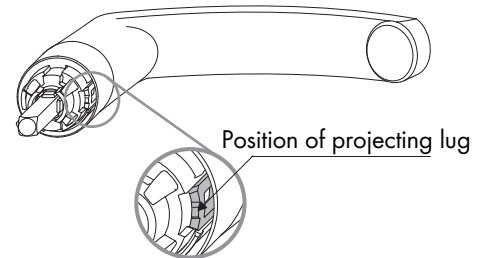


Figure 7

# Handle Globe RR lockable/TBT - Information on TBT function

## Condition of despatch:

Usage: -DK/-D right  
-DK/-D left  
-TBT right

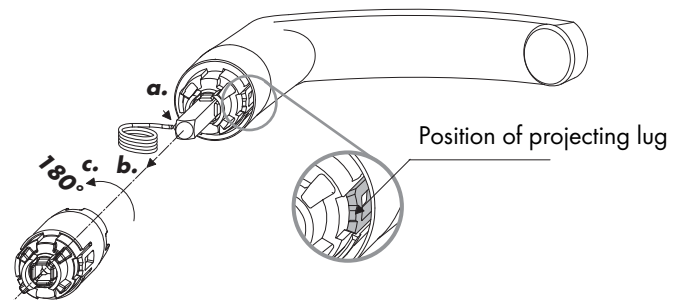


## Modification to:

Usage: -TBT left

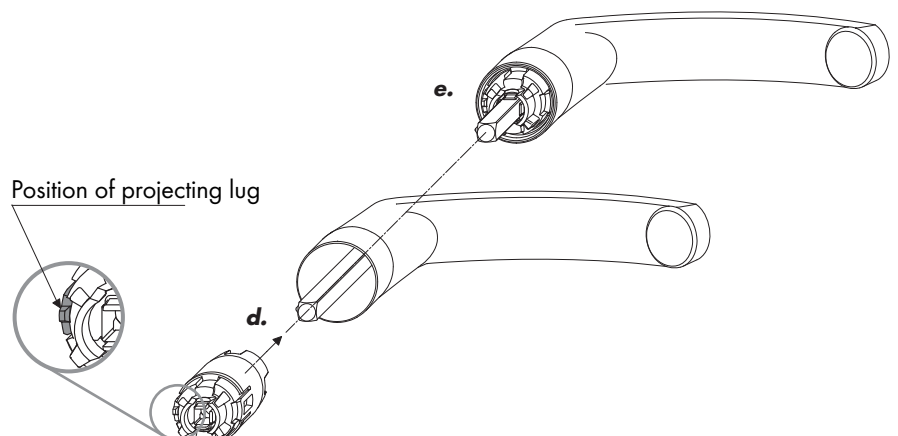
### Disassembly

- a. Insert the spring ball into the square spindle using the disassembly tool as shown in the figure opposite.
- b. Pull cylindrical insert off over the square spindle.
- c. Rotate cylinder by 180°.
- d. Position of projecting lug.



### Installation

- e. Slide the cylinder onto the square spindle as shown in the figure opposite.
- f. Handle RR lockable./TBT can now be used for TBT left application.

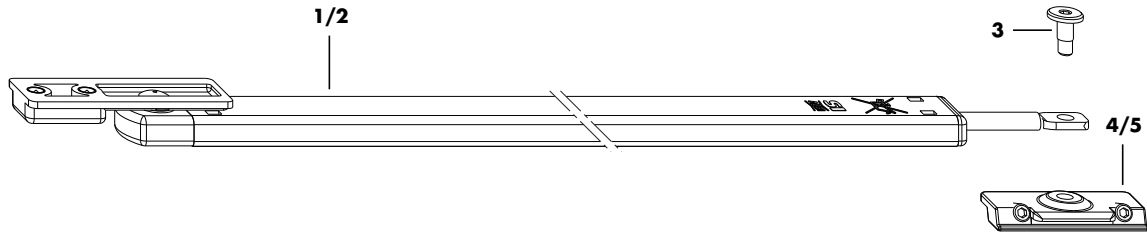
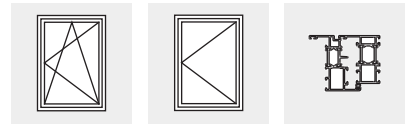






# ALU accessories

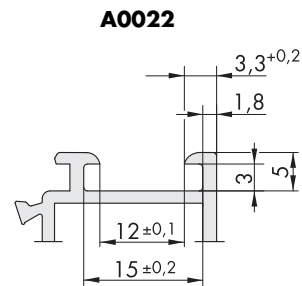
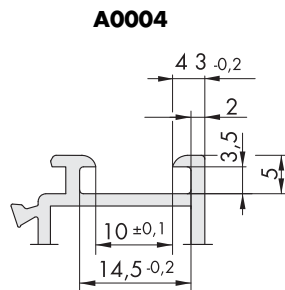
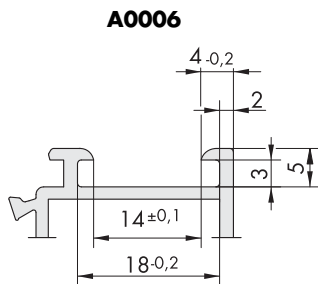
Size 1 limiter with cushioning

Size 2 limiter with cushioning



No.	Pc.	Description		Material no.		Material no.
	1	<b>Size 1 limiter with cushioning A 0006</b>	1	<b>MSBR0050-100010</b>	10	<b>MSBR0050-100020</b>
1	1	Size 1 cushioning				
3	1	Locking screw M4				
4	1	Top hinge block A0006				
	1	<b>Size 1 limiter with cushioning A 0004/A0022</b>	1	<b>MSBR0060-100010</b>	10	<b>MSBR0060-100020</b>
1	1	Size 1 cushioning				
3	1	Locking screw M4				
5	1	Top hinge block A0004/A0022				
	1	<b>Size 2 limiter with cushioning A 0006</b>	1	<b>MSBR0070-100010</b>	10	<b>MSBR0070-100020</b>
2	1	Size 2 cushioning				
3	1	Locking screw M4				
4	1	Top hinge block A0006				
	1	<b>Size 2 limiter with cushioning A 0004/A0022</b>	1	<b>MSBR0080-100010</b>	10	<b>MSBR0080-100020</b>
2	1	Size 2 cushioning				
3	1	Locking screw M4				
5	1	Top hinge block A0004/A0022				

Technical specifications and colours are subject to change



## Scope of application (dependent on hardware)

(only use limiter with cushioning in connection with a surface-mounted hinge side)

			Windows/French doors		Sash weight
			min.	max.	max.
Sash width	(mm)	Size 1 limiter with cushioning	470	1000	100 kg
Sash width	(mm)	Size 2 limiter with cushioning	1001	1600	150 kg

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Scope of application .....	Page 1	Assembly instructions .....	Page 3
Important notes .....	Page 2	Warnings .....	Page 4

**Assembly instructions**  
H48.ZUBHLS015en

H48.ZUBHLS015en/0

### **Basic safety notes**

#### **Intended use**

The hardware described in this document is intended to be installed in an aluminium window frame by a certified window construction specialist in accordance with these instructions.

The windows must only be installed vertically.

The certified window construction specialist must ensure that the hardware is suitable for the application based on the specifications in these instructions and in the other documents specified.

#### **Excessive strain**

Bearing components can break if they are exposed to excessive strain. If this happens, the window sash may fall out, leading to serious injuries.

If the hinge parts may be subject to excessive strain under certain conditions (use in schools, nursery schools, etc.), appropriate measures must be taken to prevent this from happening,

such as using turning locks or tilt-before-turn opening types (TBT).

- If in any doubt, please contact your SIEGENIA sales consultant.

#### **Do not mix hardware components**

The hardware components are designed to work with one another. If they are mixed with hardware components from other systems or manufacturers on a window, it is not possible to guarantee that they will operate safely. Hardware components can break and cause accidents.

- Only use the hardware components listed in these instructions together on a window.

#### **Only treat window surfaces prior to assembly of hardware**

- Any surface treatment applied to the window surfaces after the assembly of the hardware components may limit their functionality.

#### **Avoid damage caused by corrosion and debris**

Corrosive materials, dirt and moisture may damage hardware components and cause hazards.

- Do **not** use acetic or acid-releasing sealants.
- Do **not** use the hardware components in environments where the air contains aggressive or corrosive components.
- Keep all rebates free of debris and dirt, especially cement and plaster residue.
- Keep the hardware dry.

#### **Clean hardware gently**

- Only clean the hardware with a soft cloth and mild, diluted pH-neutral cleaning agents.
- The hardware must not be exposed to abrasive cleaners or aggressive, acidic cleaning agents.
- Dry the hardware after cleaning.

#### **Pass on information to the user of the window**

- Attach the user information sticker to the installed window or door element so that it is easily visible. Provide the user with the following documents:
  - Maintenance and cleaning instructions
  - Operating instructions

#### **Exclusion of liability**

- We assume no liability for malfunctions and damage to the hardware, or to the windows and French doors equipped with the hardware, where such malfunctions and damage are the result of insufficient tendering information, failure to follow these installation instructions or forceful impact (e.g. due to improper use and handling).

## Assembly instructions

**Sash**

- 1 Insert size 1/2 cushioning (1/2) below into the sash groove horizontally and position according to measurements (see Fig. 1).
- 2 Secure grub screws (see Fig. 2) (torque  $3 + 0.5$  Nm).

**Frame**

- 3 Insert top hinge block (4/5) into the frame groove and position according to measurements (see Fig. 1) and clamp using grub screws without any ends protruding (see Fig. 3) (torque  $1.5 \pm 0.25$  Nm).

**Note:** Screw in the grub screws so there are no protruding ends (see figures on page 4).

**Final assembly**

- 4 Secure connecting rod on cushioning (1/2) on to top hinge block (4/5) using locking screw M4 (3) (see Fig. 4) (torque  $2.5 + 0.25$  Nm).

Observe the positioning steps 1 - 4!

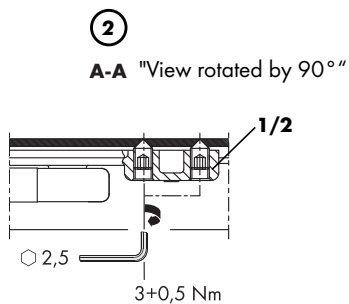
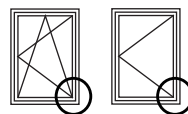


Fig. 2

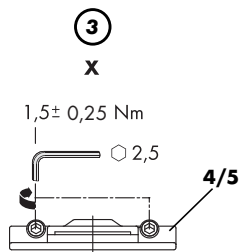


Fig. 3

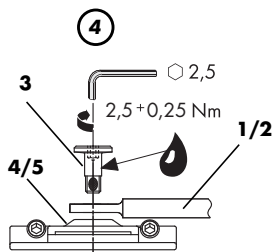


Fig. 4

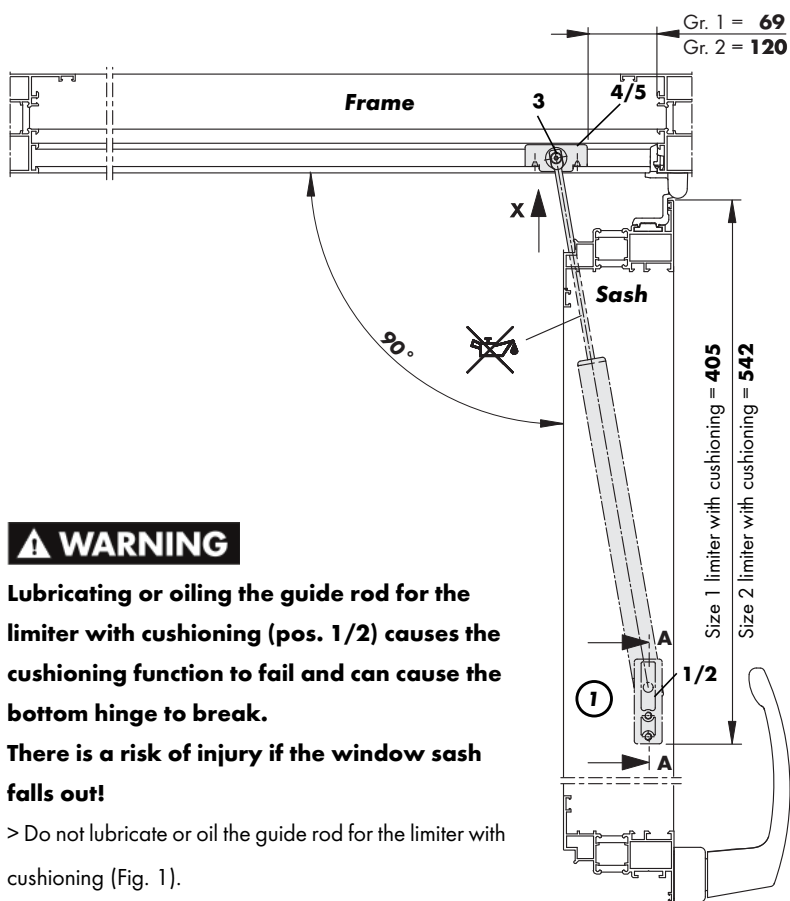


Fig. 1

### ⚠ WARNING

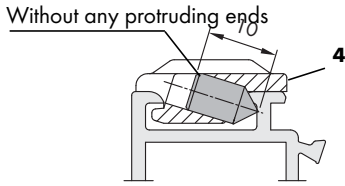
Lubricating or oiling the guide rod for the limiter with cushioning (pos. 1/2) causes the cushioning function to fail and can cause the bottom hinge to break.

**There is a risk of injury if the window sash falls out!**

> Do not lubricate or oil the guide rod for the limiter with cushioning (Fig. 1).

### Screwing the grub screws into the top hinge block (4/5)

A0006



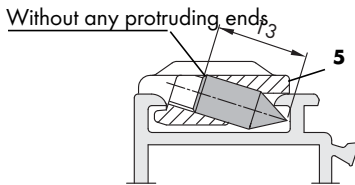
**⚠ WARNING**

**Damage to the connecting rod prevents the limiter with cushioning from functioning correctly.**

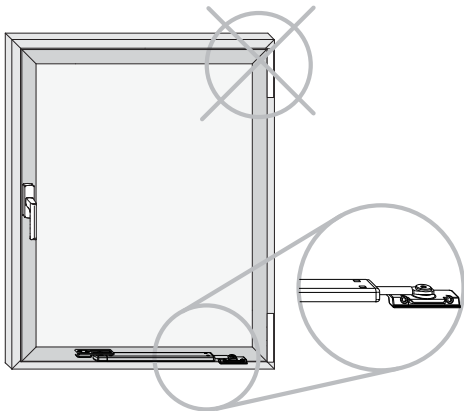
**There is a risk of injury if the window sash falls out!**

- > Screw grub screws into the top hinge block (4/5) without any ends protruding, as shown in the figure opposite (torque 1.5 + 0.25 Nm).

A0004/A0022



### Installation of the limiter with cushioning at the bottom of the hinge side (BSU)



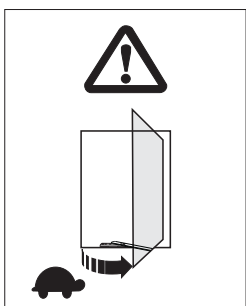
**⚠ WARNING**

**Installation at the top of the hinge side will cause the hinge side to break.**

**There is a risk of injury if the window sash falls out!**

- > Only install the limiter with cushioning at the bottom of the hinge side, as shown in the figure opposite.

### Opening the window sash



**⚠ WARNING**

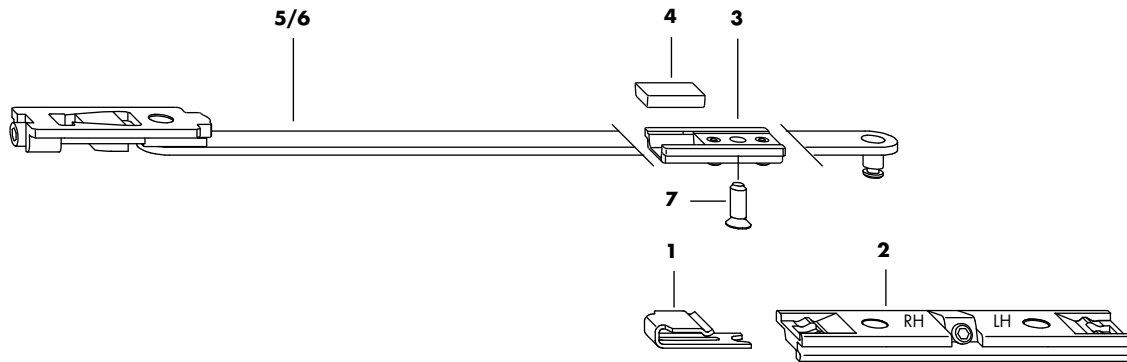
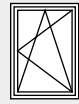
**Risk of injury and damage to property (hinge breakage) due to the sash falling out when opened incorrectly.**

- > Slowly move the sash into its end position by hand.
- > Never let sashes swing open uncontrollably.

# ALU accessories

Brake stay with cushioning - short

Brake stay with cushioning - long



No.	Pc.	Material description		Material no.		Material no.
<b>Brake stay ALU - short</b>						
1	1	Brake stay ALU - short	1	MSBR0100-100010	50	MSBR0100-100050
1	1	Spring				
2	1	Top hinge block				
3	1	Stop				
4	1	Filling piece for end position cushioning				
5	1	Brake stay ALU - short				
<b>Brake stay ALU - long</b>						
1	1	Brake stay ALU - long	1	MSBR0120-100010	50	MSBR0120-100050
1	1	Spring				
2	1	Top hinge block				
3	1	Stop				
4	1	Filling piece for end position cushioning				
6	1	Brake stay ALU - long				
7	1	<b>Countersunk screw M5 x 19</b> Use for sash groove with recess (see Fig. 1)	1	800867	40	257562

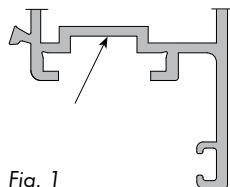


Fig. 1

**Size range** (depends on hardware)

		Windows/Patio doors	
		min.	max.
Sash width (mm)	Brake stay ALU short	450 to 1000	
Sash width (mm)	Brake stay ALU long	1001 to 1600	

**Note:** For hardware ranges ALU 5200, ALU 4200, ALU 2200, ALU DK/TBT200, ALU D300

## Table of contents

Size range.....	Page 1	Assembly instructions (I).....	Page 3
Important notes.....	Page 2	Assembly instructions (II) .....	Page 4

Technical specifications and colours are subject to change

H48.ZUBHLS017en/0

**Assembly instructions**  
H48.ZUBHLS017en

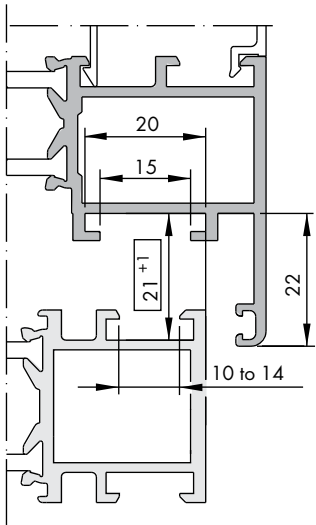
## Brake stay with cushioning - - Important information

### Important information

- Please observe our product information "Tilt & turn hardware for windows and patio doors".
- The information about the size range on page 1 is binding for the hardware described in these assembly instructions. Please also note the information in the assembly instructions below.
- The hardware components specified in these assembly instructions are made from rust-resistant material. They must not be used in environments where the air contains aggressive or corrosive components.
- Install all hardware components properly following the assembly instructions on pages 3 and 4.
- Window and door elements may only be surface treated **before** installing the hardware components. Treating these surfaces at a later stage can reduce the functional capacity of the hardware components.  
In such cases we are not obliged to honour any warranty.
- When inserting blocks, be sure to observe technical guideline no. 3 published by the German Glazing Trade [Glaserhandwerk], "Blocking glazing units" [Klotzung von Verglasungseinheiten].
- Never use acetic or acid cure sealants as they can cause the hardware components to corrode.
- Keep all rebates free from deposits and dirt.

### Exclusion of liability

We assume no liability for loss of function and damage to the hardware (as well as the windows and patio doors that are equipped with them) resulting from inadequate tendering, failure to follow these installation instructions or from force being applied to the hardware (e.g. through improper use).



For details of accessories for SIEGENIA ALU hardware, please refer to the information on the LM euro-groove for aluminium profiles for windows and patio doors.

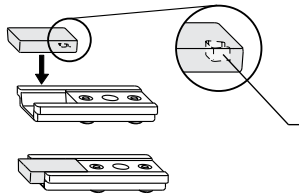
The system manufacturer's specifications should also be complied with.

LM euro-groove

# Brake stay with cushioning - Assembly instructions (I)

## Assembly instructions (example shows DIN right)

- Sash**
- A** Press the filling piece for end position cushioning (4) into the stop (3) (see Fig. 2).
  - B** Insert stop (3) at the VSU into the sash groove horizontally, position according to measurements (see table and Fig. 4) and secure with a punching screw. Pre-drill for sash groove with recess  $\varnothing 4.2$  and secure stop (3) with countersunk screw M5 x 19 (7) (PZ2) (torque 2.5 Nm). Stop (3) to be packed and aligned on site.
  - C** Slide guide piece of brake stay ALU short/long (5/6) horizontally into the sash groove at the VSU (Fig. 4).



Note: The groove in the filling piece for end position cushioning (4) must be pressed down into the stop (3) as shown in the figure opposite.

Fig. 2

- Frame**
- A** Clip spring (1) into pre-assembly position (DIN right/left) onto top hinge block (2) (Fig. 3).
  - B** Insert top hinge block (2) into frame groove, position according to measurement X (see table and Fig. 4) and clamp tight with a grub screw (torque  $2.5 \pm 0.25$  Nm).

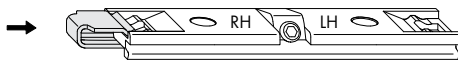
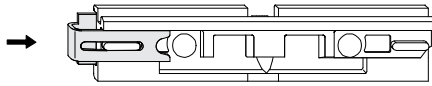


Fig. 3

Opening angle	90°	
	Measurements in mm	
	X	Y
Brake stay ALU short sash width 450 - 1000	60	104
Brake stay ALU long sash width 1001 - 1600	124	216

### Assembly of the brake stay ALU on the hinge side at the bottom (BSU)

#### ⚠ WARNING

#### Risk of injury if the window sash falls out!

-The sash limiter ALU can only be assembled on the hinge side at the bottom.

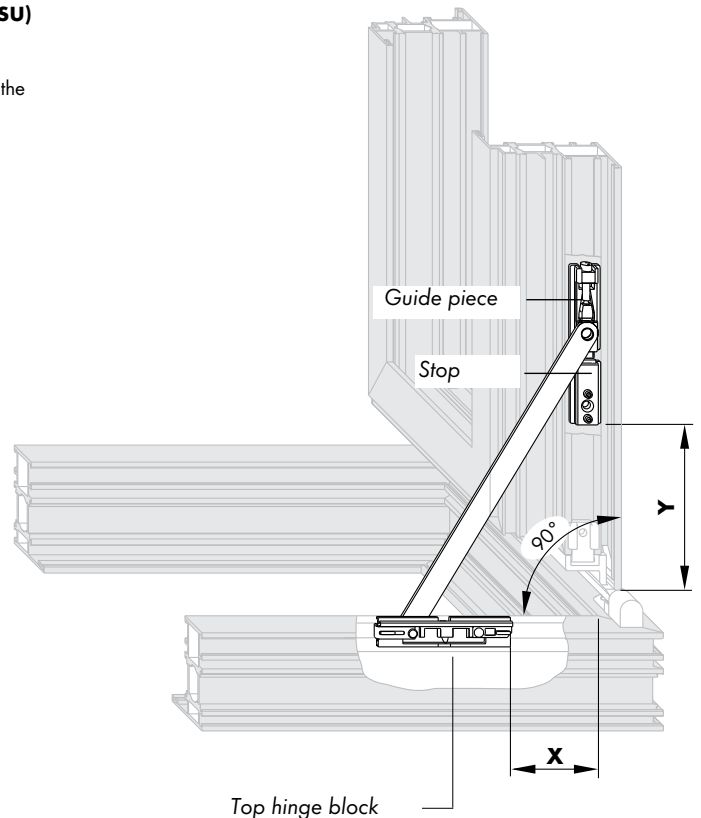
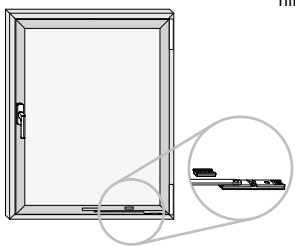
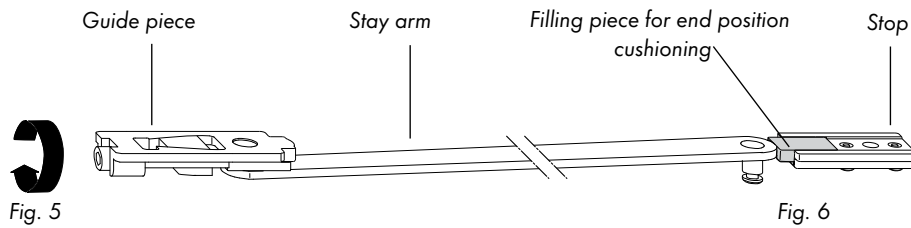


Fig. 4

## Brake stay with cushioning - Assembly instructions (II)

### Transit support

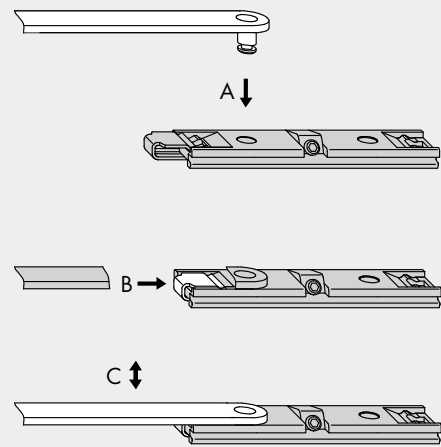
- Sash**
- A** Slide the stay arm of the brake stay ALU short/long (5/6) on to the inserted filling piece for end position cushioning (4) as far as the stop (3) (Fig. 6).
  - B** Tighten the cheese head screw on the guide piece so that it does not move (Fig. 5).



### Final assembly (example shows DIN right)

#### Hanging the sash limiter (Fig. 7)

- A** Insert stop bolt for brake stay ALU short/long (5/6) into the designated drill hole (DIN right/left) in the top hinge block (2).
- B** Snap the spring (1) into its end position in the top hinge block (2).
- C** Make sure that the stop bolt of the sash limiter ALU short/long (5/6) is secured.



### Calibration

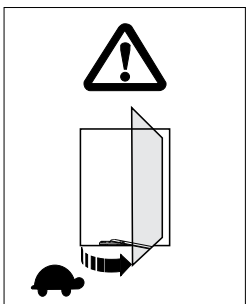
**Adjust the cheese head screw on the guide piece, so that the sash has a noticeable turn resistance.**

#### Braking-effect

Adjust by screwing in or unscrewing the cheese head screw on the guide piece (Fig. 5).

**Tool:** Hexagon screwdriver  $\square$  4 mm.

### Turning window sashes into end position



#### **⚠ WARNING**

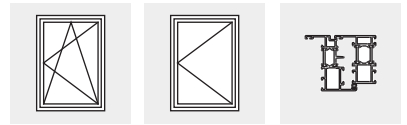
**Risk of injury and damage (bearing failure) due to sash falling out if opened incorrectly.**

- Avoid hitting the frame or other sash when opening one sash.
- Slowly move the sash into its end position by hand.
- Never let sashes swing open uncontrollably.

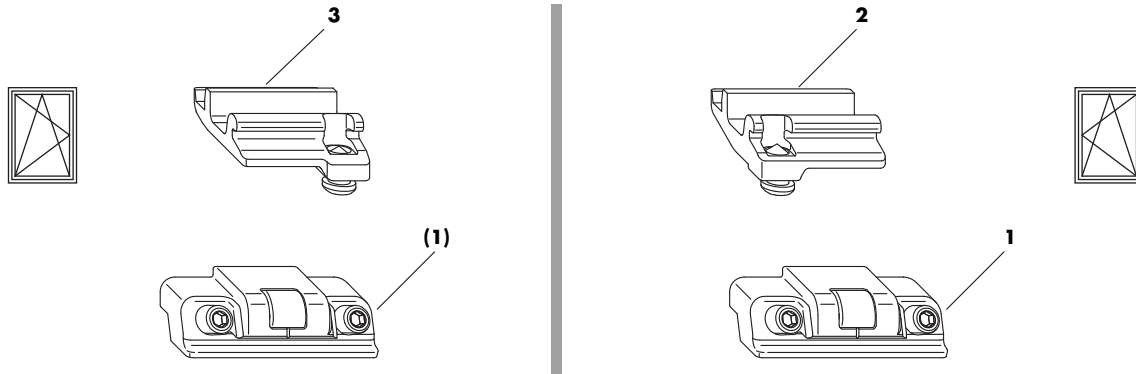




# ALU accessory

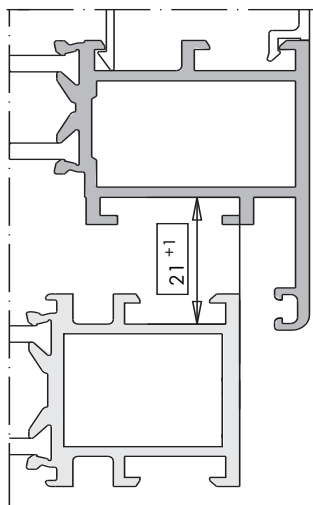
ALU sash lift



**Always** check the planning manual on aluminium (H4006.3042DE) for further details and specifications/information regarding the product and liability (guidelines: VHBH, TBDK and VHBE).



Item	Pcs.	Description		Material no.		Material no.
<b>1</b>	1	<b>LM sash lift</b> Sash lift with roller	1	MMFH0010-100010	20	MMFH0010-100030
<b>2</b>	1	RH LM sash lift run-up block				
<b>3</b>	1	LH LM sash lift run-up block				



For details of accessories for Siegenia ALU hardware, please refer to the information on the LM eurogroove for aluminium profiles for windows and french windows.

The system manufacturer's specifications should also be observed.

LM eurogroove

**Assembly instructions**  
H48.ZubhLS014en

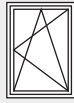
Technical specifications and colours are subject to change

H48.ZubhLS014en\_0\_2013-03

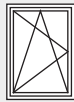
# LM sash lift assembly instructions

## Preparation steps:

View from below: RH sash lift run-up block (2)



View from below: LH sash lift run-up block (3)



## Vertical tilt point

### Sash without cen. lock

Position RH/LH sash lift run-up block (2/3) in the sash groove as shown and fix with grub screw (torque 1.5 - 0.25 Nm, 2.5 mm AF) (Figs. 2 and 3).

### with cen. lock

Position RH/LH sash lift run-up block (2/3) on the bottom locking side corner drive as shown and fix with grub screw (torque 1.5 - 0.25 Nm, 2.5 mm AF) (Figs. 1 and 3).

### Frame

Position sash lift (1) on bottom locking side as shown (Fig. 6) and fix with grub screws (torque 1.5 ± 0.25 Nm, 2.5 mm AF).

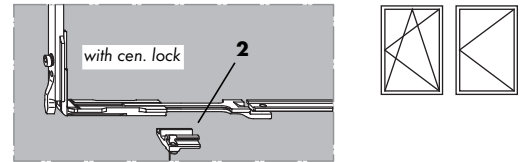


Fig. 1

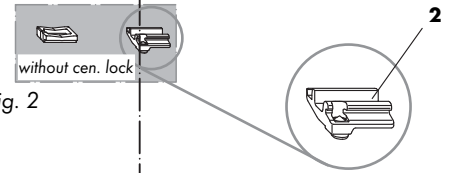


Fig. 2

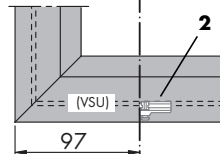


Fig. 3

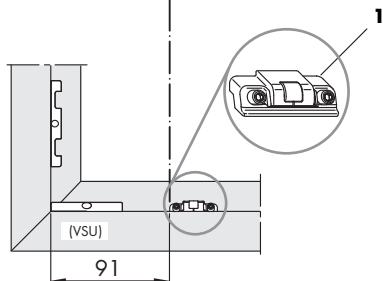


Fig. 4

## Horizontal tilt point

### Sash

Position RH/LH sash lift run-up block (2/3) on the tilt lock as shown and fix with grub screw (torque 1.5 - 0.25 Nm, 2.5 mm AF) (Figs. 5 and 6).

### Frame

Position sash lift (1) on bottom locking side as shown (Fig. 7) and fix with grub screws (torque 1.5 ± 0.25 Nm, 2.5 mm AF).

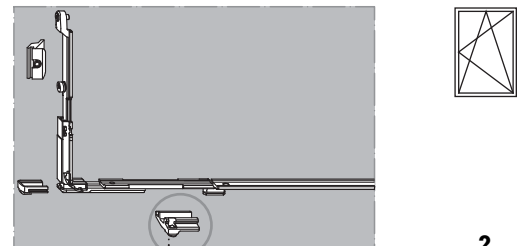


Fig. 5

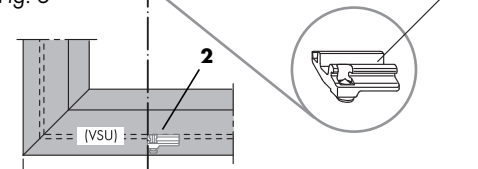


Fig. 6

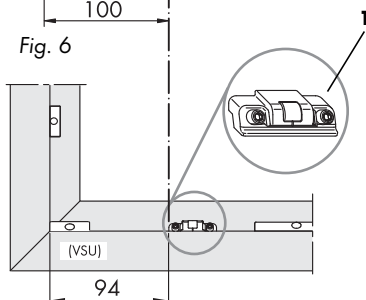
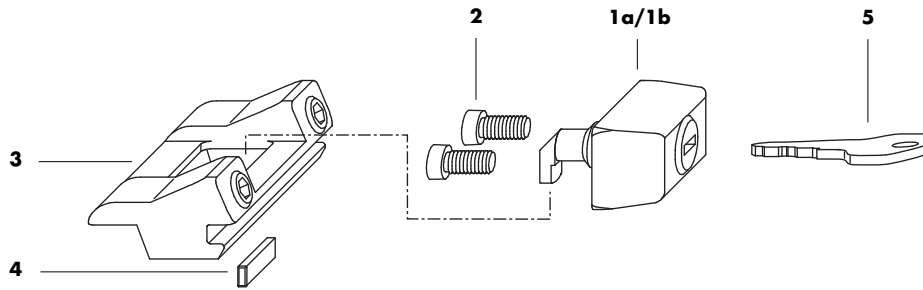




Fig. 7

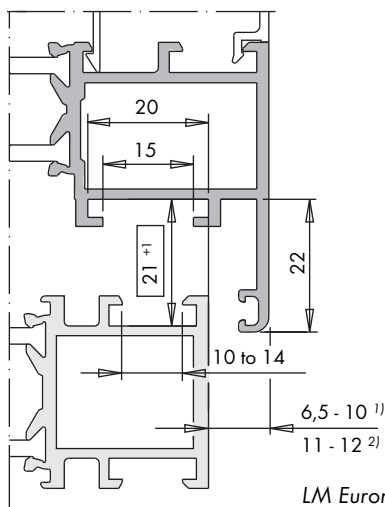
# Accessories ALU

## Turning Lock ALU



Pos.	Qty.	Description		Material no.		Material no.	
•		turning Lock LM <sup>1)</sup>	silver	1	MMD50010-525010	50	MMD50010-525050
			brown	1	882344	50	270585
			white RAL 9016	1	882320	50	270554
			black	1	882337	50	270578
•		turning Lock LM USH 12MM <sup>2)</sup>	silver	1	MMD50040-525010	50	MMD50040-525050
			brown	1	MMD50040-533010	50	MMD50040-533050
			white RAL 9016	1	MMD50040-504010	50	MMD50040-504050
1a	1	-	turning Lock LM				
1b	-	1	turning Lock LM USH 12MM				
2	2	2	set screw M5 x 12				
3	1	1	lock				
4	1	-	packer <sup>3)</sup>				
5	1	1	key 2W 145				

- 1) for profile upstands 6,5 to 10 mm deep  
 2) for profile upstands 11 to 12 mm deep  
 3) for profile upstands 6,5 to 7,5 mm deep



This dimensional specification of the eurogroove for aluminium windows and doors is valid for the accessories to the SIEGENIA fittings.

In addition the system manufacturers specifications must be observed.

**Installation Instructions**  
 H48.ZUBHLS002en

Technical specifications and colours are subject to change

H48.ZUBHLS002en/1

## Assembly Instructions

- Preparation** Pre drill the holes in the sash for the Turning Lock LM (1) (Figures 1 and 2) .
- Sash** Position the Turning Lock LM (1) in the corresponding holes  $\varnothing 12,5$  (Figure 1) and secure with the set screws (2) (Torque  $2,5 \pm 0,25$  Nm).
- Frame**
- A** Fix the lock (3) in the frame once aligned with the turning lock (1) by tightening the grub screws.
  - B** For profiles with an upstand from 6,5 to 7,5 mm insert the packer (4) in the groove on the underside of the lock (3).

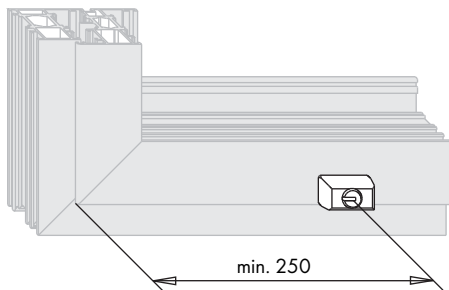


Figure 1

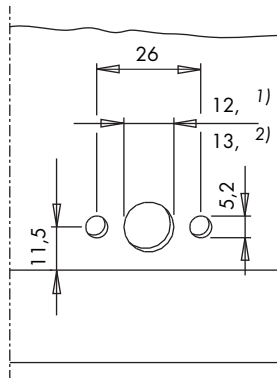


Figure 2 (Holes for turning lock LM)

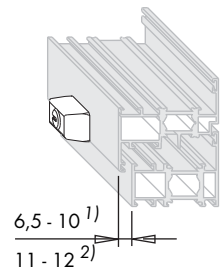


Figure 3

## Important Notes

- Please take note of our Product information for windows and doors.
- The specifications for size range given in installation instructions are also valid for the components described in this document.
- The fittings described in this instruction are made of non corroding materials. They must not be installed for use in aggressive corrosion promoting air conditions.
- Do not use SIEGENIA-fittings with other parts; otherwise difficulties can arise for which we cannot be held responsible.
- Assemble the components as described in this installation leaflet.
- The surfaces of windows and doors should be treated (eg painted) prior to the assembly of the fittings.
- Post-treatment of the surfaces can be detrimental to the function of the fittings and in this instance we are released from the obligations of our guarantee .

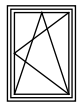
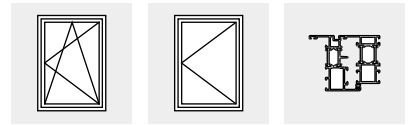
## Liability Exclusion

We accept no liability in respect of any damages or malfunctions caused by or to the hardware or the windows fitted with them, as a result of incorrect and inappropriate specifications or other information provided by the customer, failure to follow these instructions, wilful damage or negligence or misuse or alteration or repair of or an exertion of excessive force to the hardware by the user or customer.

# Accessories ALU

Snapper ALU

Snapper ALU - DS



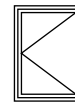
1



2



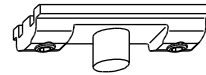
3





4

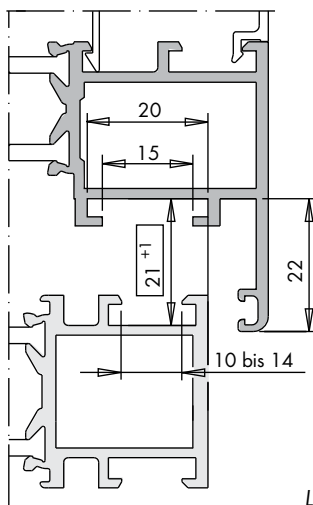


5



Pos.	Qty.	Description		Material no.		Material no.
	<b>1</b>	<b>Snapper LM</b> (G1 min. 420)	<b>1</b>	<b>817957</b>	<b>50</b>	<b>219744</b>
<b>1</b>	1	snapper LM				
<b>2</b>	1	countersunk screw B4,2 x 22				
<b>3</b>	1	sleeve				
	<b>1</b>	<b>Snapper LM - DS</b>	<b>1</b>	<b>817940</b>	<b>50</b>	<b>219737</b>
<b>4</b>	1	snapper LM				
<b>5</b>	1	run up block				

Technical specifications and colours are subject to change



LM euro-groove

For accessories to Siegenia ALU Fittings the information about LM euro-groove on aluminium profiles for windows and window-doors applies.

In addition, information from the system producers must be observed.

**Installation Instruction**  
H48.ZUBHLS010en

H48.ZUBHLS010en/0

## Assembly instructions

### Snapper ALU

Preparation

Machine recess for operating rod S1 as specified (fig. 1).

Sash

Attach the sleeve (3) to the sash using the countersunk tapping screw (2) (fig. 2) (torque  $1.5 \pm 0.25$  Nm, B4).

Frame

Locate LM snapper (1) as shown (fig. 3) and clamp it using the grub screw (torque  $1.5 \pm 0.25$  Nm, SW 2.5).

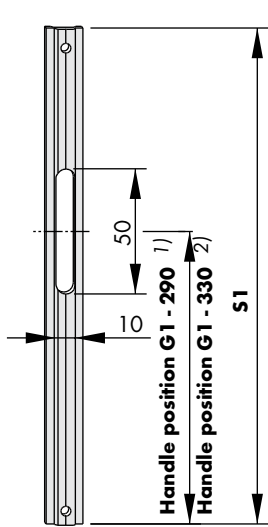
### Snapper ALU-DS

Sash

Insert run-up block (5) horizontally on VSU, position in center and tighten with grub-screws (torque  $1,5 \pm 0,25$  Nm).

Frame

Position snapper ALU-DS (4) horizontally and in the center of the VSU below run-up block (5) and tighten with grub-screws (torque  $1,5 \pm 0,25$  Nm).



1) with locking side vertical tilt-point (KPS)  
2) with locking side horizontal tilt-point (KPW)

fig. 1

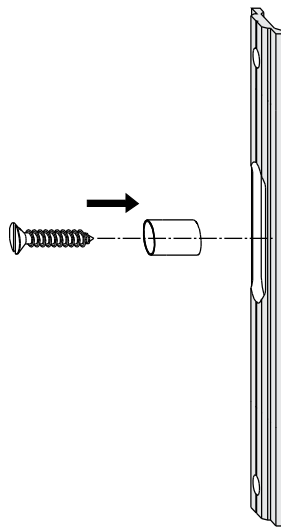


fig. 2

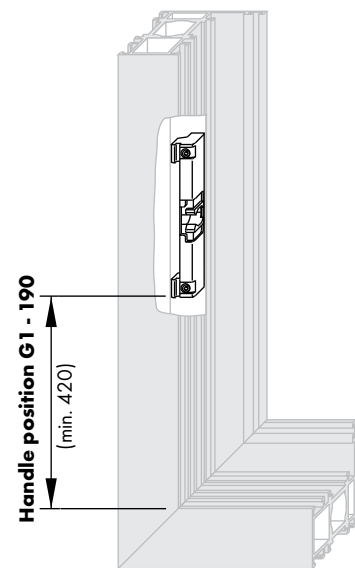


fig. 3

## Important information

- Please observe our product information "Tilt & turn hardware for windows and patio doors".
- For the hardware described in these assembly instructions the information on applicable size ranges in the specific ALU-assembly instructions must be observed.
- The hardware components specified in these assembly instructions are made from rust-resistant material.
- Assemble window hardware **only** from SIEGENIA-components. We are not responsible for damages resulting from failure to follow this instruction.
- Install all hardware components properly following the assembly instructions on this page.
- Never use acetic or acid cure sealants as they can cause the hardware components to corrode.
- Window and door elements may only be surface treated **before** installing the hardware components. Treating these surfaces at a later stage can reduce the functional capacity of the hardware components.  
In such cases we are not obliged to honour any warranty.

## Exclusion of liability

We assume no liability for loss of function and damage to the hardware (as well as the windows and patio doors that are equipped with them) resulting from inadequate tendering, failure to follow these installation instructions or from force being applied to the hardware (e.g. through improper use).

# Spaltlüftung ALU-D - Montageanleitung, Wichtige Hinweise

## Montageanleitung

- Vorbereitung**
- A** Bohrungen  $\varnothing 4,2$  für Schließteile (7) nach Maßangaben (Bild 1) am Rahmen vornehmen.
  - B** Schubstangen S1 - S2 nach Angaben (Bild 2) bearbeiten.
- Flügel**
- A** Bremsscheibe (2) in vorgesehene Nut eindrücken (Bild 3).
  - B** Schubstangen S1 und S2 mit Kupplungslasche (4) und Verriegelung (3) an der VS einschieben.
  - C** Auflaufbock (1) an der VSU waagrecht einschieben.
- Rahmen**
- A** Schließteile (7) nach Maßangaben (Bild 1) positionieren und mit Senkschrauben M5 x 13 (6) befestigen (Drehmoment  $2,5 \pm 0,25$  Nm).
  - B** Kippschließteil (8) an der VSU in die Nut einlegen, bis Nutanfang schieben und mit Gewindestift festklemmen (Drehmoment  $1,5 \pm 0,25$  Nm).

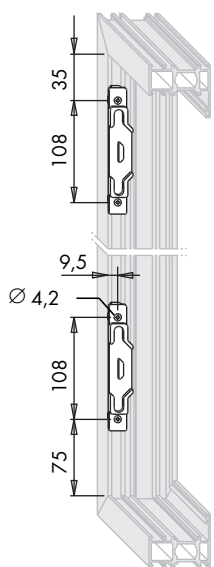


Bild 1

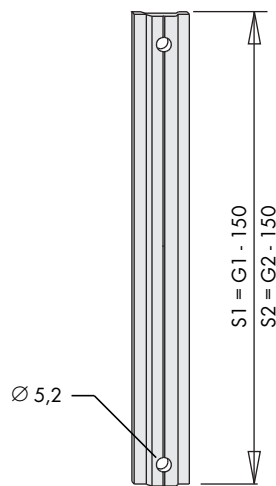


Bild 2

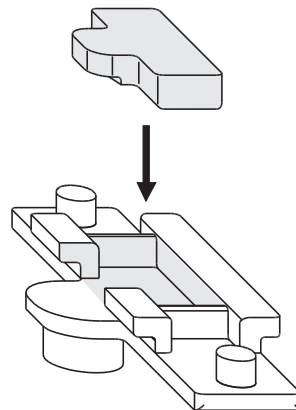


Bild 3

Hinweis:  
Bei Spaltlüftungsstellung  $90^\circ$   
(Bild 4) beträgt die Spaltbreite  
an der VS ca. 10 mm.

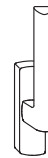


Bild 4

## Wichtige Hinweise

- Beachten Sie unsere Produkt-Information „Drehkippschläge für Fenster- und Fenstertüren“.
- Für den in dieser Anschlaganleitung beschriebenen Beschlag gelten verbindlich die Angaben der Anwendungsbereiche in den jeweils gültigen Anschlaganleitungen LM.
- Die in dieser Anschlaganleitung beschriebenen Beschlagteile sind aus nichtrostendem Werkstoff. Sie dürfen nicht in Umgebungen mit aggressiven, korrosionsfördernden Luftinhalten verwendet werden.
- Stellen Sie den Gesamtbeschlag **nur** aus SIEGENIA- Beschlagteilen zusammen. Andernfalls können Schäden auftreten, für die wir keine Haftung übernehmen.
- Verwenden Sie keine essig- oder säurevernetzenden Dichtstoffe, da diese zur Korrosion der Beschlagteile führen können.
- Montieren Sie alle Beschlagteile fachgerecht nach der Montageanleitung auf dieser Seite.

## Haftungsausschluss

Wir haften nicht für Funktionsstörungen und Beschädigungen der Beschläge sowie der damit ausgestatteten Fenster- und Fenstertüren, die auf unzureichende Ausschreibung, Nichtbeachtung dieser Anschlaganleitung oder Gewalteinwirkung auf den Beschlag (z.B. durch nicht bestimmungsgemäßen Gebrauch) zurückzuführen sind.

# ALU Accessories

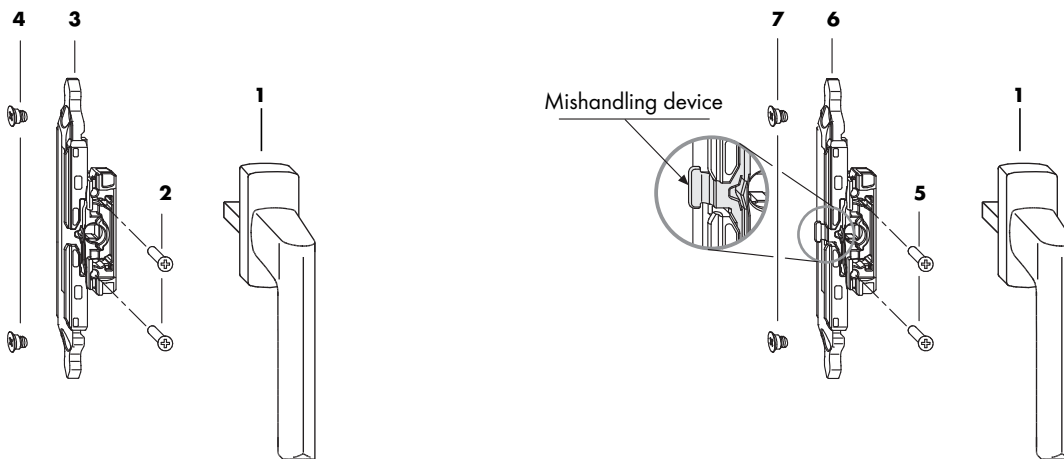
Gear set M6

Gear set FBS M6



**Always** check the planning manual on aluminium (H4006.3042EN) for further details and specifications/information regarding the product and liability (guidelines: VHBH, TBDK and VHBE).

All dimensions given are final dimensions after the surface of the sections has been treated (painted, powder coated etc.).

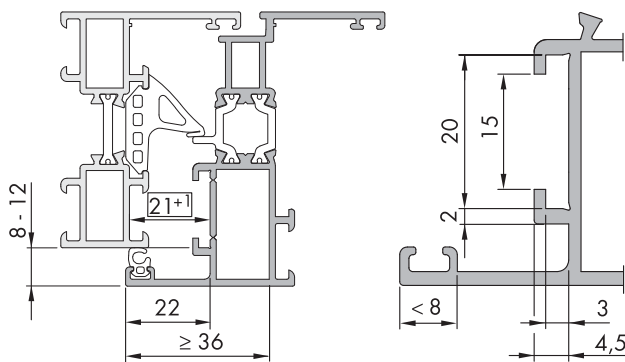


Technical specifications and colours are subject to change

Item	Quantity	Description		Material no.		Material no.
1	1	Window handle <input type="checkbox"/> 7 mm x 25 mm (cam $\varnothing$ 10 mm)				
	1	<b>Gear set M6 Trial/RR</b>	1	<b>MMGI0090-100010</b>	20	<b>MMGI0090-100030</b>
2	2	Countersunk screw M5 x 35		KDNA0230-000010		KDNA0230-000010
3	1	ESG LM M6		MGIL0120-100010		MGIL0120-100010
4	2	Coupling screw M6		KWNA0010-000010		KWNA0010-000010
	1	<b>Gear set FBS M6 Trial/RR</b>	1	<b>MMGI0080-100010</b>	20	<b>MMGI0080-100030</b>
5	2	Countersunk screw M5 x 35		KDNA0230-000010		KDNA0230-000010
6	1	ESG LM FBS M6		MGIL0110-100010		MGIL0110-100010
7	2	Coupling screw M6		KWNA0010-000010		KWNA0010-000010

## Section suggestion

For section processing dimensions, see page 3



## Contents

Layout of fittings, part list,	
Section suggestion.....	Page 1
Assignment, abbreviations.....	Page 2
Installation procedure, dimensions.....	Page 3
Jigs and punching machines.....	Page 4

**Assembly instructions**  
H48.ZUBHLS005en

H48.ZUBHLS005en\_0\_2012-07

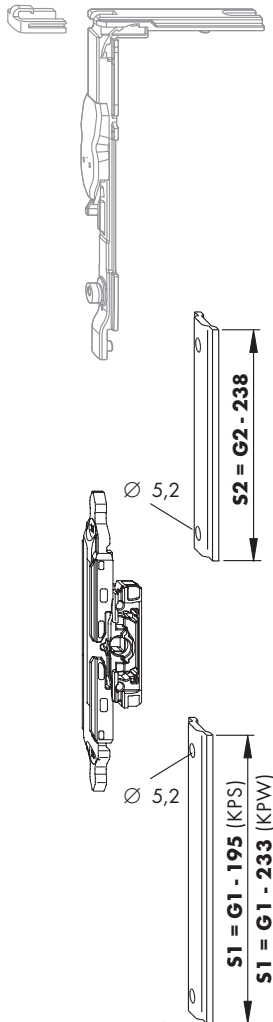


## Gear set M6 / FBS M6 - Assignment to gear set and abbreviations

### Gear set M6

(see items 2-4 on page 1)

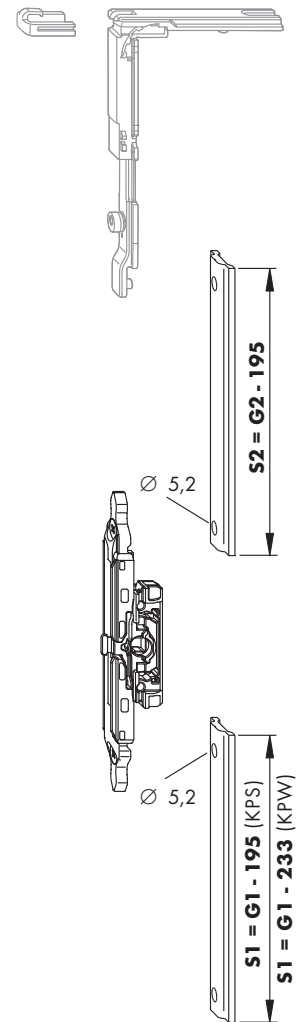
Installation variants  
 VS LM-DK FBS-EUL KPS  
 VS LM-TBT FBS-EUL KPS  
 VS LM-DK-TBT FBS-EUL KPW



### Gear set FBS M6

(see items 5-7 on page 1)

Installation variants  
 VS LM-DK FBS-G KPS  
 VS LM-TBT FBS-G KPS  
 VS LM-DK-TBT FBS-G KPW



### Abbreviations

The following abbreviations are used in these assembly instructions:

b	Sash height	PZ	Screwdriver size
b1	Handle height, bottom	TBT	Tilt before turn
b2	Handle height, top	VSO	Locking side, top
DK	Tilt and turn	VSU	Locking side, bottom
FBS	Mishandling device		
FBS-EUL	Mishandling device in corner drive	S1	Operating rod, locking side, bottom
KPS	Tilt point vertical	S2	Operating rod, locking side, top
MV	Centre lock		
Nm	Torque in Nm		

# Gear set LM M6 / LM FBS M6 - Installation procedure and dimensions

## Preparation

- a** Perform section processing for window handle (1) (Figures 1+2).
- b** Open operating rod guiding groove.(Figure 2).
- c** Process operating rods S1 and S2 according to instructions on page 2.

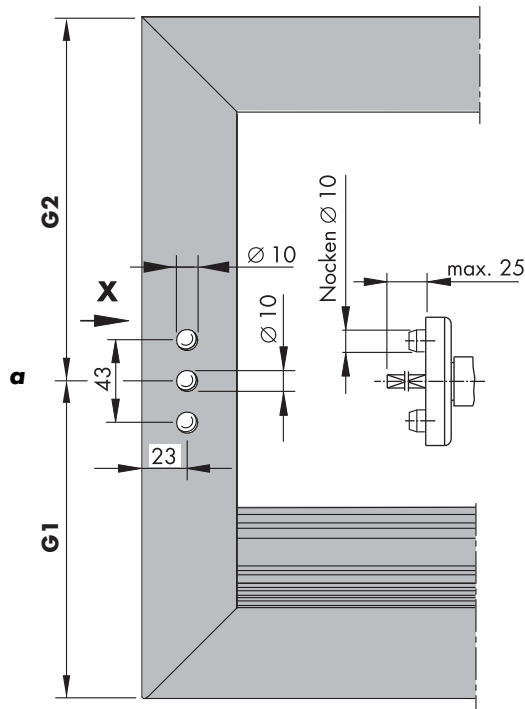


Figure 1

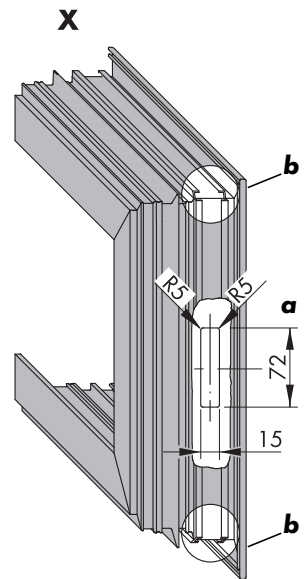


Figure 2

## Sash

- d** Insert ESG LM M6 / ESG LM FBS M6 (3/6) into the processed section 72 x 15 (Figure 3).
- e** Screw SG LM M6 / ESG LM FBS M6 (3/6) in operating rod punch hole Ø 5.2 using coupling screw M6 (4/7)(PZ 2, torque 2.75 Nm ± 0.25 Nm) (Figure 3).
- f** Screw on window handle (1) using countersunk screws M5 x 35 (2/5) (PZ 2, torque 2.5 ± 0.25 Nm) (Figure 4).

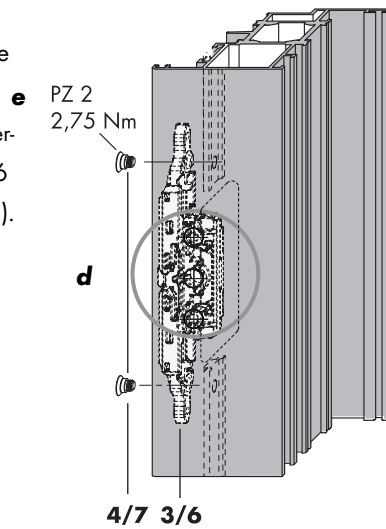


Figure 3

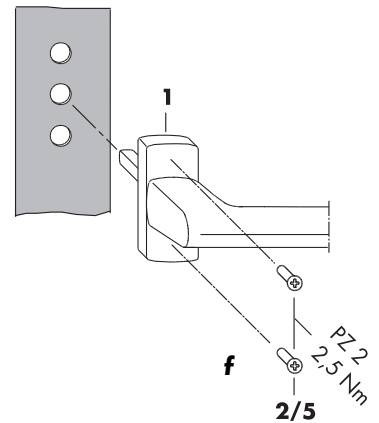


Figure 4

## Frame

- g** At  $b > 1250$  mm, position striker according to the dimensions (Figure 5) and fix in place using grub screws (key dimension 2.5, torque 1.5 ± 0.25 Nm).

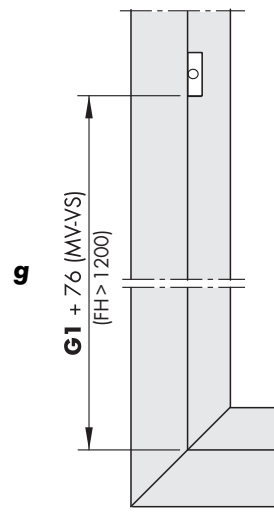


Figure 5

## Gear set M6 / FBS M6 - Jigs and punching machines

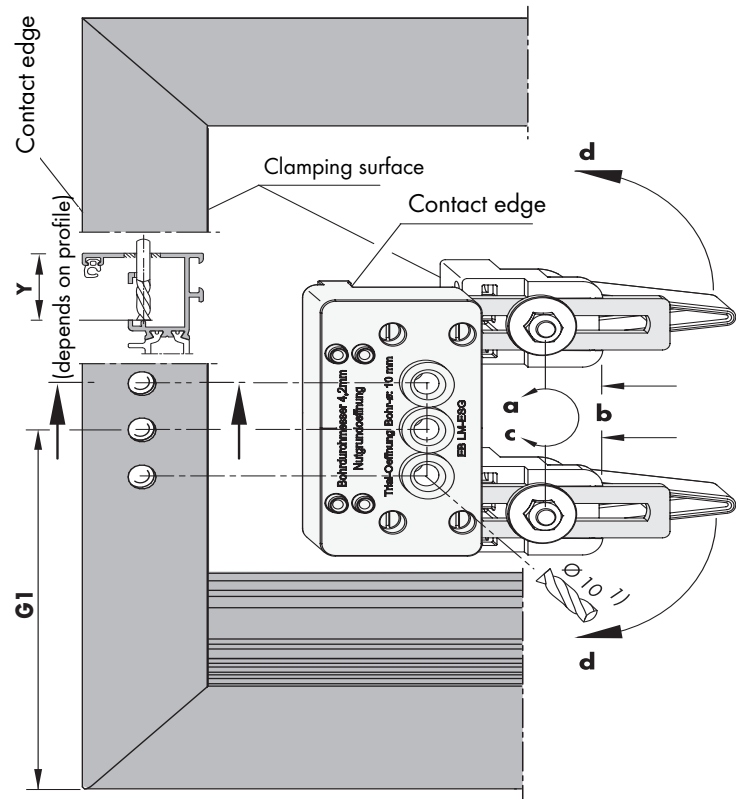


Figure 6

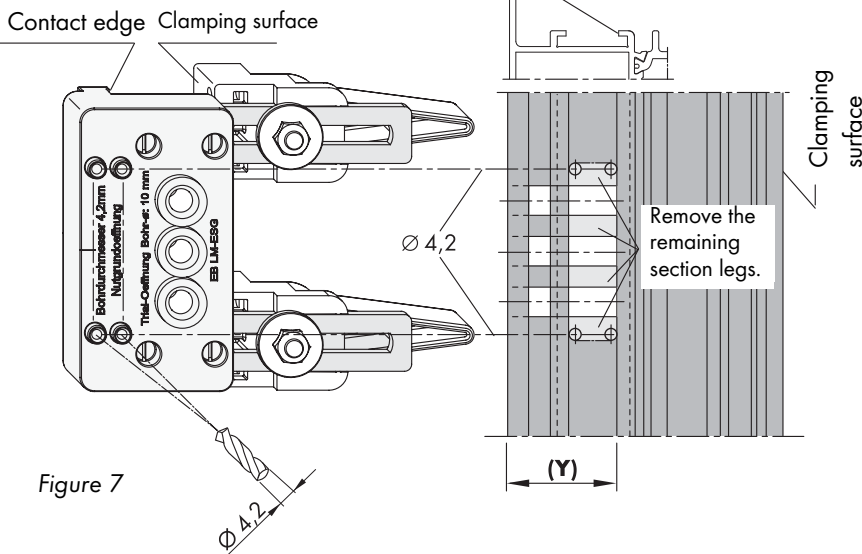


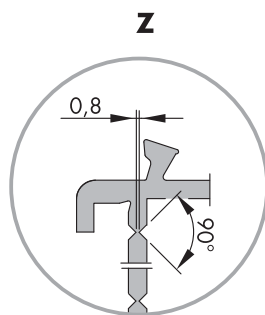
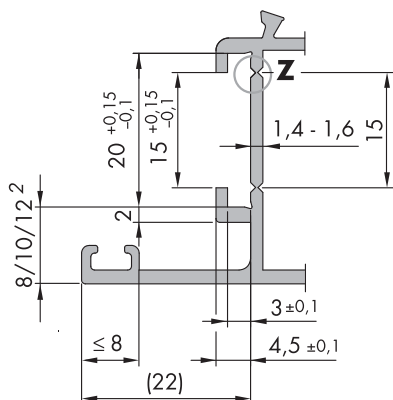
Figure 7

Description			Material no.
<b>Jig Trial LM-ESG</b>	consisting of:	<b>1</b>	<b>MMAH0010-000010</b>
• Jig EB Trial LM-ESG		<b>1</b>	
• Slot drill <sup>1)</sup>	Ø 10 mm	<b>1</b>	ZAWE0050-000010

### Installation procedure for jig Trial LM-ESG (Figures 6 + 7)

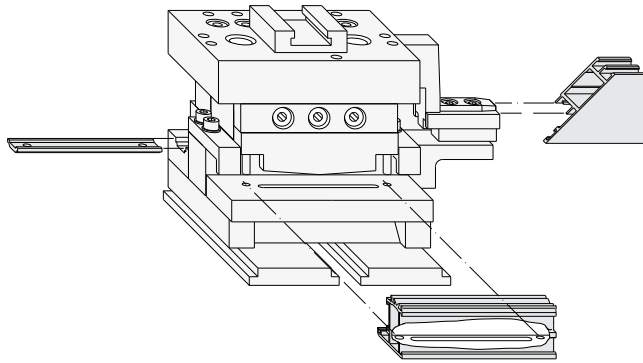
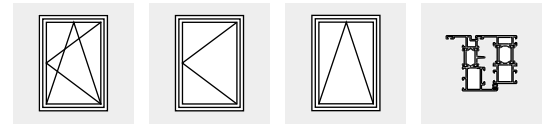
- a** Loosen nuts on the clamping devices.
  - b** Position jig according to dimension b1 and slide clamping devices on to the sash section (take account of contact edge).
  - c** Tighten nuts on the clamping devices.
  - d** Turn and fix the handles on the clamping devices as shown in the following figures.
- Perform processing.
  - After processing, release the handles on the clamping devices and remove jig.

### Section suggestion for press cut in the hollow cavity

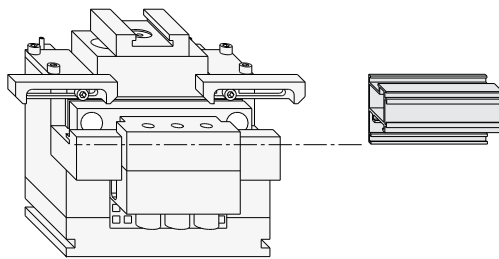


<b>Punching machine<sup>2)</sup></b> For 3 x Ø10 and □ 70 x 15 (See Figures 1 and 2 on page 3)	<b>1</b>	<b>on request</b>
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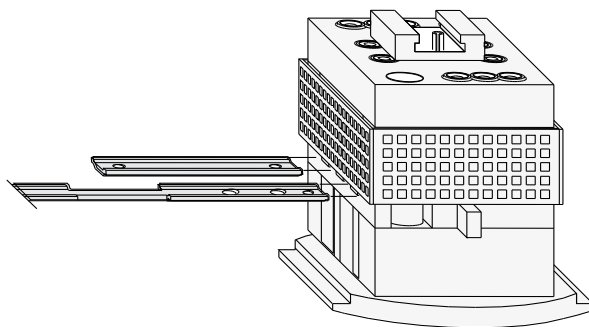
# LM Range Jigs and tools



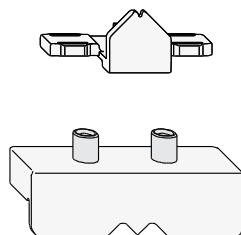
Description	part code
<p><b>Combi tool</b></p> <ul style="list-style-type: none"> <li>• handle preparation</li> <li>• Opening of drive gear groove</li> <li>• drive gear hole punching and cropping to length</li> </ul> <p>Suitable punch BST 105 (15 mm stroke)</p>	141243



<p><b>Punching tool 68</b> (LM 3100)</p> <p>Punching for hinge clearance</p> <p>Suitable punch BST 105 (15 mm stroke)</p>	141236
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<p><b>Punching tool E</b></p> <p>Drive gear hole punching</p> <p>Suitable punch machine BST 105 (15 mm stroke)</p>	141267
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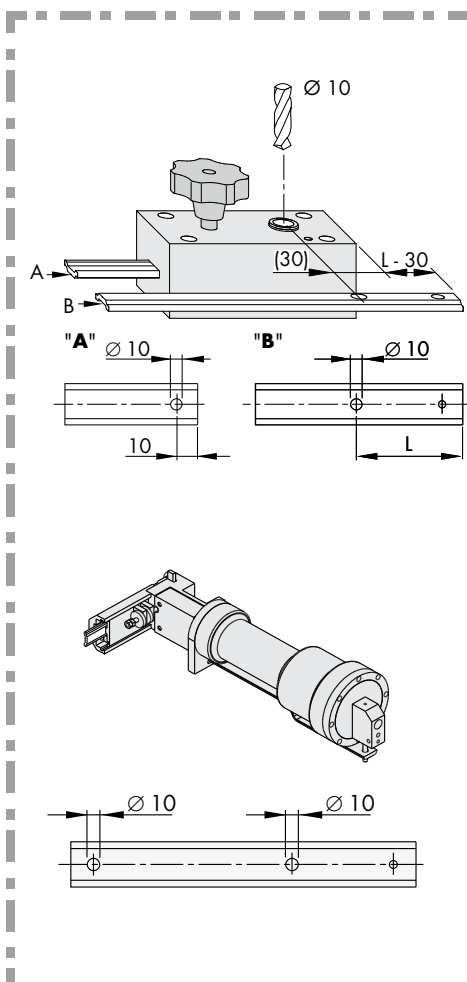
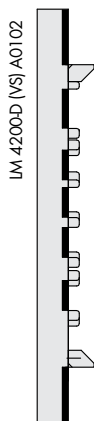
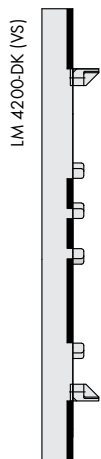
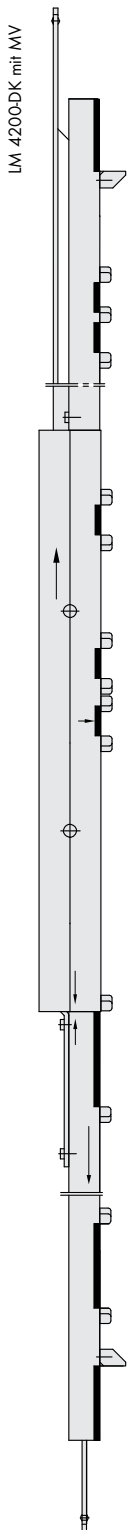
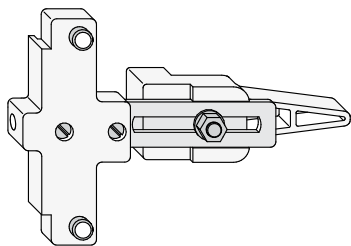


<b>Jig LM-E</b>	consisting of:	<b>863022</b>
Jig EL LM-E	for sash      Contents: 12 off	156926
Jig EB LM-E	for frame      Contents: 1 off	156919

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# Jigs and tools LM



Description	part code
<b>Jig LM</b> EB-LM 4200/BS	for sash weights of 100 kg 157220

<b>Striker jig LM</b> <b>Locking Side</b> LM 4200-DK mit MV	for strikers, striker E and auxiliary stay LM 157435
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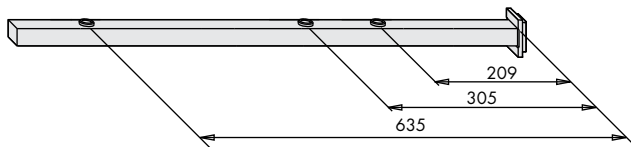
<b>Striker jig LM</b> LM 4200-DK (VS)	for striker and striker E 157442
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<b>Striker jig LM</b> LM 4200-D (VS) A0102	for run-up block TBT and strikers 157459
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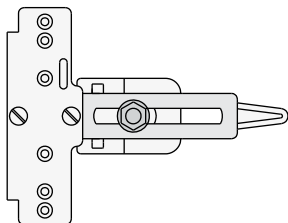
<b>Jig LM</b> Ø 10 mm	130001
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<b>Hand punching tool LM</b> Ø 10 mm 6 - 7 bar	130018
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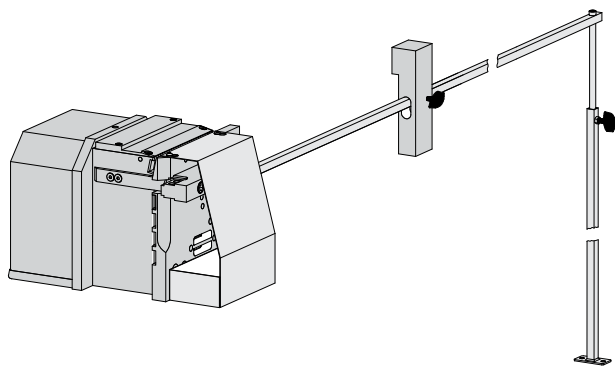
## Jigs and tools LM



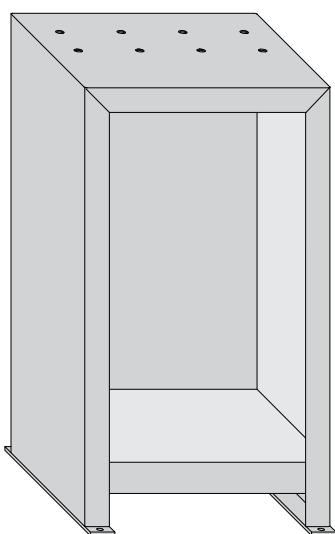
Bezeichnung		EAN 40 12453
Jig LM (EB - stay) (LM 3100)	for stay LM 3100-DK (Size 20, 30 and 65)	141151



Jig LM (BS) (LM 3100)	for bottom hinge HV and top hinge	141182
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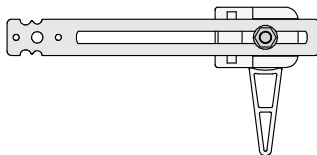
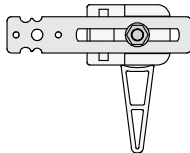
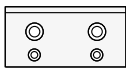
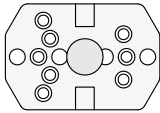
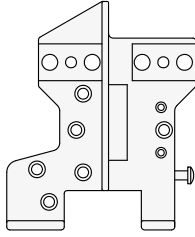


Combi punching machine LM	<ul style="list-style-type: none"> <li>• Handle preparation</li> <li>• Opening of drive gear groove</li> <li>• Cropping and punching both sides <math>\varnothing</math> 5.2 mm</li> <li>• Punching <math>\varnothing</math> 5.2 mm</li> <li>• Punching <math>\varnothing</math> 10 mm</li> <li>• Punching <math>\varnothing</math> 7,1 mm at a spacing of 24 mm and 50 mm (with EF2 for safety piece E)</li> <li>• Punching <math>\varnothing</math> 7,1 mm at a spacing of 10 mm (with EF2 for coupling bracket E)</li> <li>• Punched hole for locking parts E</li> </ul>	157398
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Punching table for Combi punching machine LM	<ul style="list-style-type: none"> <li>• Supply unit (no illustration)</li> <li>• Barometer (no illustration)</li> <li>• Tool storage</li> <li>• Compressed air gun with connection (no illustration)</li> </ul>	157404
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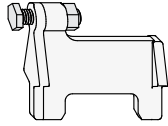
## Jigs and tools LM Assembly aids FS-PORTAL LM



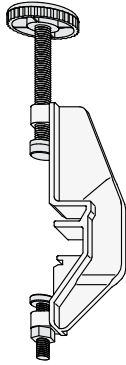
(No illustration)

Description	part code
<b>Jig EB 645-1</b> Requirement: 2 off for bottom hinge	143124
<b>Jig EB 645-2</b> Requirement: 4 off for sash hinge	143131
<b>Jig EB 644-3</b> Requirement: 1 off for catches	143087
<b>Jig EB 644-4</b> Requirement: 1 off for drill centralization On the guide and running rail	143094
<b>Adjusting rod</b> Requirement: 2 off for EB 645-1 and EB 645-2	143117
<b>Stop</b> Requirement: 2 off for adjusting rod	143100
<b>Clamping device</b> Requirement: 9 off for EB 645-1 and EB 645-2	139202
<b>Clamping device A0089</b> Requirement: 3 off for EB 645-2 (exterior)	139219
<b>Countersunk screw M5x16</b> Requirement: 24 off for securing the Clamping device	801147

## Jigs and tools LM Assembly aids PSK-PORTAL LM



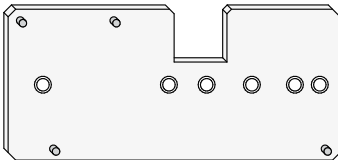
Description	part code
<b>Striker jpg</b> <b>EL 640-2</b> Requirement: 1 off for locking part	142967



<b>Clamping jpg</b> <b>KL 640-4</b> Requirement: 3 off for guide rail and bottom rail	142950
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<b>Drilling jig EB 640-4</b> Requirement: 1 off for drill holes on guide rail and bottom rail	143001
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<b>Drilling jig EB 641-6</b> Requirement: 1 off for bogie wheels and support	143032
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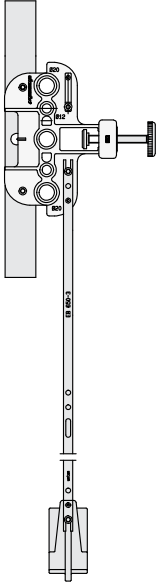
<b>Drilling jig</b> <b>PSK-PORTAL</b> Requirement: 1 off for Handle, Si-line PSK LM	157503
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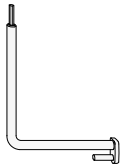
<b>Drilling jig EB 641-7</b> Requirement: 1 off for tilt stay and cover caps K.	143049
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# Jigs and tools LM Assembly aid HS-PORTAL LM and Accessories LM



Description	part code
<b>Jig EB 650-3</b> for gear drillings Requirement: 1 off	157237
<b>Adjusting rod</b> for EB 650-3 Requirement: 1 off	157237



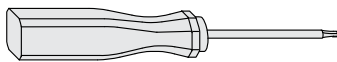
<b>Assembly key</b> (LM 3100)	139325
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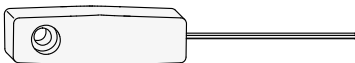
<b>Multitool</b>	127629
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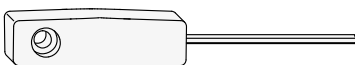
<b>Bit</b> Hexagon 2.5 mm hardened	857113
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<b>Allen Key, Professional</b> Hexagon 2.5 mm hardened	157947
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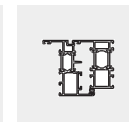
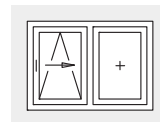
<b>Allen Key</b> Hexagon 2.5 mm	141274
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<b>Allen Key</b> Hexagon 4 mm	139394
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# PSK PORTAL 160 PLUS LM

Parallel tilt & slide (PSK) hardware  
For light metal profiles a cavity of 21 mm



## Size range

Sash width	(mm)	700 to 1,650 <sup>1)</sup>
Sash height	(mm)	850 to 2,400
Exterior width of frame	(mm)	Depends on the profile system, determined by the sash width, for scheme A: max. 3,460
Rebate thickness	(mm)	7 to 12
Sash weight	(kg)	<b>Max. 160</b>
Total frame to sash clearance	(mm)	118

1) For sash widths < 960 mm, the sash height must not be greater than 2.5x the sash width.

The size ranges mentioned above apply for the PSK-PORTAL 160 PLUS LM fitting from SIEGENIA.  
Also effective are the specifications of the profile manufacturers or system owners, **especially** with regard to possible restrictions on sash dimensions, sash weight and lock spacing.  
Observe any special manufacturing specifications or processing guidelines explicitly.

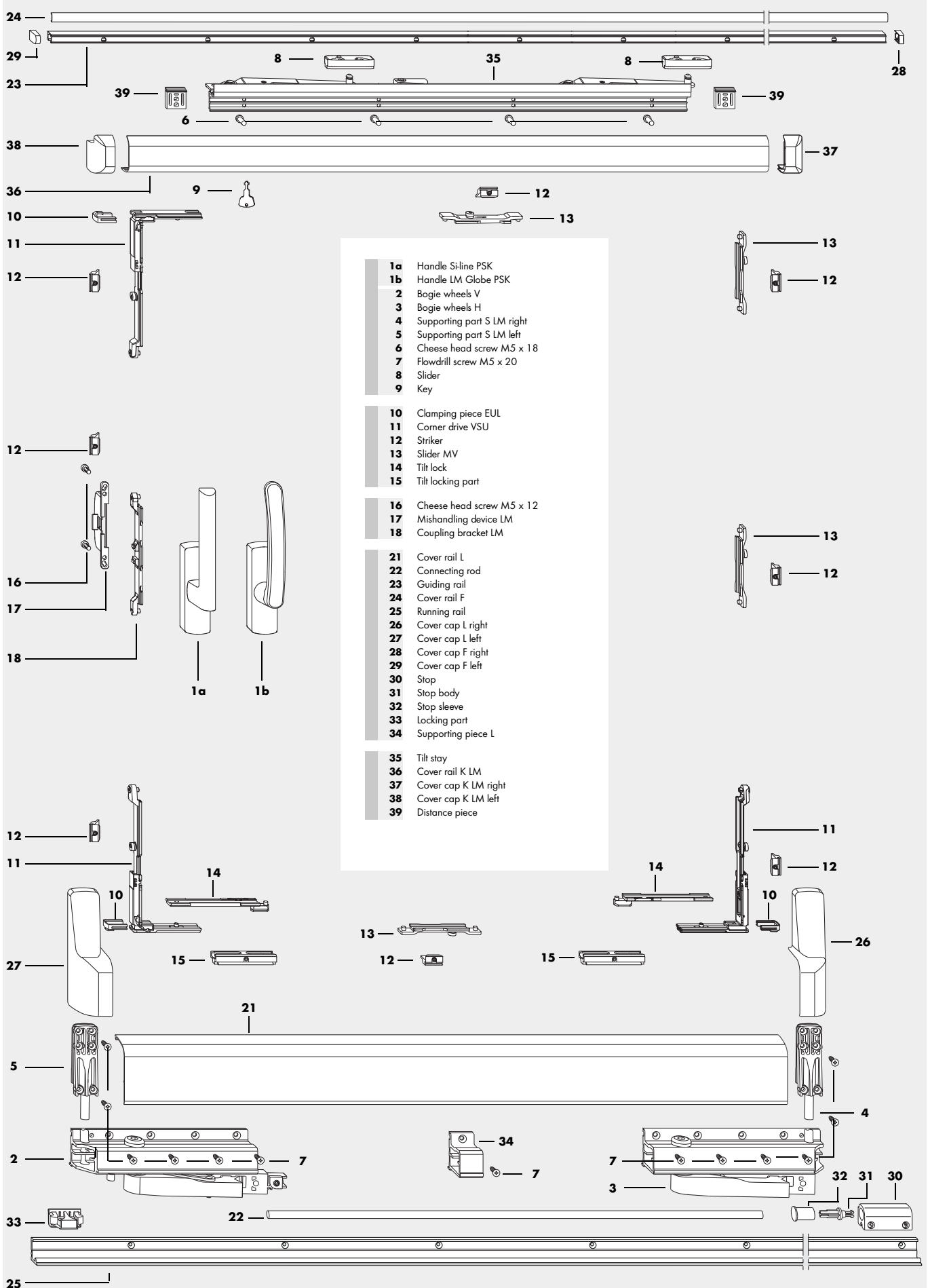
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**Assembly instructions**  
 H48.PSKLMSOOTEN

Technical specifications and colours are subject to change

# PSK PORTAL 160 PLUS LM Layout of fittings



For list of fittings, see pages 3 and 4.

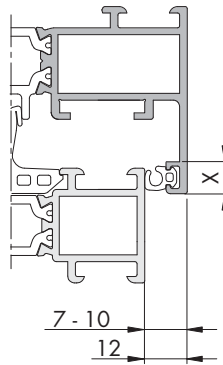
# PSK PORTAL 160 PLUS LM *List of fittings part 1*

Item	Quantity/Scheme				Description	Material no.		
	A	G	C	K		silver	white	brown
1	0...1	0...1	0...2	0...2	Handle Si-line PSK LM	MHSS2000-52501_	875445	875476
	0...1	0...1	0...2	0...2	Handle LM Globe PSK	MHGS2000-52501_	MHGS2000-50401_	MHGS2000-53301_
no illus.	0...1	0...1	0...2	0...2	Handle PSK lockable	See LMde1337 in the Aluminium planning manual		
2	1	1	1	2	Crt. bg. wh. PSK 160 LM PLUS	PMKF7031-10001_ PMKF7032-10001_		
	1	1	2	2	Bogie wheels V (PSK 160 Plus)	right left	front front	
3	1	1	1	1	Bogie wheels H (PSK 160 Plus)	right left	rear rear	
	1	1	1	1	Supporting part S LM	right		
4	1	1	1	1	Supporting part S LM	left		
5	5	5	10	10	Cheese head screw M5 x 18			
6	5	5	10	10	Cheese head screw M5 x 18			
7	12	12	24	24	Flowdrill screw M5 x 20			
no illus.	30	30	60	60	Flowdrill screw M4 x 20			
8	1	1	2	2	Bag accessories PSK PORTAL			
	2	2	4	4	Slider			
9	1	1	2	2	Key PORTAL			
10	1	1	2	2	ZV LM PSK VAR. SET	MMZV0040-10001_		
	3	3	6	6	Clamping piece EUL			
11	3	3	6	6	Corner drive VSU			
12	8	8	16	16	Striker			
13	4	4	8	8	Slider MV			
14	2	2	4	4	Tilt lock			
15	2	2	4	4	Tilt locking part			
16	0...1	0...1	0...1	0...2	Coupling set FBS-G	9 mm	MMKL0030-10001_	
	0...1	0...1	0...1	0...2	Coupling set FBS-G	10 mm	MMKL0010-10001_	
	0...1	0...1	0...1	0...2	Coupling set FBS-G	ORH 12 mm	MMKL0040-10001_	
17	2	2	2	2	Cheese head screw M5 x 12			
18	1	1	1	1	Mishandling device LM			
18	1	1	1	1	Coupling bracket			
19	-	-	1	-	Coupling set LM-D	MMKL0020-10001_		
	-	-	2	-	Cheese head screw M5 x 12			
20	-	-	1	-	Coupling bracket			

## Design variations for coupling set

### FBS-G (16 - 18)

ORH	X	Material no.
7 - 10 mm	≤ 8.5 mm	MMKL0030-10001_
7 - 10 mm	≤ 7.5 mm	MMKL0010-10001_
12 mm	≤ 7 mm	MMKL0040-10001_



For layout of fittings, see pages 2, 7 and 8.

## PSK PORTAL 160 PLUS LM List of fittings part2

Item	Quantity/Scheme				Description	Material no.								
	A	G <sup>1)</sup>	C <sup>2)</sup>	K <sup>3)</sup>		Basic Material no.	silver	RAL 9003 white	RAL 8022 brown					
dependent on sash width (FB) and frame width (RAB)					<b>Profile set PSK LM PLUS</b>	Size	Length (in mm)	FB (in mm)	RAB (in mm)					
		1	1	2	2	<b>Sz. 87/200</b>		700 to 900	to 2,000	<b>PMPF7050</b>	...-52501_	...-50201_	...-51201_	
						<b>Sz. 107/240</b>		901 to 1,100	2,001 to 2,400	<b>PMPF7060</b>	...-52501_	...-50201_	...-51201_	
						<b>Sz. 130/286</b>		1,101 to 1,300	2,401 to 2,860	<b>PMPF7070</b>	...-52501_	...-50201_	...-51201_	
						<b>Sz. 160/346</b>		1,301 to 1,650	2,861 to 3,460	<b>PMPF7080</b>	...-52501_	...-50201_	...-51201_	
	<b>21</b>	1	1	2	2	<b>Cover rail L</b>	Sz. 87	865						
							Sz. 107	1,065						
							Sz. 130	1,295						
							Sz. 160	1,550						
	<b>22</b>	1	1	2	2	<b>Connecting rod</b>	Sz. 87	585						
						Sz. 107	785							
						Sz. 130	1,015							
						Sz. 160	1,270							
<b>23</b>	1	1	2	2	<b>Guiding rail</b>	Sz. 200	2,000							
						Sz. 240	2,400							
						Sz. 286	2,860							
						Sz. 346	3,460							
<b>24</b>	1	1	2	2	<b>Cover rail F</b>	Sz. 200	2,000							
						Sz. 240	2,400							
						Sz. 286	2,860							
						Sz. 346	3,460							
<b>25</b>	1	1	2	2	<b>Running rail</b>	Sz. 200	2,000							
						Sz. 240	2,400							
						Sz. 286	2,860							
						Sz. 346	3,460							
<b>26</b>	1	1	2	2	Bag Cover cap set PSK LM PLUS									
<b>27</b>	1	1	2	2	Cover cap L	right								
<b>28</b>	1	1	2	2	Cover cap L	left								
<b>29</b>	1	1	2	2	Cover cap F	right								
<b>29</b>	1	1	2	2	Cover cap F	left								
<b>30</b>	1	1	2	2	<b>Bag accessories</b>									
<b>30</b>	1	1	2	2	<b>Running rail PSK PLUS</b>									
<b>31</b>	1	1	2	2	Stop									
<b>32</b>	1	1	2	2	Stop body									
<b>33</b>	1	1	2	2	Stop sleeve									
<b>34</b>	1	1	2	2	Locking part									
<b>34</b>	1	1	2	2	Supporting piece L									
dependent on sash width (FB) and frame width (RAB)	<b>35</b>	1	1	2	2	<b>Tilt stay PSK 160</b>	Size	Length (in mm)	FB (in mm)					
						<b>87</b>		620 to 700	to 900					
						<b>107</b>		820 to 901	to 1,100					
						<b>130</b>		1,020 to 1,101	to 1,300					
						<b>160</b>		1,220 to 1,301	to 1,650					
							Size	Length (in mm)	FB (in mm)					
		1	1	2	2	<b>Bag cover rail K LM PSK 160</b>	<b>87</b>		700 to 900		<b>PMPF7090</b>	...-52501_	...-50201_	...-51201_
							<b>107</b>		901 to 1,100		<b>PMPF7100</b>	...-52501_	...-50201_	...-51201_
							<b>130</b>		1,101 to 1,300		<b>PMPF7110</b>	...-52501_	...-50201_	...-51201_
							<b>160</b>		1,301 to 1,650		<b>PMPF7120</b>	...-52501_	...-50201_	...-51201_
<b>36</b>	1	1	2	2	Cover rail K LM	Sz. 87	940							
						Sz. 107	1,140							
						Sz. 130	1,370							
						Sz. 160	1,670							
<b>37</b>	1	1	2	2	Cover cap K LM	right								
<b>38</b>	1	1	2	2	Cover cap K LM	left								
<b>39</b>	1	1	2	2	Distance piece K PSK LM									

- 1) For scheme G, design profile set only for 2/3 of total frame width  
 2) For scheme C, symmetrical design; point of separation must be between the sliding sashes  
 3) For scheme K, symmetrical design

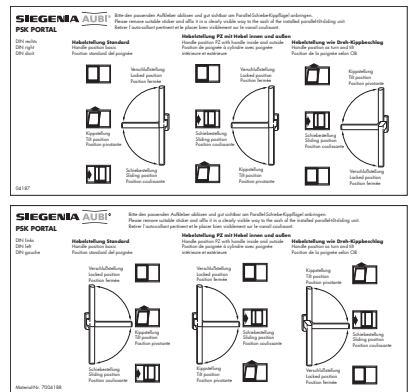
For layout of fittings, see pages 2, 7 and 8.

## Important Instructions

- Please pay attention to our “Hardware for Sliding Doors and Windows” product information.
- For the PSK PORTAL 160 Plus LM fitting from SIEGENIA the size ranges detailed on page 1 apply. Furthermore, the specifications provided by the profile manufacturers or system owners also apply, **especially** any information regarding possible restrictions on sash dimensions, sash weight and lock spacing. Observe any special manufacturing specifications or processing guidelines explicitly. The specifications given for screw-in speeds and torques must be adhered to.
- If the parallel tilt & slide element is subjected to excessive strain, the sash can, in the worst case, jump and fall out of its guide and, in doing so, cause serious injuries. If it is expected that the parallel tilt & slide element will be subject to excessive strain from being closed with force (use in schools, nursery schools, etc.), appropriate measures must be taken to prevent this from happening. For example:
  - move the stop to reduce the opening width or
  - install a lockable handle to prevent unauthorised use.
- In case of doubt, be sure to contact your SIEGENIA sales consultant.
- The fittings specified in these assembly instructions are electro-galvanised and finished using a special technique; they comply with DIN EN 1670. They must not be used in environments where the air contains aggressive or corrosive components, or salt.
- Select your complete set of fittings **only** from the SIEGENIA range of fittings. Damage could otherwise occur, for which we accept no liability.
- All fittings must be properly mounted as per the description on pages 10 to 20. **Do not overtighten the screws.**
- The parallel tilt & slide elements may be surface treated only **before** the fittings are assembled. Treating these surfaces at a later stage can reduce the functional capacity of the fittings. In such cases we are not obliged to provide a guarantee.
- When inserting blocks, be sure to observe technical guideline no. 3 published by the German Glazing Trade [Glaserhandwerk], “Blocking glazing units” [Klotzung von Verglasungseinheiten].
- Never use acid cure sealants as they may cause the fittings to corrode.
- Keep the sliding bump (on the running rail) and all rebates free from deposits and dirt, especially from remnants of cement and plaster. Avoid exposing the fittings directly to water and do not let cleaning agents come into contact with the fittings.
- Attach the instruction label (sliding direction DIN left or DIN right) to the integrated parallel tilt & slide sash in a clearly visible location.

The instruction label is located in “Carton PSK 160 LM.”

Remove the applicable segment from the respective label and stick it to the window sash.



## Disclaimer of liability

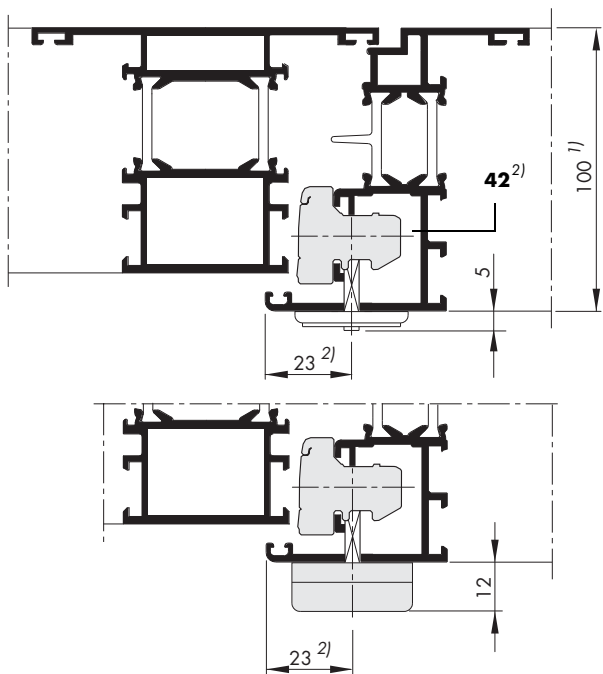
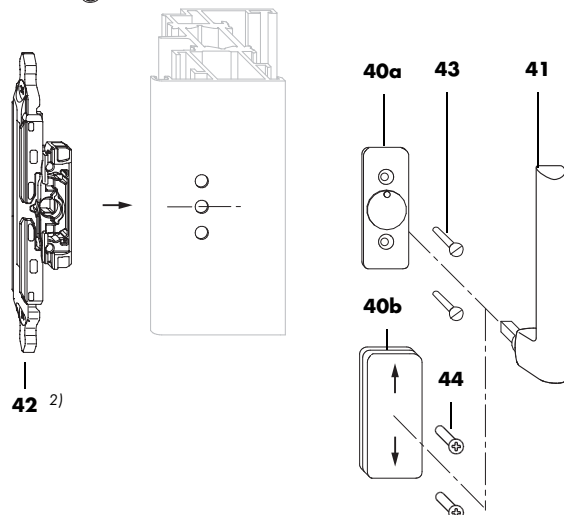
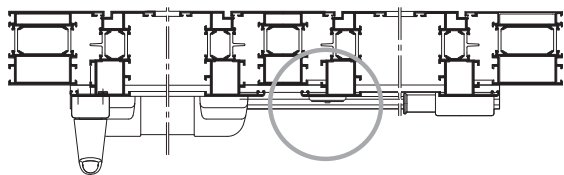
We assume no liability for loss of function of or damage to the fittings (or to the fitted parallel tilt & slide elements) resulting from insufficient tendering, failure to follow these assembly instructions or force being applied to the fittings (e.g. through improper use).

## Abbreviations

The following abbreviations are used in these assembly instructions:

F	Guiding rail	M	Middle	S-ES	Steel-enhanced security
FB	Sash width	MV	Centre lock	SW	Key dimension
FFB	Sash rebate width	OKFF	Finished floor level	ORH	Over rebate height
FFH	Sash rebate height	PZ	Profile cylinder	V	Front
FH	Sash height	RAB	Exterior width of frame	VS	Locking side
G	Handle height	RAH	Exterior height of frame	VSU	Locking side, bottom
H	Rear	RFB	Frame rebate width	ZV	Central locking part
L	Bogie wheels	S	Heavy version		

## PSK PORTAL 160 PLUS LM Design variations



1) For max. sash profile - installation depth **up to 100 mm** , use rose Si-line FAVORIT (40b).

**over 100 mm** , use rose PSK EUROLINE (40a).

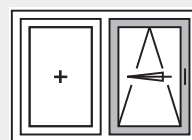
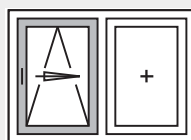
2) For installation dimensions and ordering information, see assembly instructions LMde1361/LMde1364 in the Aluminium planning manual.

### Scheme A

DIN left

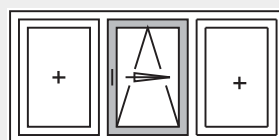
or

DIN right



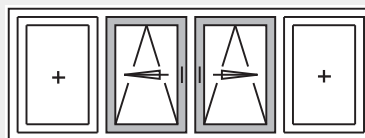
1 sliding sash/1 stationary sash\*

### Scheme G



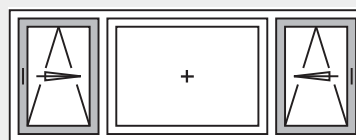
1 sliding sash/2 stationary sashes\*

### Scheme C



2 sliding sashes/2 stationary sashes\*

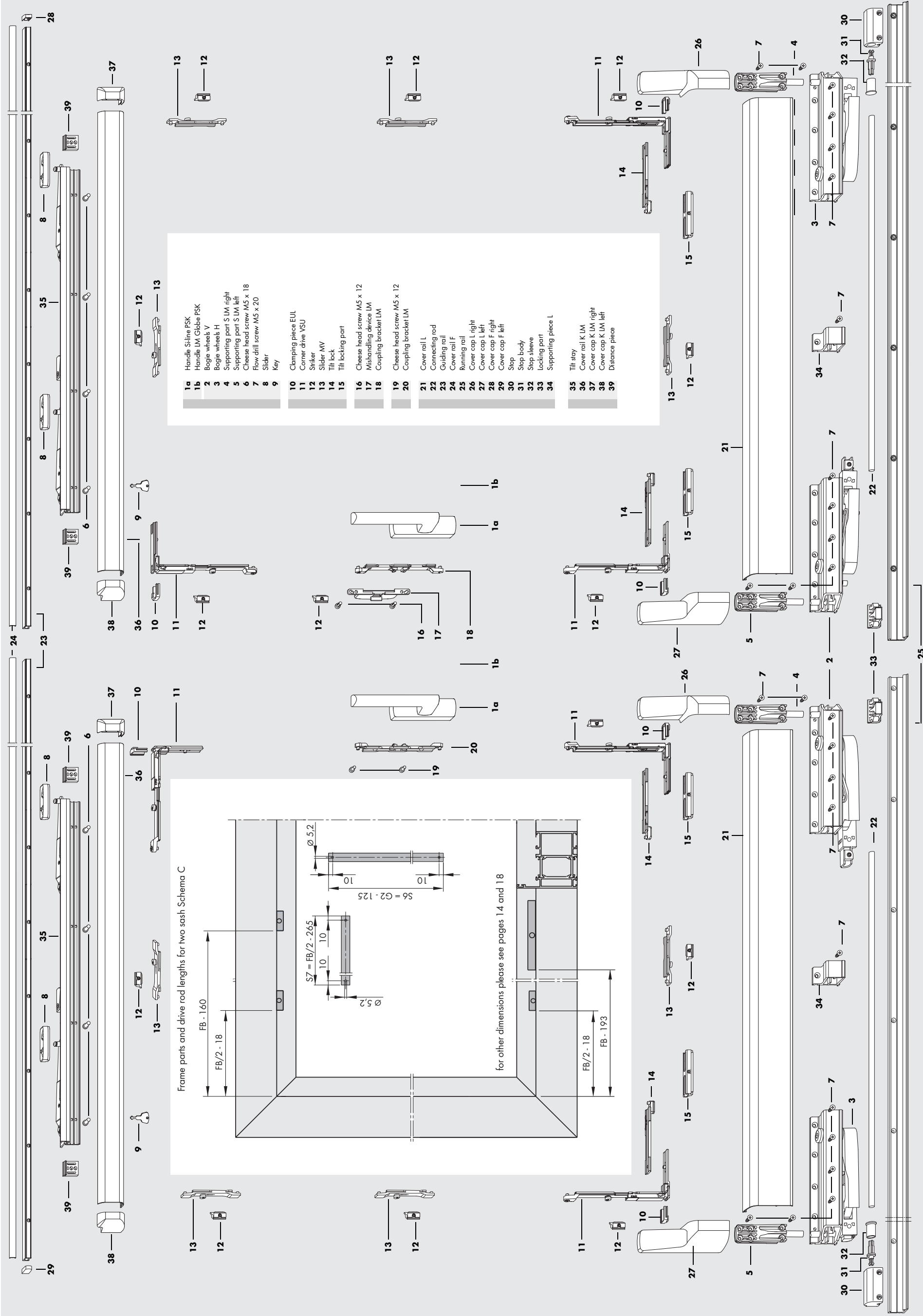
### Scheme K



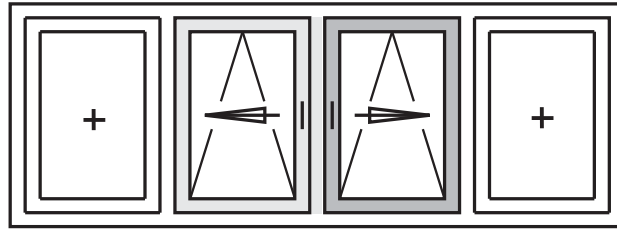
2 sliding sashes/1 stationary sash

\*) Instead of stationary sashes, turning sashes are also possible. Turning sashes are available only with rose PSK PORTAL EUROLINE (40a) or rose Si-line FAVORIT (40b) and **removable** handle (41).

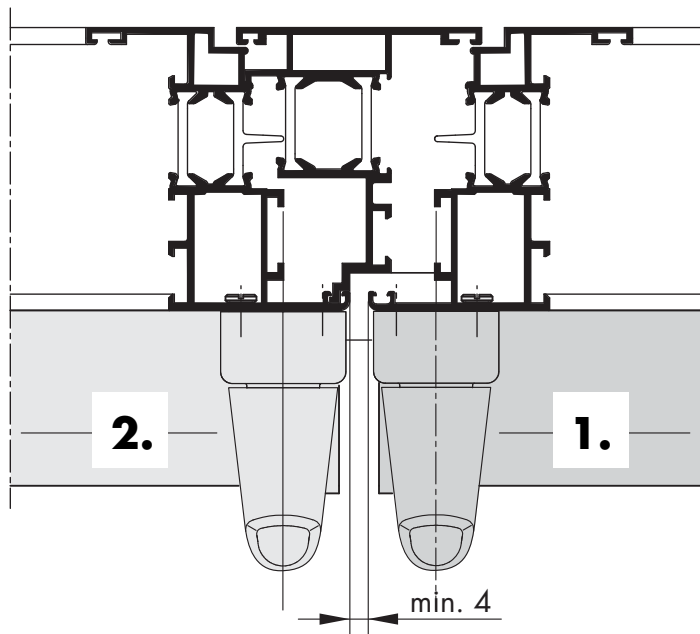
Item	Quantity	Description	Material no.
40a	1	Rose PSK EUROLINE silver for profile installation depth over 73 mm	PHZE0010-52401_
	1	Rose PSK EUROLINE brown (RAL 8022) for profile installation depth over 73 mm	PHZE0010-51201_
	1	Rose PSK EUROLINE white (RAL 9003) for profile installation depth over 73 mm	PHZE0010-50201_
40b	1	Rose Si-line FAVORIT silver for profile installation depth up to 73 mm	869826
	1	Rose Si-line FAVORIT dark bronze for profile installation depth up to 73 mm	869833
	1	Rose Si-line FAVORIT white for profile installation depth up to 73 mm	862605
41	1	Removable handle Si-line white for profile installation depth up to 73 mm	ZHAN0010-50201_
42	1	Gear set M6	MMGI0090-10003_
43	2	Oval head countersunk screw M5 x 40 shortened by customer	800829
44	2	Countersunk screw M5 x 35 included in pack unit gear M6	-







2 sliding sashes/2 stationary sashes

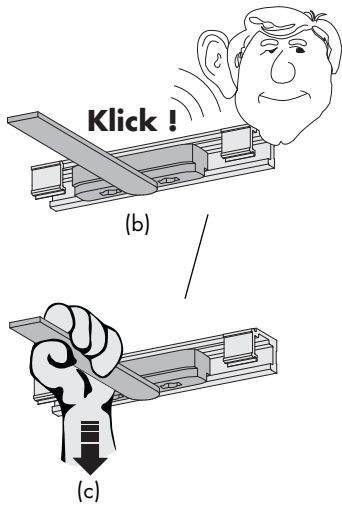
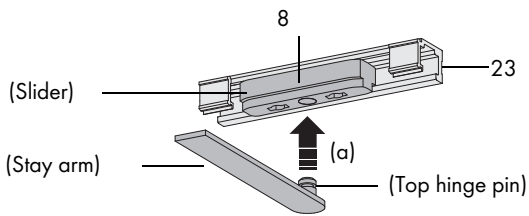


**Important:** Main and secondary sashes must be labelled accordingly to prevent faulty operation.

The sliding sashes may be operated **only** in the order specified below.

To open:	main sash first	[1.]
	then secondary sash	[2.]
To close:	secondary sash first	[2.]
	then main sash	[1.]

**Snap in stay arm of tilt stay (35) into slider (8).**



Sequence for securing (hinging the stay arm)

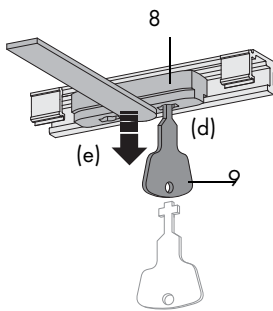
**⚠ WARNING**

**If top hinge bolt is not locked in place, there is a risk of injury from a falling window sash.**

▲ Snap in top hinge pin on stay arm in slider (8).

1. Insert stay arm (a) into slider (8) as shown in illustration opposite.
2. Make sure you hear the top hinge pin (b) click into place in slider (8).
3. Pull gently on stay arm (c) to make sure that the top hinge pin is securely in place in slider.

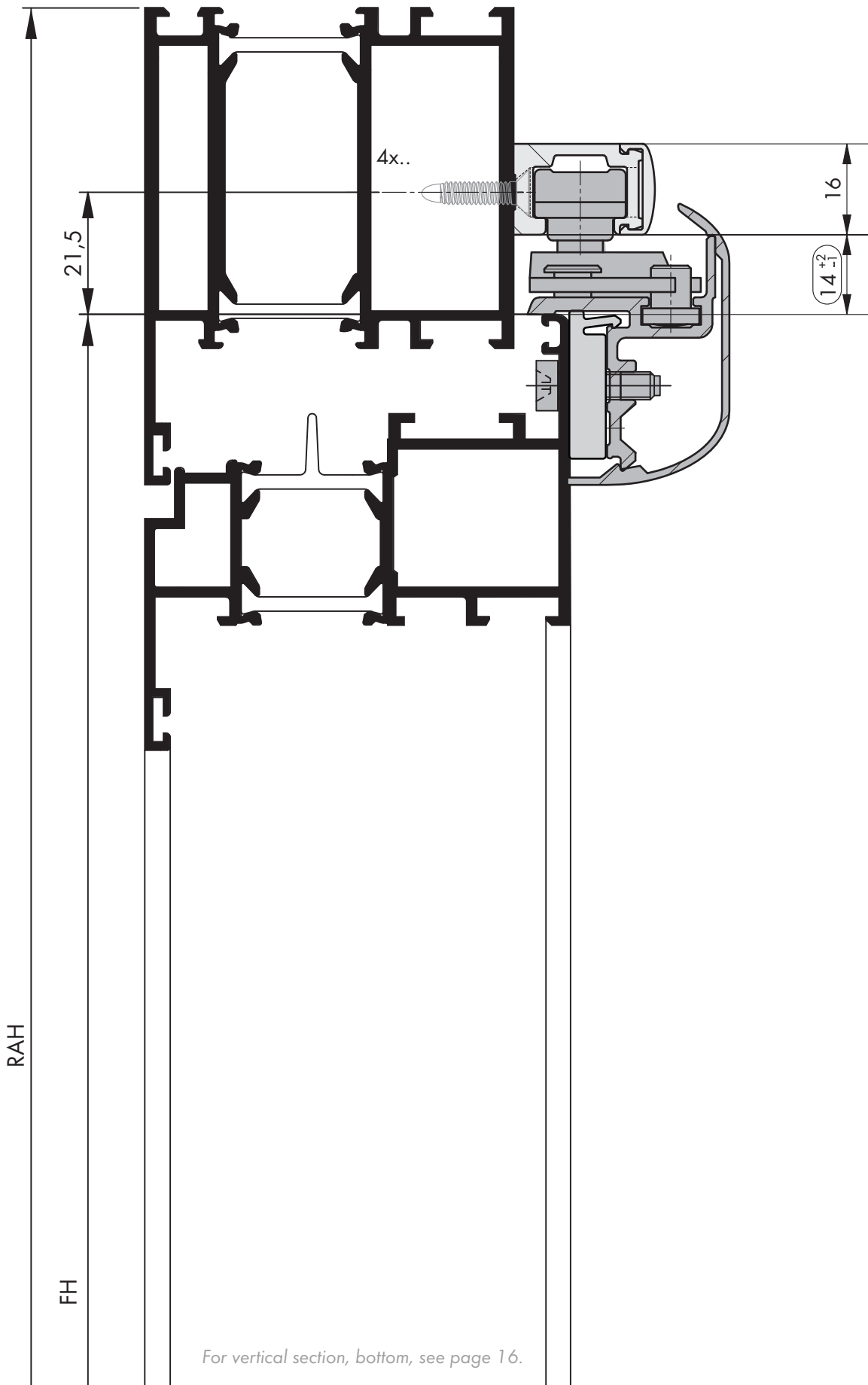
**Unhinging the stay arms**



Disassembling the stay arm

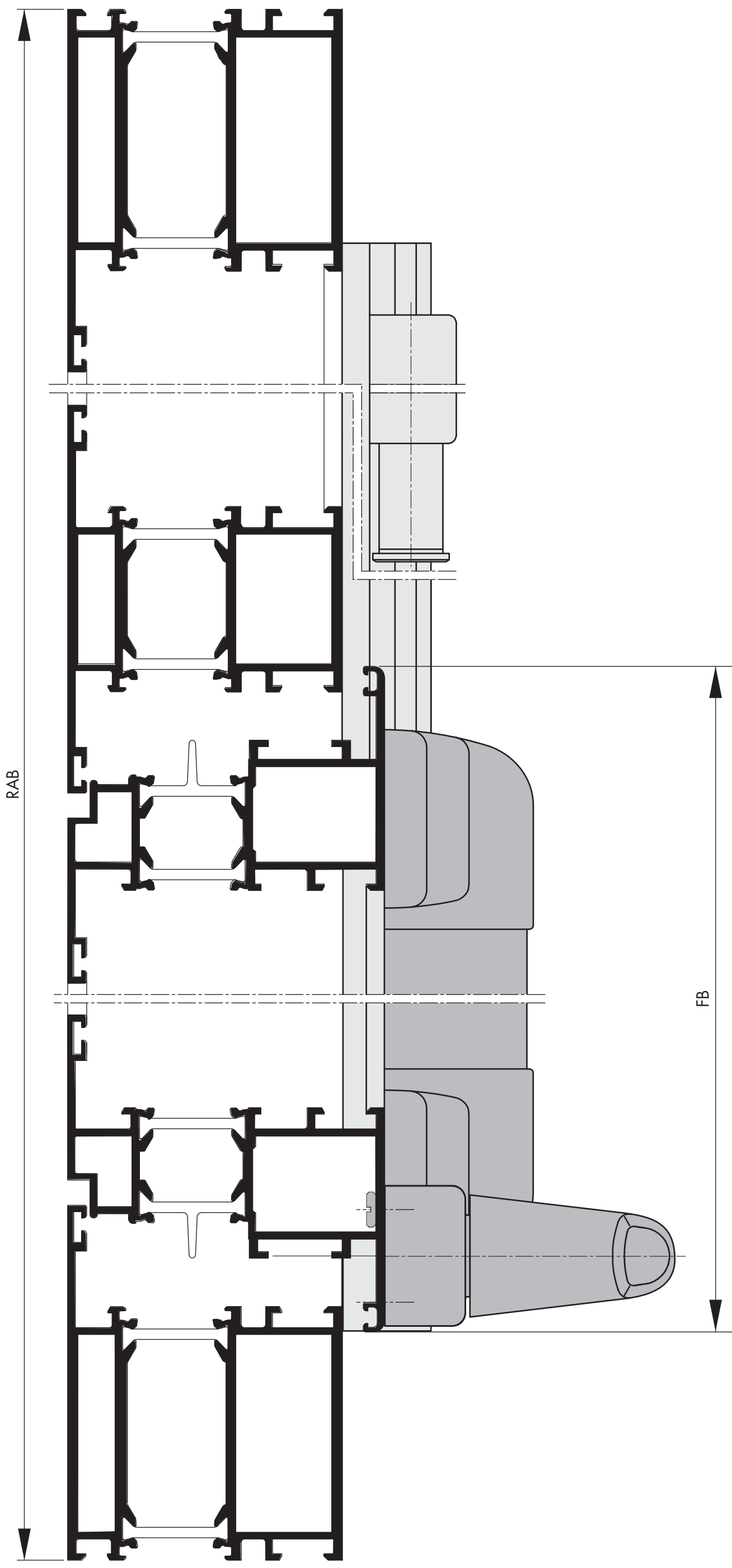
1. Insert key (9) into designated opening on slider (8) (d) and turn 90 degrees.
  2. Pull stay arm down in direction of arrow (e).
- Note:** The stay arm safety device in the slider (8) may be opened only by using the SIEGENIA key (9).

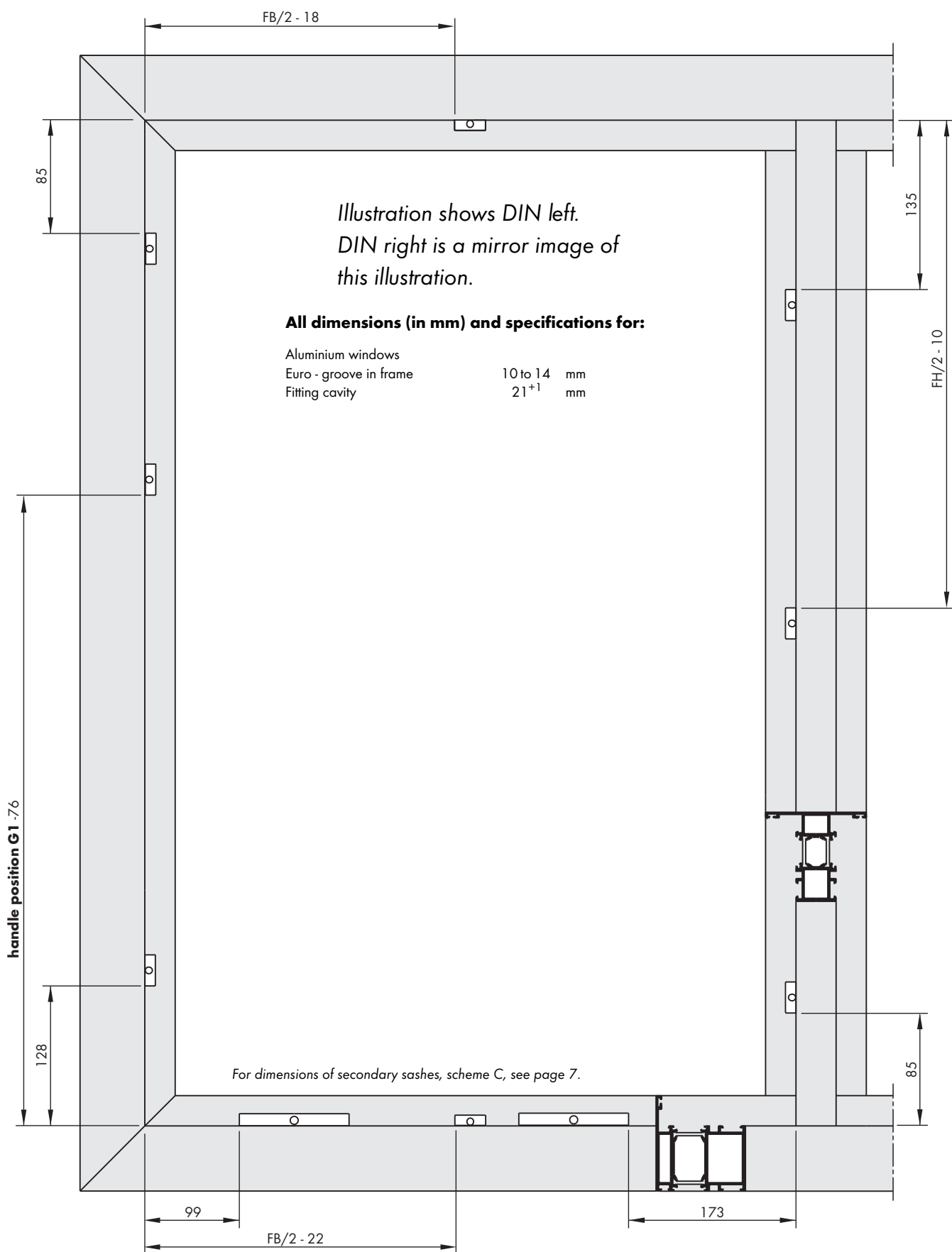
**PSK PORTAL 160 PLUS LM** Vertical section, top

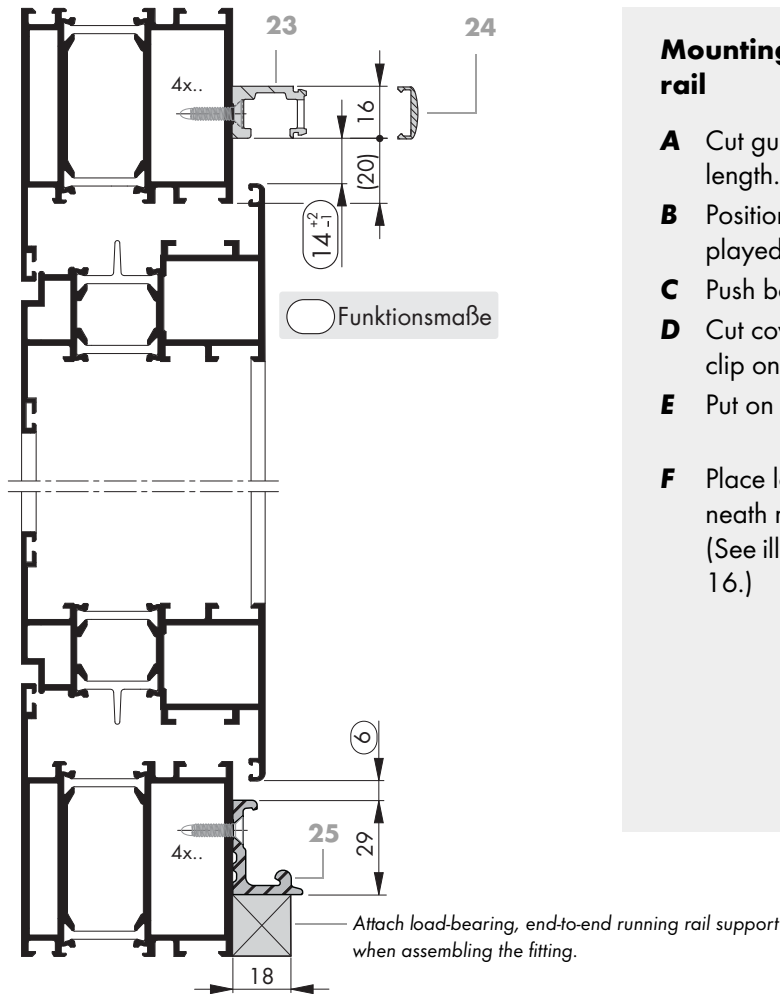


**Scheme A**

Illustration shows DIN left.  
DIN right is a mirror image of this  
illustration.







**Mounting the running rail and guiding rail**

- A** Cut guiding rail (23) and running rail (25) to length.
- B** Position and secure both parts as per the displayed dimensions.
- C** Push both sliders (8) into guiding rail (23).
- D** Cut cover rail F (24) to length and clip on.
- E** Put on lateral cover caps F (28 and 29).
- F** Place load-bearing, end-to-end support underneath running rail (25).  
(See illustration opposite or illustration on page 16.)

**G** Position locking part (33) and tighten using SW 4 hexagon socket head wrench (torque 4 - 4.5 Nm).

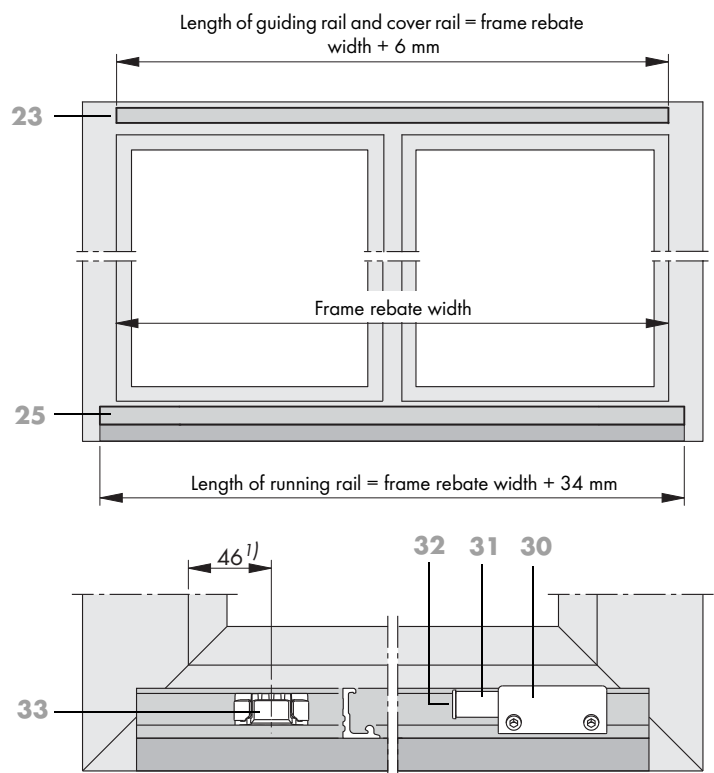
1) **Note:** If dimension 16 mm (on page 19) is increased or decreased, dimension 46 increases or decreases accordingly.

**H** Insert stop body (31) and stop sleeve (32) into stop (30) according to sliding direction DIN left or DIN right.

**I** Insert stop (30) into running rail (25) and tighten slightly.

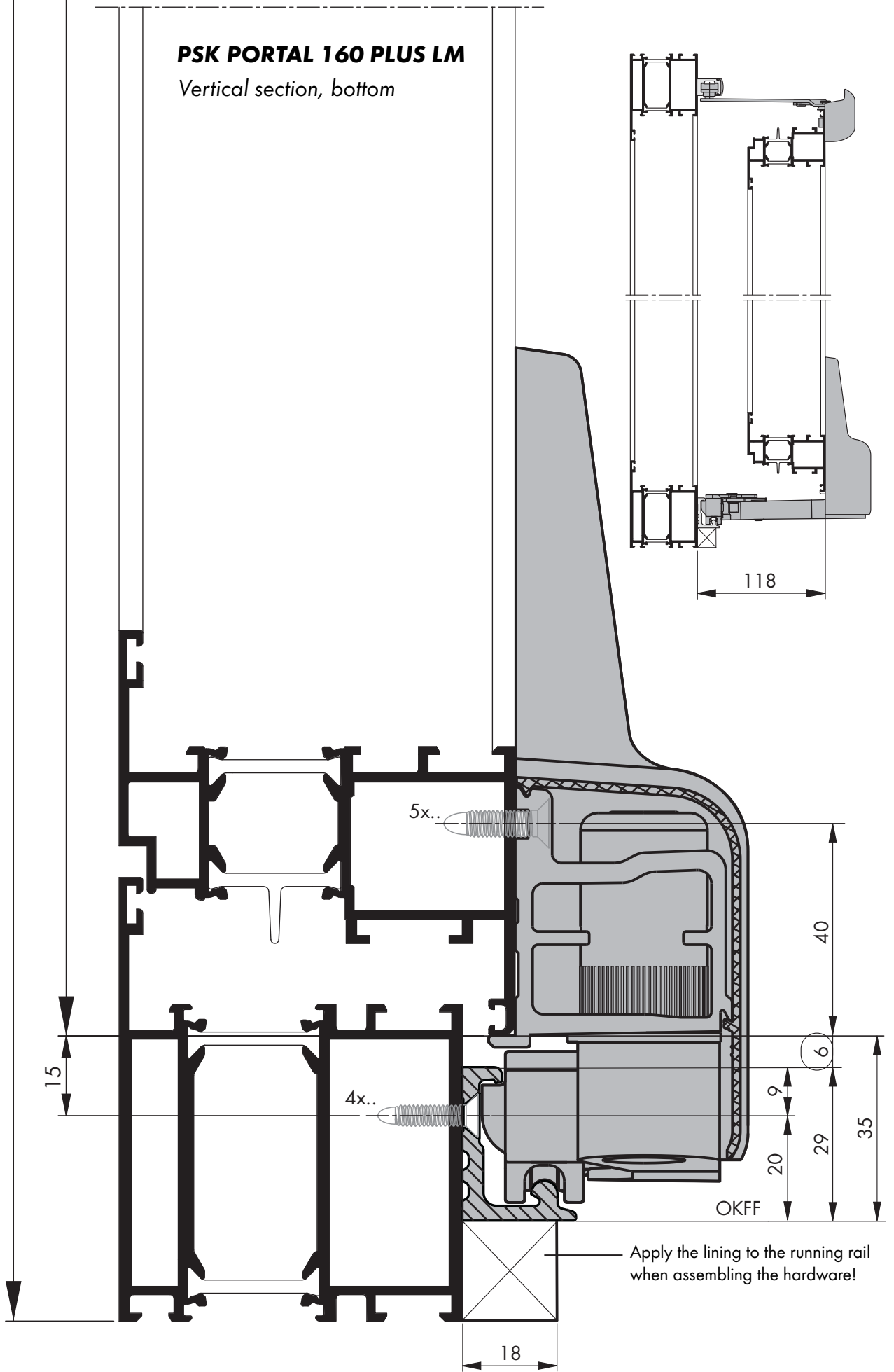
**Note:** Do not securely tighten stop (30) until sliding sash is inserted (see page 20).

Dimensions for 6-mm sash overlap on frame equates to being "flush with sash outer edge."



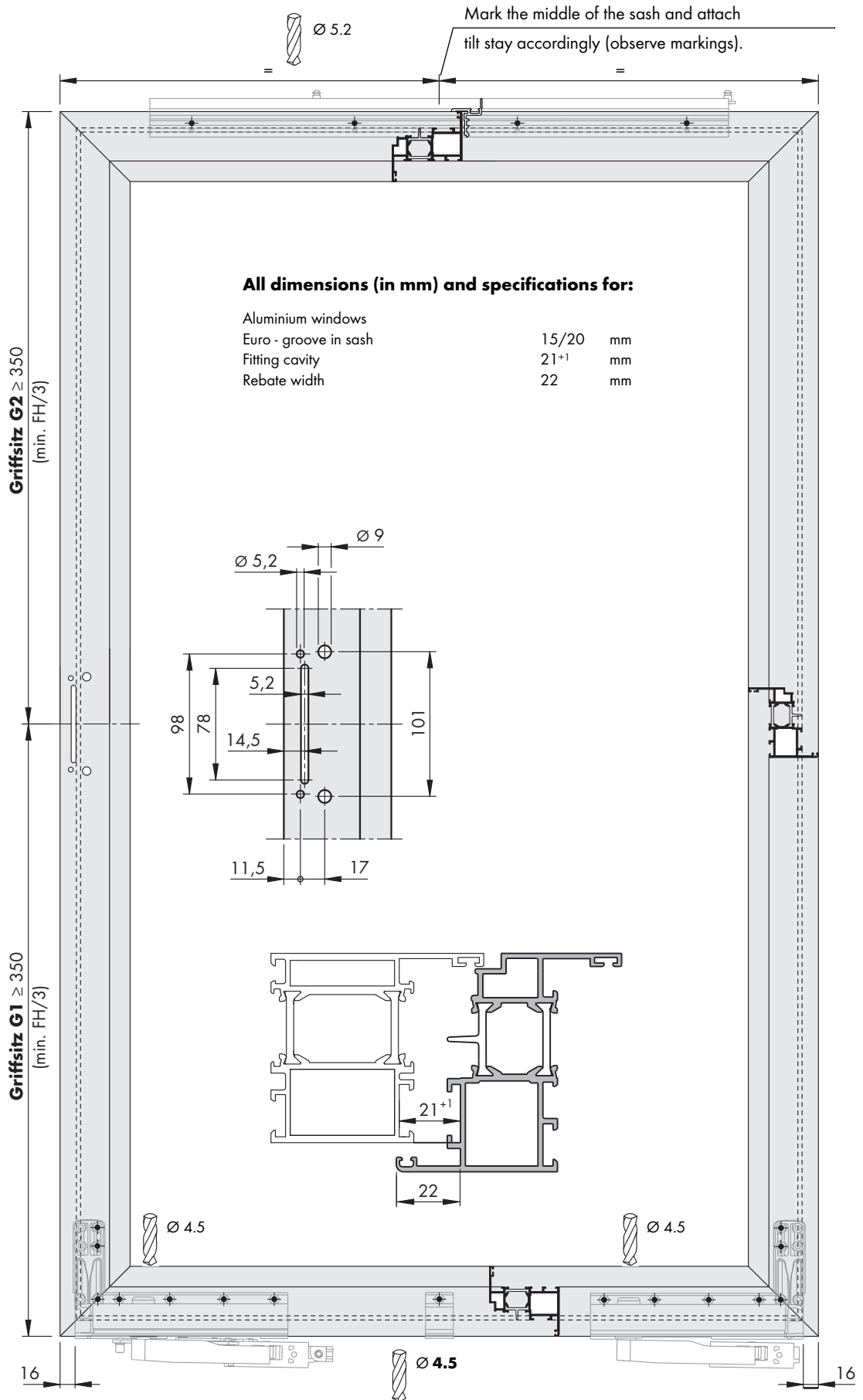
# PSK PORTAL 160 PLUS LM

Vertical section, bottom

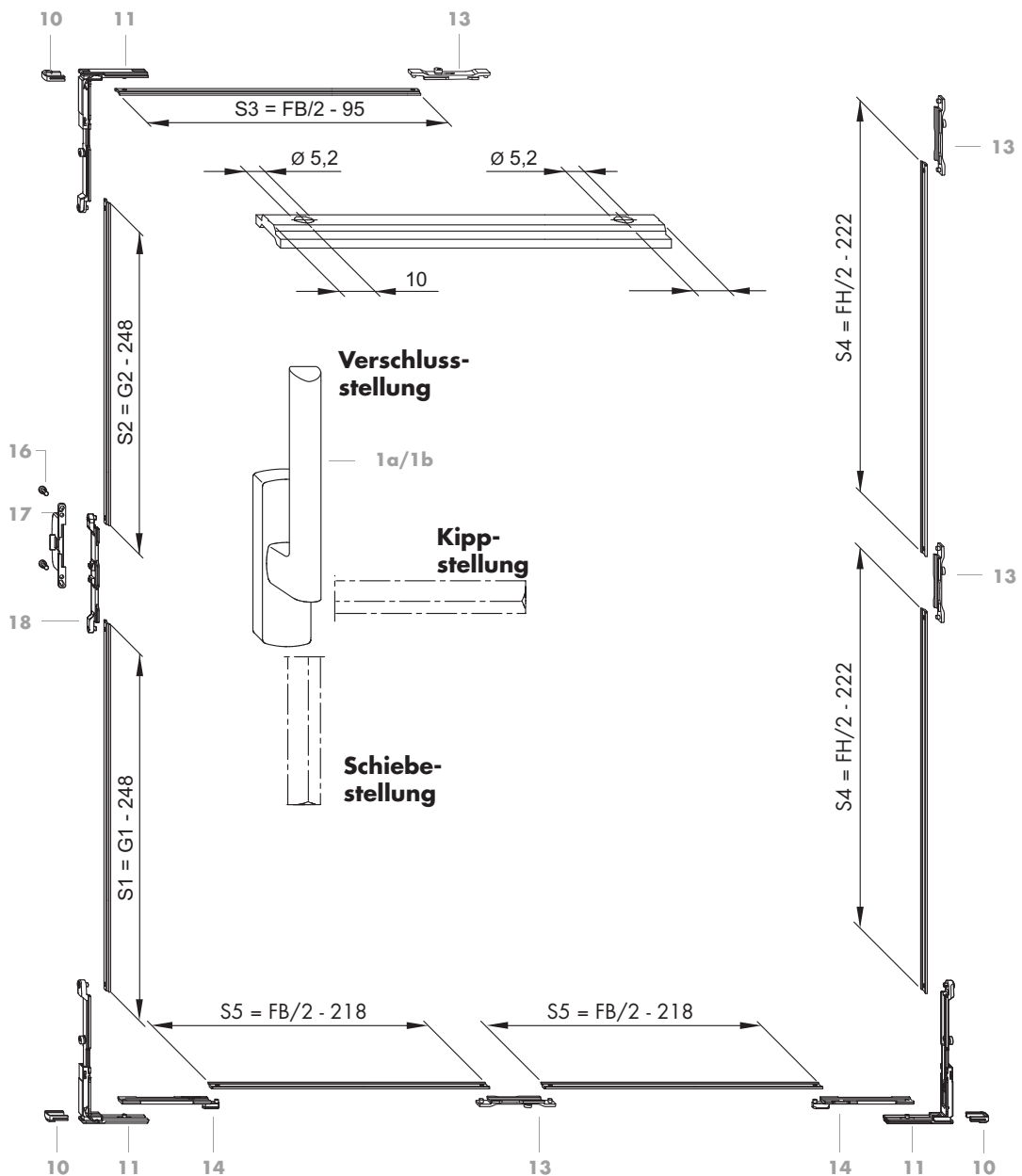


For vertical section, top, see page 11.

# PSK PORTAL 160 PLUS LM *Preparing the sash frame*







For dimensions of secondary sashes, scheme C, see page 7.

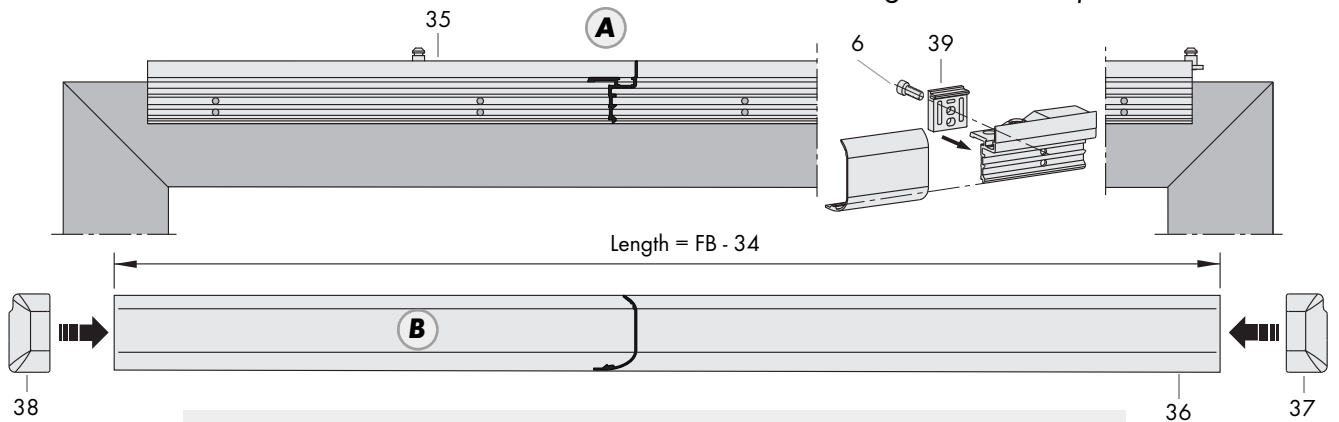
### Mounting the central locking part on the sash

Torque  $2.5 \pm 0.25$  Nm for grub screws, coupling screws and cheese head screws.

- A** Rework operating rods S1 - S5 according to specifications and open operating rod guiding groove.
- B** Slide in operating rod S3 with Schieber MV (13) horizontally from the top.
- C** Slide in Kippriegel (14) operating rod S5 with Schieber MV (13), operating rod S5 and Kippriegel (14) horizontally from below.
- D** Slide in operating rod S1, Kupplungslasche (18), operating rod S2 and Eckumlenkung VSU (11) vertically from the top. Couple Eckumlenkung VSU (11) with operating rod S3 and secure using clamping piece EUL (10).
- E** Loosen coupling screw on Eckumlenkung VSU (11). Slide in Eckumlenkung VSU (11) vertically from below.
- F** Couple Eckumlenkung VSU (11) with Kippriegel (14) and secure using clamping piece EUL (10).
- G** Connect Eckumlenkung VSU (11) and operating rod S1 to coupling screw.
- H** Slide in Schieber MV (13), operating rod S4, Schieber MV (13), operating rod S4 and Eckumlenkung VSU (11) from below.
- I** Couple Eckumlenkung VSU (11) with Kippriegel (14) and secure using clamping piece EUL (10).
- J** Screw mishandling device LM (17) on rebate using cheese head screws M5 x 12 (16) for the handle (1a/1b). Pay attention to inclusion of handle catch in Kupplungslasche (18).

For layout of fittings, see pages 2, 7 and 8.

## PSK PORTAL 160 PLUS LM Sash frame: mounting the PSK components



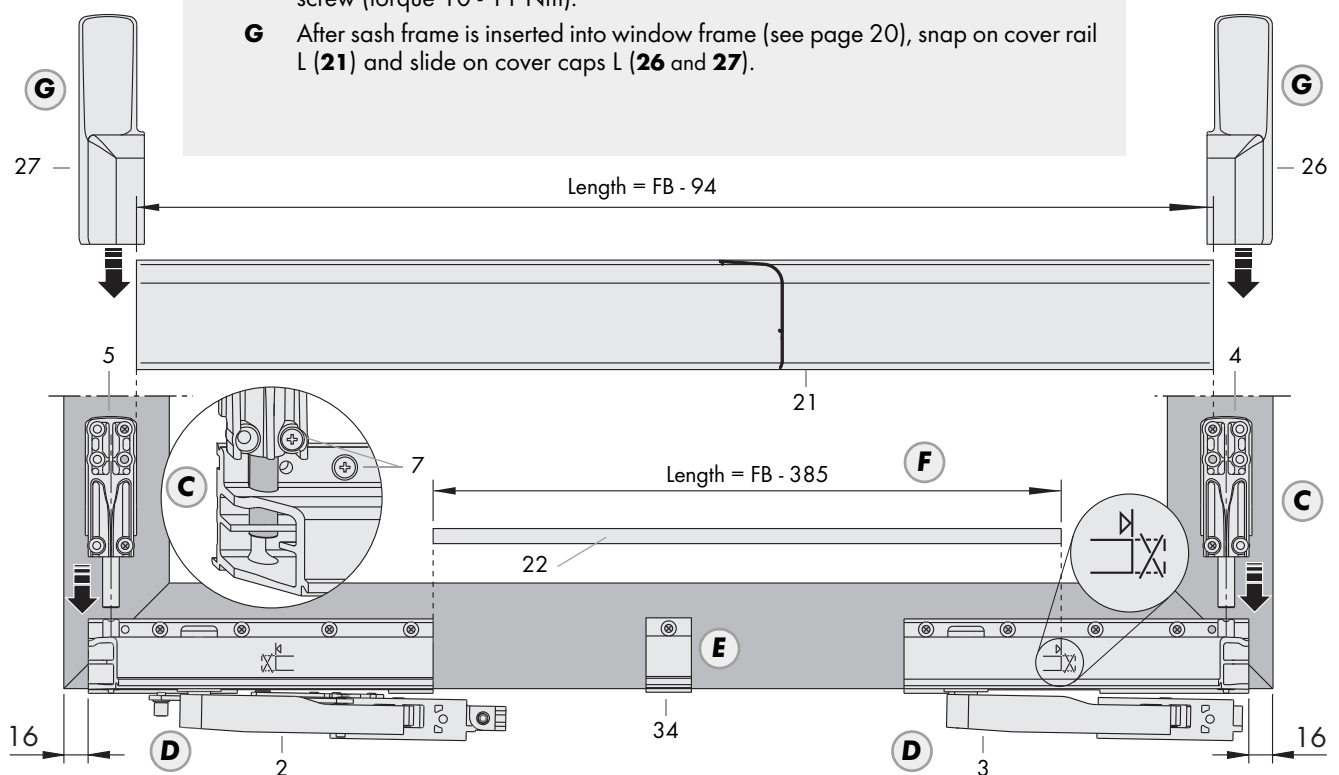
### Mounting the tilt stay

Torque  $2.5 \pm 0.25$  Nm for cheese head screws and flow drill screws  
 Fix distance pieces (39) in the correct screw positions by clipping them onto tilt stay (35). Screw tilt stay (35) onto sash frame above the provided drilling mounting holes using cheese head screws M5 x 18 (6).

- B** Cut cover rail K (36) to length, place onto tilt stay (35) from above and snap on. Slide on cover caps K (37 and 38) onto the side.

### Mounting the bogie wheels

- C** Slide on supporting parts (4 and 5), according to their application DIN left or DIN right, into bogie wheels V (2) and bogie wheels H (3).
- D** Screw tight bogie wheels V (2) and bogie wheels H (3) using flow drill screws M5 x 20 (7).
- E** Centre supporting piece L (34) for cover rail L (21) and screw on.
- F** Attach connecting rod (22) on bogie wheels V (2), mark off on marking from bogie wheels H (3) and cut to length. Insert connecting rod (22) into bogie wheels H (3) and secure using hexagon socket screw (torque 10 - 11 Nm). For this use a SW 4 hexagon wrench. Insert connecting rod (22) into bogie wheels V (2). Fix (secure) bogie wheels H (3) into locking position. Ensure the parallel position of bogie wheels. Secure connecting rod (22) into bogie wheels V (2) also using hexagon socket screw (torque 10 - 11 Nm).
- G** After sash frame is inserted into window frame (see page 20), snap on cover rail L (21) and slide on cover caps L (26 and 27).



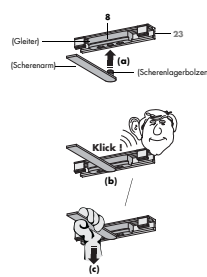
**Inserting the sliding sashes**

- A** Place stay arms of tilt stay (35) into tilt position. Place sash frame onto running rail (25) at an incline and snap coupling bolt of the stay arms into slider (8). Confirm that the snapped-in coupling bolt is secure by pulling briefly on the stay arm.
- B** Secure stop (30). To do this, slide sash into the desired final position and screw tight stop (30) using SW 4 hexagon socket head wrench (torque of 4 - 4.5 Nm).
- C** Check that all fittings work. Use the adjustments if necessary.

**Note:** For hinging and unhinging the stay arms, see page 10.

**PSK PORTAL 160 Plus LM** Einhängen und Aushängen der Scherenarme

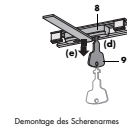
Scherenarm der Kippschere (35) in Gleiter (8) einrasten



- ! WARNUNG** Bei nicht eingerasteten Scherenbolzen. Verletzungsgefahr durch herausfallenden Fensterflügel! -> Scherenbolzen am Scherenarm im Gleiter (8) einrasten.
- Scherenarm (a) wie in nebenstehender Abbildung in Gleiter (8) einschleiben.
  - Auf das Einrasten (Klick) des Scherenlagerbolzens (b) im Gleiter (8) ist unbedingt zu achten.
  - Durch kurzes Ziehen am Scherenarm (c) ist der feste Sitz des Scherenlagerbolzens im Gleiter zu überprüfen.

Reihenfolge beim Sichern (Einhängen des Scherenarmes)

Aushängen der Scherenarme



- Schlüssel (9) in vorgesehene Öffnung des Gleiters (8) einstecken (d) und um 90° drehen.
  - Scherenarm nach unten in Pfeilrichtung ziehen (e).
- Hinweis:** Das Öffnen der Scherenarmverankerung im Gleiter (8) darf nur mit dem SIEGENIA AUBI Schlüssel (9) erfolgen.

Demontage des Scherenarmes

**Adjustment possibilities**

If necessary, the function of the tilt stay (35) and height of the parallel tilt & slide sash can be adjusted **after the glass pane is installed**. The locking effect and pressing pressure of the tilt stay can be set using the SW 4 hexagon socket head wrench. The height can be adjusted at the front (2) and rear (3) of bogie wheels using the SW 8 hexagon socket head wrench. The bogie wheel height adjustment (+4/-2 mm) is self-locking.

**Note:** Locking part (33) can be moved for a central sash run-in.

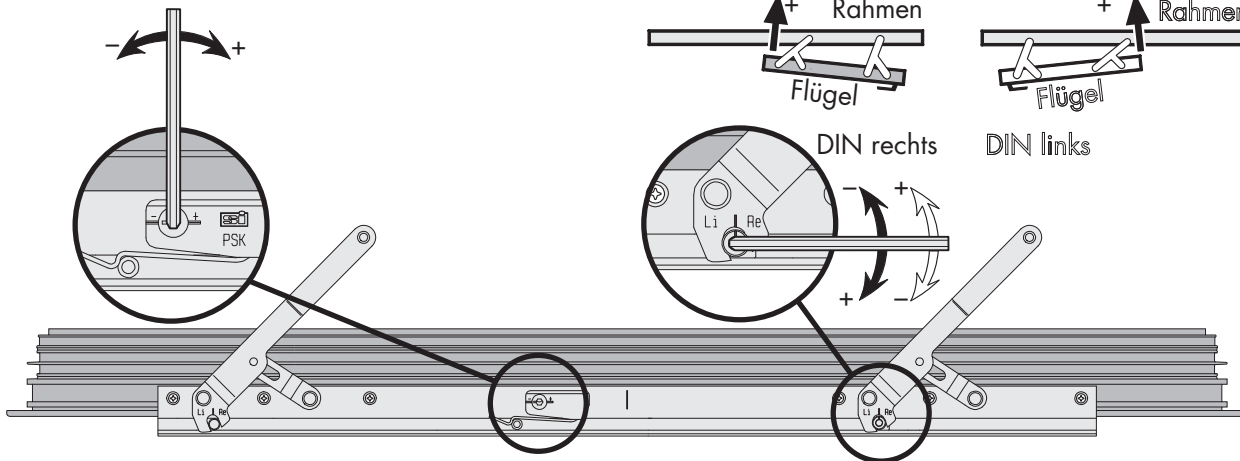
Einsetzen Schiebefügel siehe Seite 20.

**SIEGENIA AUBI**

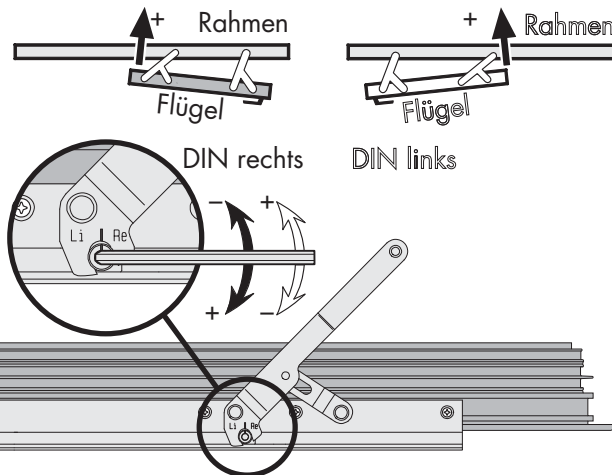
Druckdatum 12.02.2011

PSKde7010 Seite 10

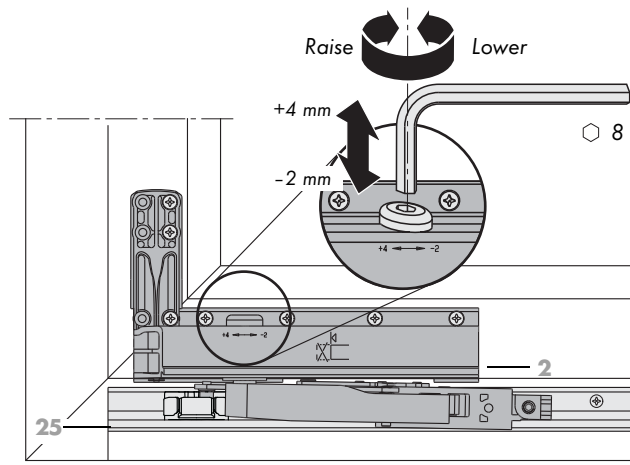
**Setting the locking effect of the tilt stay**



**Setting the pressing pressure of the tilt stay**



**Adjusting the height on the bogie wheels**



**SIEGENIA**<sup>®</sup>  
SOLUTIONS INSIDE

Hauptsitz:  
Industriestraße 1-3  
57234 Wilnsdorf  
DEUTSCHLAND

Telefon: +49 271 3931-0  
Telefax: +49 271 3931-333  
info@siegenia.com  
www.siegenia.com



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SIEGENIA weltweit:

**Benelux** Telefon: +32 9 2811312  
**China** Telefon: +86 316 5998198  
**Deutschland** Telefon: +49 271 39310  
**Frankreich** Telefon: +33 3 89618131  
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**Österreich** Telefon: +43 6225 8301

**Polen** Telefon: +48 77 4477700  
**Russland** Telefon: +7 495 7211762  
**Schweiz** Telefon: +41 33 3461010  
**Südkorea** Telefon: +82 31 7985590  
**Türkei** Telefon: +90 216 5934151  
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