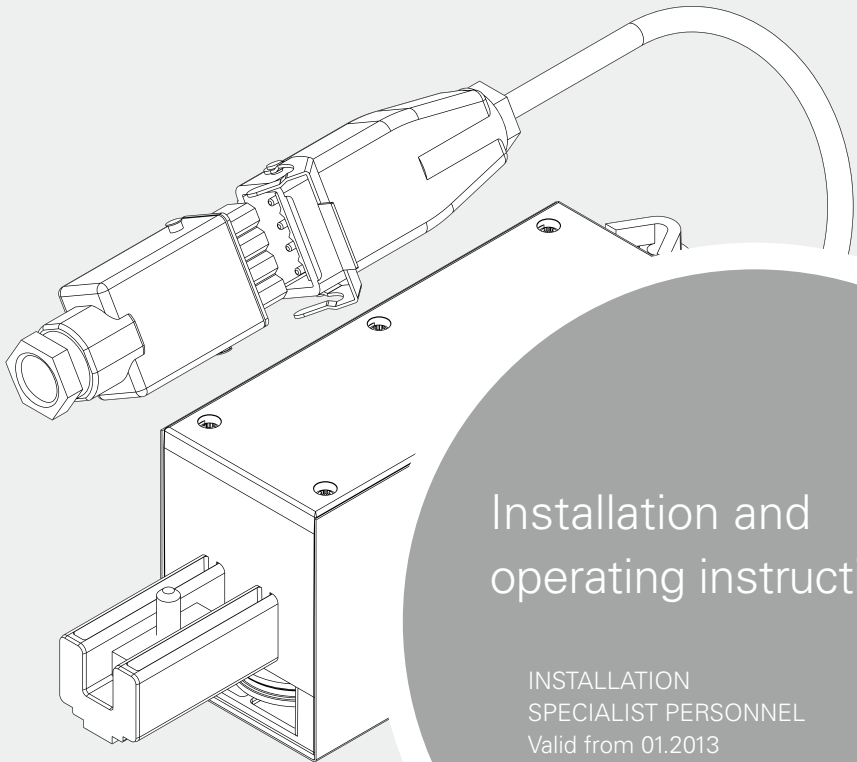


VOLETRONIC 230 V

Motorisation for sliding shutters
Serial push-button operation



Installation and operating instructions

INSTALLATION
SPECIALIST PERSONNEL
Valid from 01.2013

E 623.3 | 380021

Notes

The present Installation & operating instructions describe the installation and commissioning of EHRET sliding shutters with VOLETRONIC 230 V sliding shutter control with serial push-button operation.

These Installation & operating instructions are a component part of the product and therefore always to be retained until the product is disposed of.

These Installation & operating instructions are to be passed along in the event of the sale of this product.

These instructions are addressed to qualified specialist personnel. Qualified specialist personnel are persons who are familiar with the transport, setup, installation, commissioning and operation of the product and who have appropriate qualifications for their work. Specialist personnel must know and observe the relevant standards and/or guidelines.

This product is in accordance with general rules of technology. Safety-conscious behaviour is necessary for undertaking safe commissioning. Observe for that reason the following notes.

Carefully read through these instructions prior to commissioning. Observe the specified process steps and take into account the notes and recommendations given. Knowledge of and technically impeccable implementation of the given safety notes and warnings are prerequisite for the proper operation of the sliding shutters with respect to safety. Insufficient knowledge at the time of commissioning and utilisation lead to the loss of any liability claims against EHRET GmbH.

Should you not understand something in these Installation & operating instructions unambiguously, do not fail to contact the specialist personnel at EHRET GmbH, 77972 Mahlberg (Germany).

Bore hole sizes and fastening material are recommendations; these could vary because of the substrate!

Contents

Notes	2
Explanation of symbols and characters	4
Important safety notes	5
CE Declaration of Conformity	8
Installation FAQs	10
1. Installation instructions	13
1.1 Positioning of the carrier profile in relation to the edge of the reveal.	15
1.3 Coupling sliding sashes (option)	18
1.4 Hook up the sliding sashes in the trolley.	19
1.5 Installing lower sliding shutter guides	20
1.6 Setting trolley stoppers with electrical wire drive	32
1.7 Coupling sliding sashes to electrical wire drive.	33
1.8 Retightening steel cable	34
1.9 Electrical sliding systems with excess length	35
1.10 Installing covers	46
2. Product description	36
3. Operating instructions	37
3.1 Connection	37
3.1.1 Hirschmann coupling phase assignment	37
3.1.2 General notes on installation.	38
3.2 Commissioning.	39
3.3 Programming serial push-buttons.	40
Behavior at power breakdown	40
3.3.1 Setting the running direction.	41
3.3.2 Executing a learning run.	42
3.3.3 Setting the speed	43
3.3.4 Switching between impulse/dead man mode	44
4. Stop diagrams	48
5. Guide brackets	52
5.1 Guide bracket matrix	52
5.2 Article overview of guide brackets.	58
6. System sections	64

Explanation of symbols and characters

Symbol Explanation



DANGER

Designates an immediately pending danger that could lead to death or severe injuries if the respective precautionary measures are not implemented.



WARNING

Means that death, severe bodily injury or major property damage could occur if the respective precautionary measures are not implemented.



CAUTION

Means a possibly pending danger that could lead to minor injuries or property damage if it is not avoided.



Directives for action

Important safety notes

- Only qualified specialist personnel may carry out installation and commissioning!



WARNING

Incorrect installation could lead to severe injuries and/or damage to property. All installation instructions are to be followed.



WARNING

Take into account the following notes and warnings in order to avoid dangers and to protect the product.

- Observe the accident prevention regulations of the Accident Prevention & Insurance Association.
- Observe the rules of the road during transport.
- Make sure that the load is well-secured on the means of transport.
- Take care to ensure that the drives are stored under dry conditions prior to final installation and commissioning.
- Cordon off a generously large area around the installation site.
- Observe without limitation the regulations of the manufacturers of dowel and attachment materials.
- The mounting bases of the installation site are to be checked for load-bearing capacity prior to installation.
- In the event of uncertainties about the mounting bases, contact your responsible building experts.
- Electrical work may be carried out only by authorised electricians.
- The specified connection diagrams are to be observed, as otherwise damage to the motor could occur. EHRET GmbH assumes no liability for damage resulting from incorrect installation.

- Check the product for damage prior to installation. Products requiring repair may not be used.
- Do not touch any internal parts of the product that become exposed as the result of damage (e.g. electrical cables/lines).
- Discontinue operation of your electrical drive at once in the event of smoke or fumes.
- Do not allow children to play with the operating apparatus of the sliding shutter drives.
- Electrical/electronic devices are not secure against failure. Make sure that no hazardous situations for personnel or product could arise in the event of a power failure.
- Devices with electrical controls could go into motion at any time and without warning. Prevent situations hazardous to personnel and product that arise from this fact.
- No personnel or obstacles are permitted to be within the range of pivoting and/or travelling shutters in normal operation. Keep personnel and objects away until the shutters have reached their final position.
- Do not reach into moving parts or closing areas while shutters are opening or closing.
- Make sure that no articles of clothing or body parts are able to be caught by moving parts in the system.
- Disconnect the drives from the power supply during maintenance work.
- Ice could form on the product in the event of snowfall, sleet or icy rain. Do not operate equipment until the ice formation is no longer present, and switch automatic controls to manual.
- Make sure that the shutters are locked before any wind load occurs.
- Shutters may not be operated at wind speeds starting at 62 km/h (stormy wind).
- No additional loads such as persons or objects are permitted to have an effect on the shutters.
- Shutters are not intended to protect individuals from falls.



WARNING

Danger of injury from the weight of the product!

Due to the weight of the product, we recommend that transport and installation be performed by at least two individuals.



Transport the product carefully in order to avoid damage.



Take care to ensure that the product is not damaged when the packaging material is removed.



DANGER

There is a danger of suffocation from the packaging foil included in the delivery.

The packaging foil must be kept away from the hands of children.
Store the foil carefully until you turn it in for recycling.



Turn the packaging materials in for recycling.

Incorrect operation

Correct operation can no longer be ensured if the sliding shutter is moved by hand quickly and with great force in its position, and not by means of operation with the **OPEN**- or **CLOSE** button. A force may be applied to the sliding shutter in such cases in such a way that the current mechanical position of the sliding shutter no longer matches the position present in the control.

This leads to incorrect information within the control, as a result of which the control will no longer function correctly. This condition is rectified as a rule by an ascent and descent run.

CE EC Declaration of Conformity

The manufacturer: EHRET GmbH
Aluminium Shutters
Bahnhofstrasse 14- 18
D- 77972 Mahlberg

declares that the product: **EHRET VOLETRONIC 230 V sliding shutter drive**

to which this guideline refers, is in conformance with the stipulations of

Guideline 1999/05/EC Radio equipment and telecommunications terminal equipment,

as well as with the following standards:

EN 301 489-3:2000 Electromagnetic compatibility and Radio spectrum Matters (ERM), Electromagnetic Compatibility (EMC) standard for radio equipment and services – Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz

EN 300 220-3:2000 Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD) radio equipment to be used in the 25 MHz to 1000 MHz frequency range with power levels ranging up to 500 mW – Part 3: Harmonized EN covering essential requirements under Article 3.2 of the R&TTE Directive

98/37/EC Machinery Directive

EN 73/23/EEC Low Voltage Directive

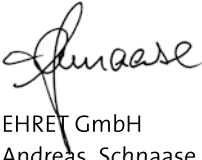
**EN 60730 + A1 + A2
+A11 +A12 +A13
+A14+A15** Safety requirements for automatic electric regulators and controllers

CE EC Declaration of Conformity

Name and address of the individual who is authorised to assemble the technical documentation:

Ralf Gielen
Head of Technology

Location: D-77972 Mahlberg
Date: 01/03/2015



EHRET GmbH
Andreas Schnaase
Head of Sales



EHRET GmbH
Manuel Meier
Management

Installation FAQs

INFO

Specifications refer to standard orders.
Specifications may vary with individual orders!

1. Which parts have been delivered?

- Carrier profiles with pre-mounted guide rails. Version in accordance with the required projection:
System A75, A105, A148 with continuous carrier profiles
System A195 with wall basic profile and hooked-up rail carrier
- Trolleys and stoppers are pushed into the guide rails
- Sliding sash with pre-mounted suspension bars and pre-mounted shutter guide profiles
- Guide bracket, unattached, fits guide Type A (punctiform guide) or Type B (continuous guide), quantity and version **see chapter “5.1 Guide bracket matrix”**
- Guide T-profile, unattached, enclosed with continuous guides
- Cover trim with lateral closing cover, unattached, with fastening screws
Version with Systems A75, A105 and A148 as continuous cover profile, single-part. As continuous cover with System A195, although 2-part version

2. Which means of attachment are being used?

- The means of attachment are not included in the scope of delivery!
- The selection of the attachment materials is oriented towards the mounting bases on hand, the load-bearing capacities of which are to be checked before the installation. Observe without limitation the regulations of the manufacturers of dowel and attachment materials.



WARNING

Unsuitable means of attachment could lead to severe injuries and/or damage to property.

Select the means of attachment in accordance with the load-bearing capacity of the mounting bases.

3. Which sash-wall clearances and sash-wall overhangs are to be observed?

If no object-specific special clearances are agreed to, the following applies:

- Wall and intermediate clearances with sash depth 32 and 48 mm = 12 mm
- Wall and intermediate clearances with sash depth 70 mm = 15 mm
- Sash overhang in lintel area 30 mm
- Lateral sash overhang 40 mm to the reveal

4. Which parts are to be positioned where on the structure?

- Position and fasten carrier profiles in accordance with the system drawing and stop diagram above the lintel (see chapter “1.1 Installing carrier profiles”)
 - System A75
 - System A105
 - System A148
 - System A195
- Position and fasten side guidance brackets in accordance with the system drawing and stop diagram (see chapter “1.5 Installing lower sliding shutter guides”)
 - Side guidance bracket Type A
 - Side guidance bracket Type B
- Stop diagrams (see chapter “4. Stop diagrams”)

5. How are the sliding sashes hooked up in the trolleys and how can the sashes be readjusted?

- The sliding sashes with the hooking bars are pushed into the hexagon screws (SW13) screwed in the trolleys from below and fastened with lock nuts (SW17) after the height adjustment.
- The prescribed clearance from the upper edge of a sash to the lower edge of the guide rail is 33 mm for all systems.
- The height can be adjusted by a maximum of +/- 5 mm by screwing the hexagon screw (SW13) in or out.

**WARNING**

Incorrect installation could lead to severe injuries and/or damage to property.
Take care to ensure the hexagon screw has a secure threading distance into the carriage.

**WARNING**

Incorrect installation could lead to severe injuries and/or damage to property.
If the lock nuts are not tightened firmly, then the sliding sash can become detached and fall. The solid seating of the lock nuts is to be checked.

- The wall clearance can be readjusted by a maximum of +/- 2 mm by a horizontal shifting of the suspension bars in the suspension screws.
- As an additional disconnection lock, the lock nut can be protected against inadvertent loosening with the optional safety spring.

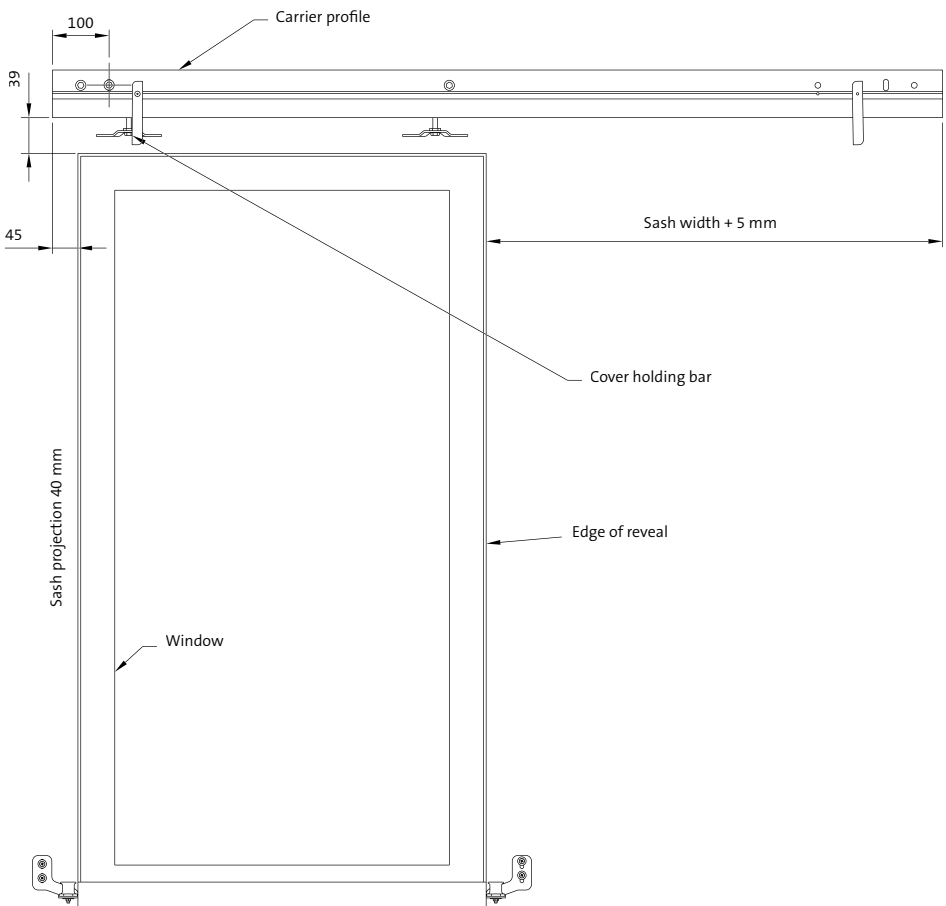
6. What is to be taken into account with the function check?

- Can the sliding sashes be moved easily?
- Is the setting of the holding force of the trolley stoppers not too strong or too weak?
- Are all of the lock nuts on the suspension bars firmly tightened?
- Are the distances to the reveal and clearances of the lateral guides aligned to the sliding sashes?
- Are the sliding sashes aligned parallel to one another?
- Are the sliding sashes aligned to the facade?

1. Installation instructions

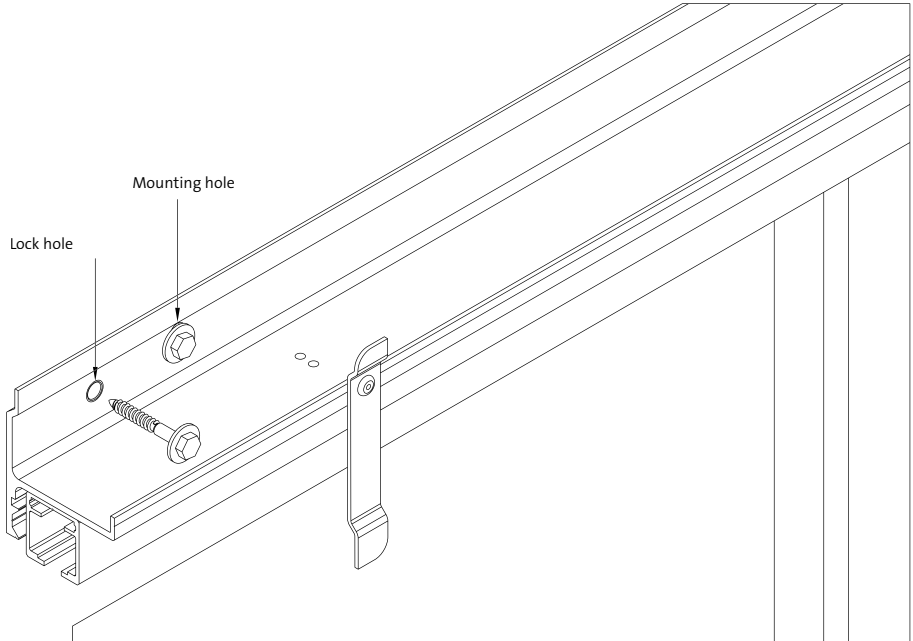
1.1 Installing carrier profiles

- Determine the position of the carrier profiles with respect to the window opening in accordance with the stop diagram and sash width
- Position the carrier profile in accordance with the system drawing and mark the oblong holes for fastening



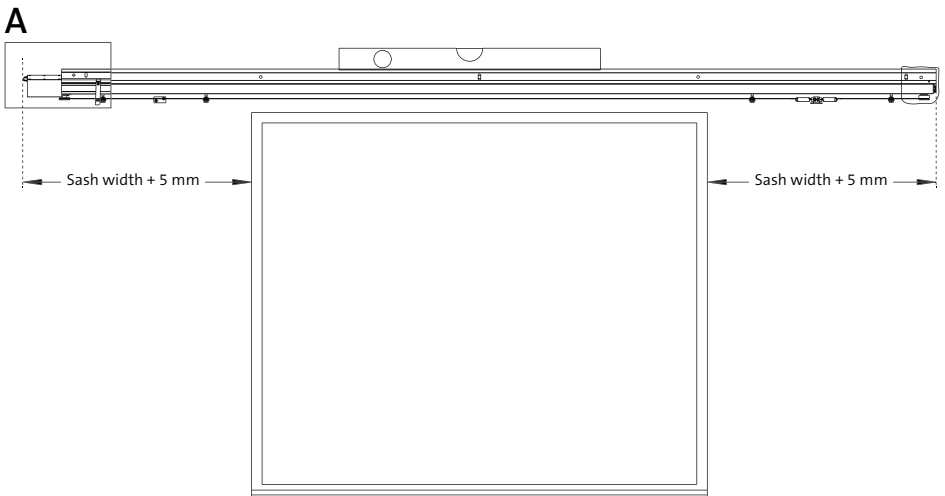
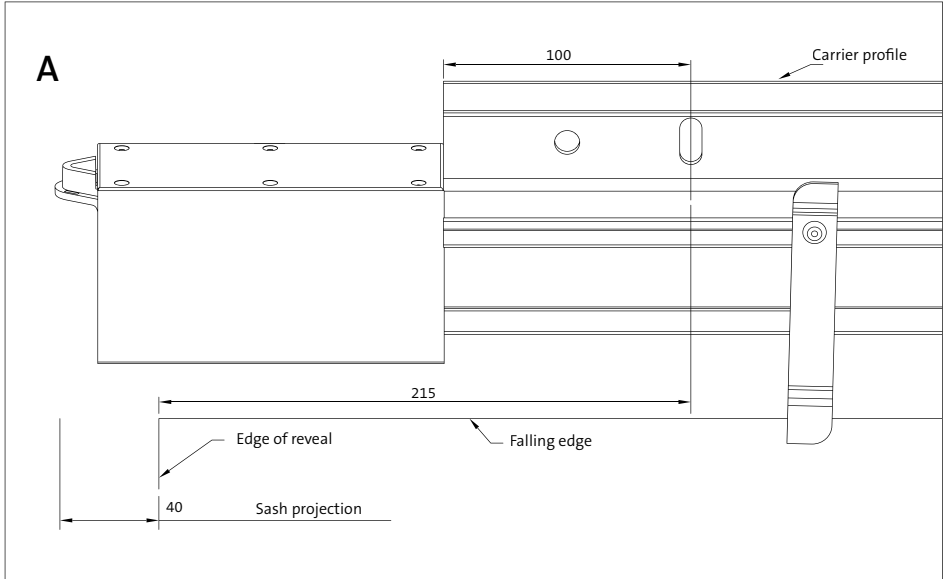
1.1 Installing carrier profiles

- Mark & centre-drill the mounting holes (oblong)
- Screw or dowel carriers to wall surface (all bore holes including security bore hole)
- Align carrier profile
- Fasten carrier profile in place with additional screws or dowels in the security bore holes.



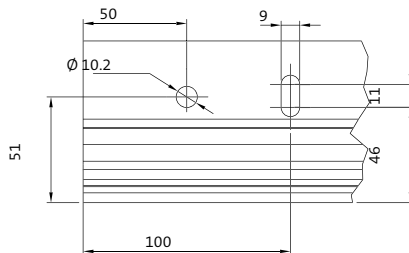
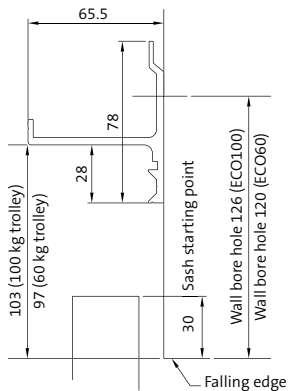
1.2 Positioning of the carrier profile in relation to the edge of the reveal

Standard installation with motor positioning in the area of the edge of the reveal

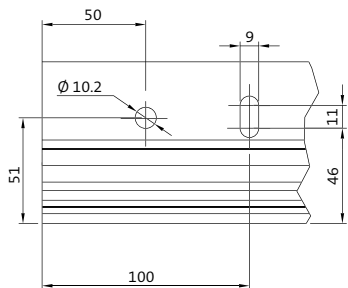
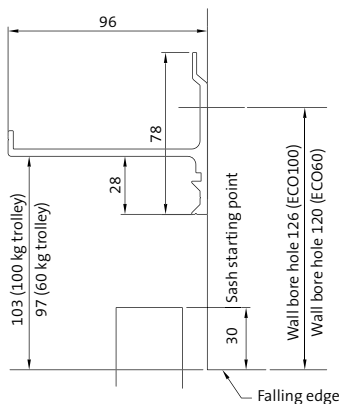


Article overview of carrier profiles

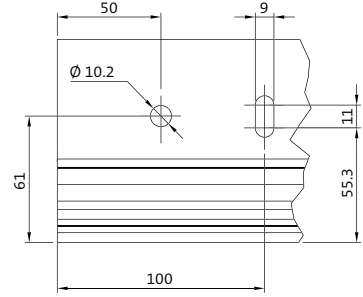
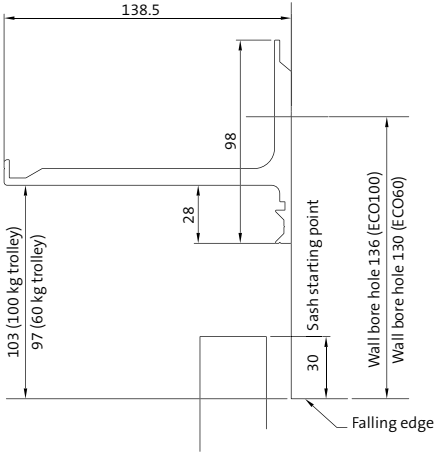
Carrier profile A75



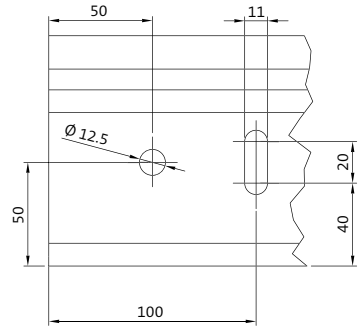
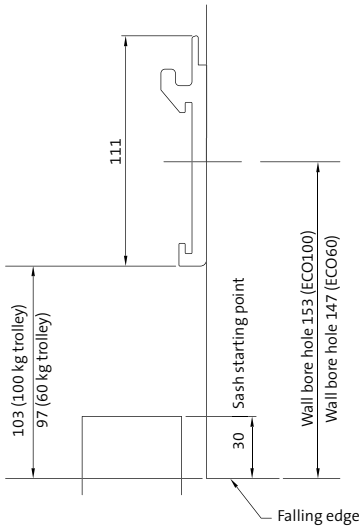
Carrier profile A105



Carrier profile A148



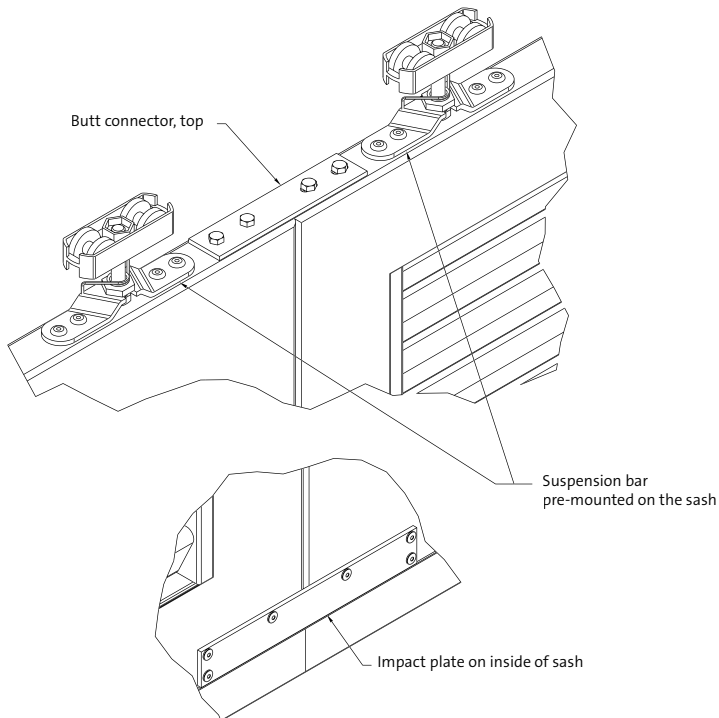
Basic wall profile A195



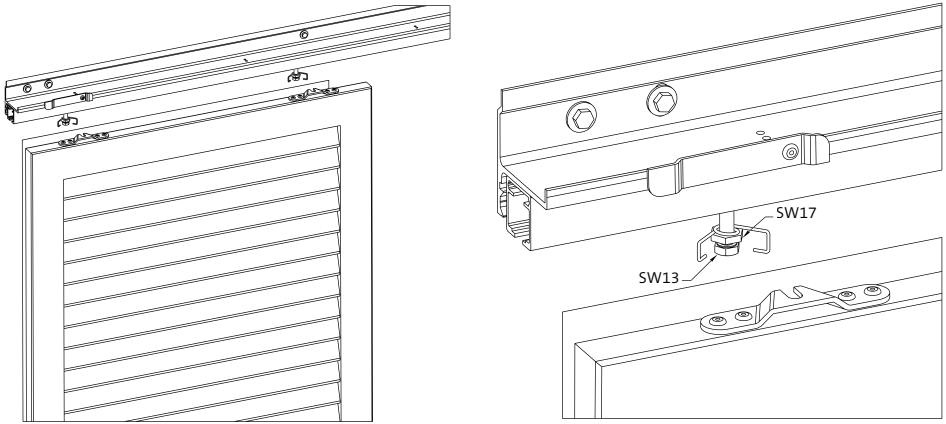
1.3 Coupling sliding sashes (option)

To ensure a more secure transport, coupled sashes are delivered as single sashes and must be assembled on site. The mounting holes of the connectors are pre-drilled. The butt connectors and plates with fastening material are enclosed unattached. Assembly sequence for the sash coupling:

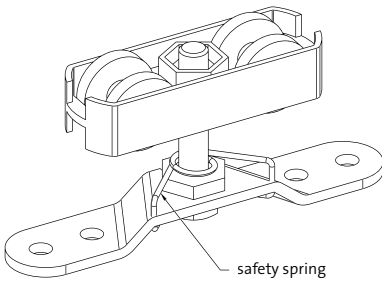
- Unpack the sashes to be coupled and position them in relation to one another
- Hook up the sliding sashes in the sliding system
- Slide the sashes together and screw the butt connectors in place at the top
- Position and rivet the impact plate on inside of the sash



1.4 Hook up the sliding sashes in the trolley



- Adjust sashes
- Hang the safety spring into the suspension bar



Adjustment range for sash calibration:

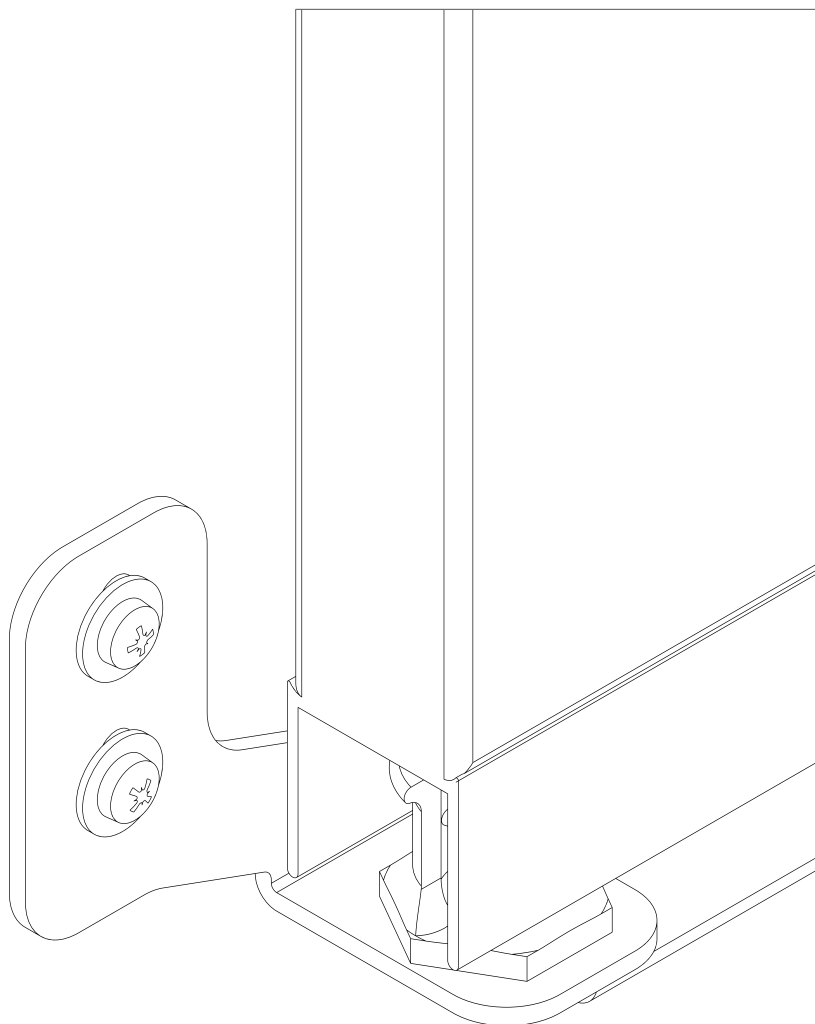
\updownarrow +/- 5 mm
 \leftarrow +/- 2 mm

- Tighten the nuts firmly (key width SW13 + SW17)

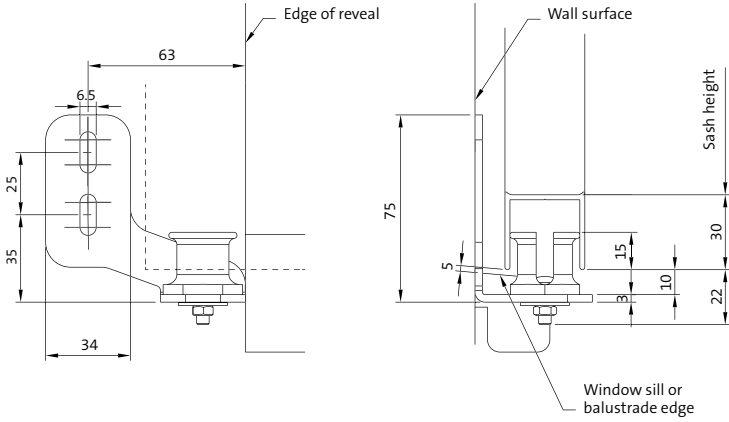
1.5 Installing lower sliding shutter guides

→ Position and fasten lateral guides in accordance with system drawing.

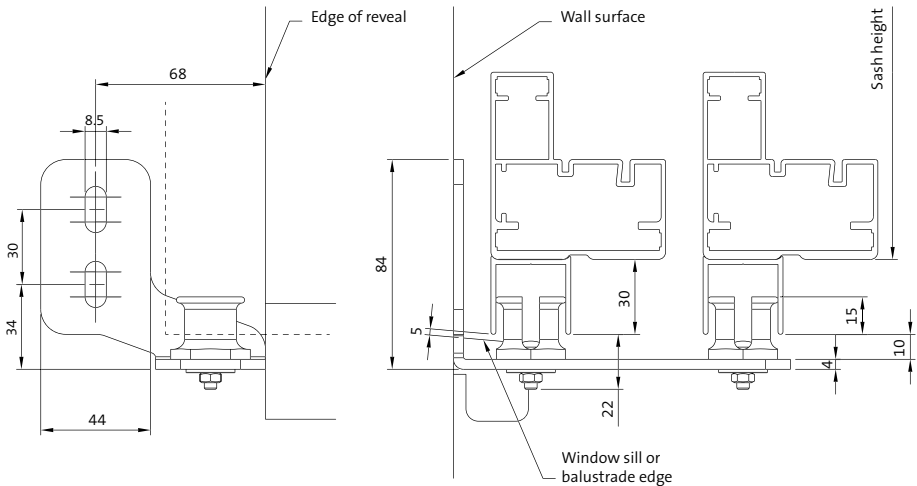
Type A – punctiform guide (ECO), offset



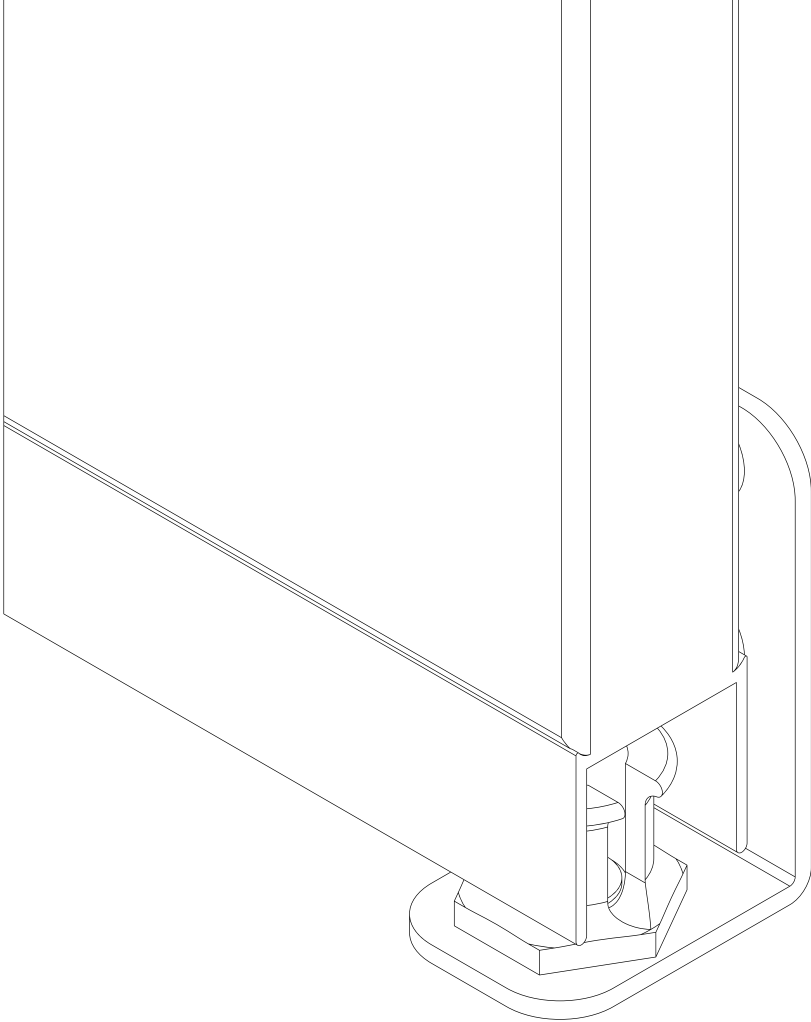
Mounting holes for side guidance bracket Type A
Punctiform guide, offset, visible width 34 mm



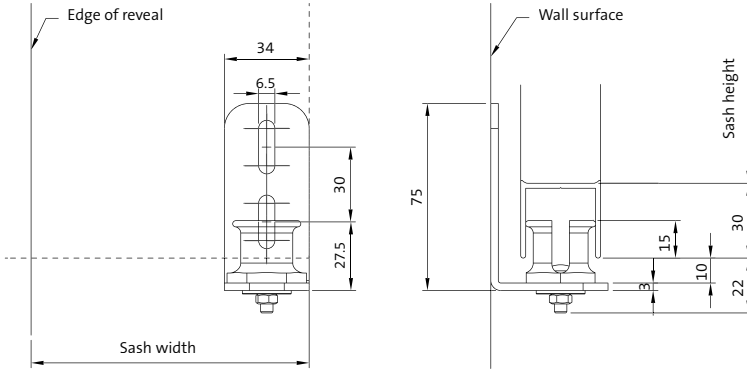
Mounting holes for side guidance bracket Type A
Punctiform guide, offset, visible width 44 mm



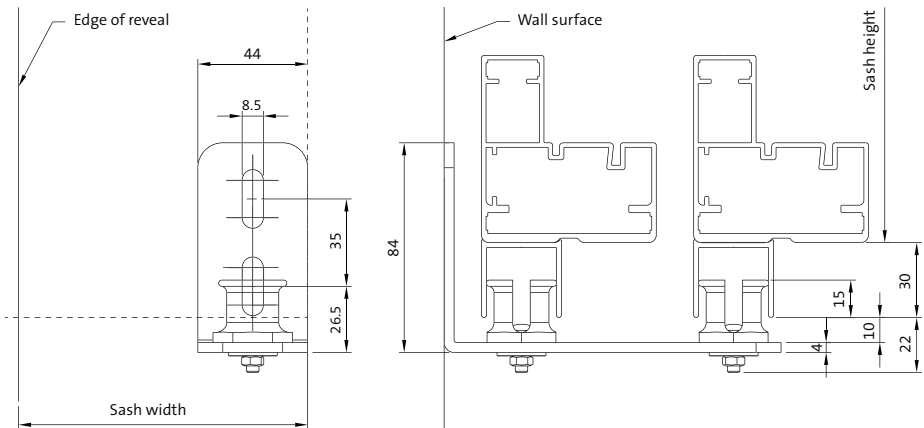
Type A – punctiform guide (ECO), straight version



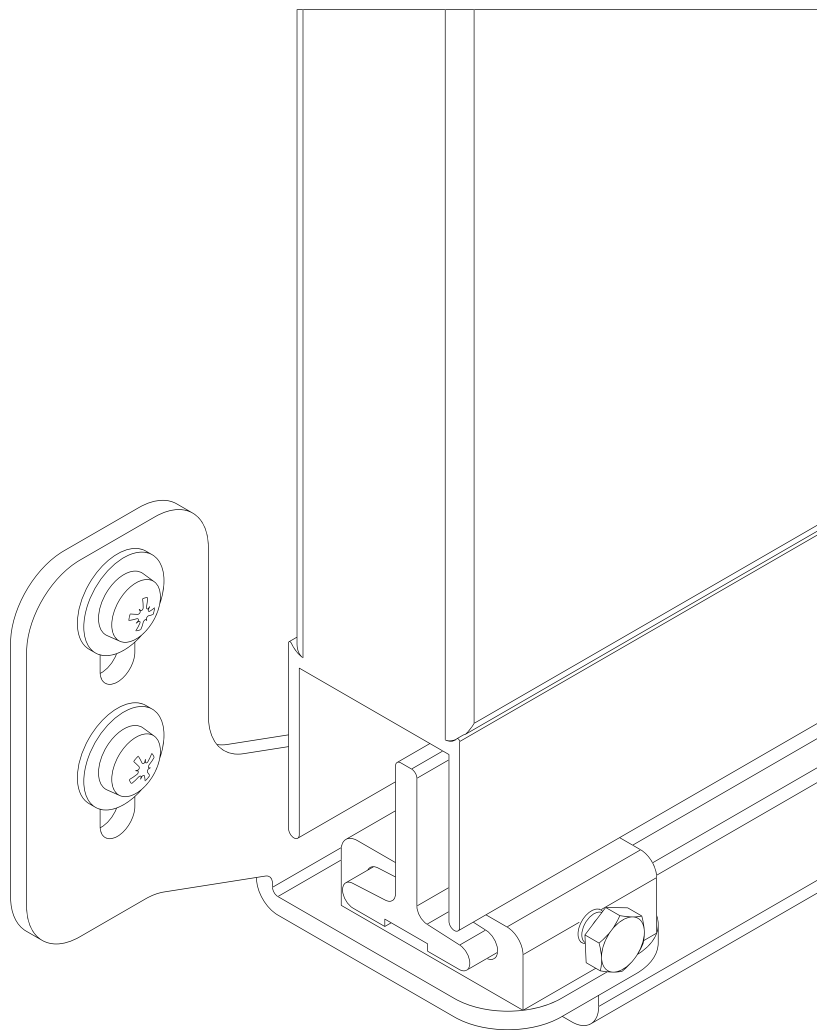
Mounting holes for side guidance bracket Type A
Punctiform guide, straight version, visible width 34 mm



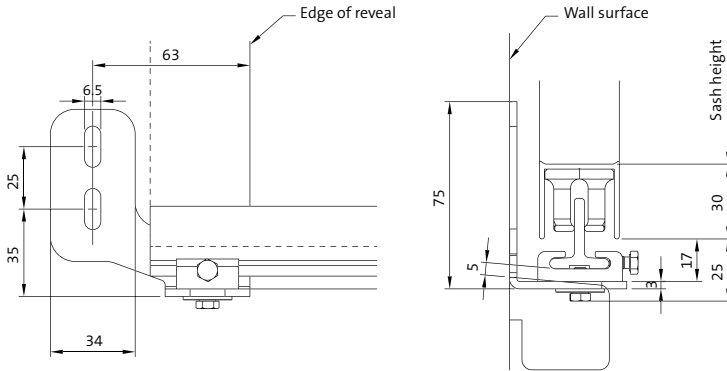
Mounting holes for side guidance bracket Type A
Punctiform guide, straight version, visible width 44 mm



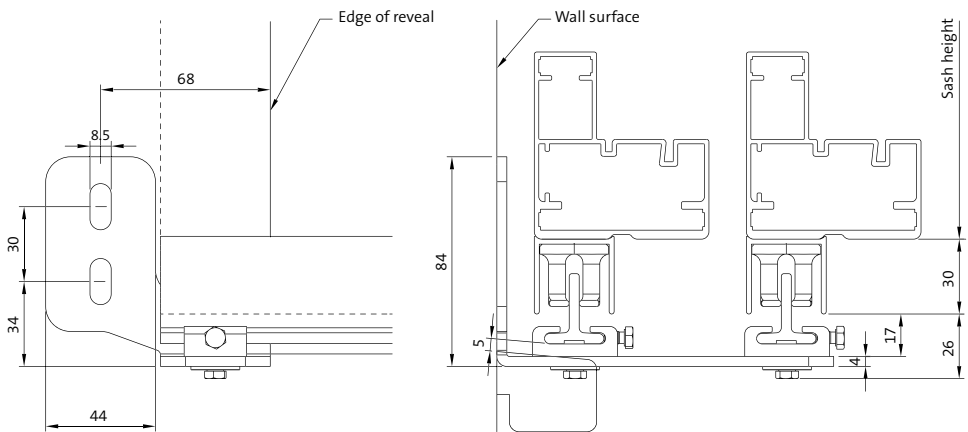
Type B – continuous guide (ECO), offset



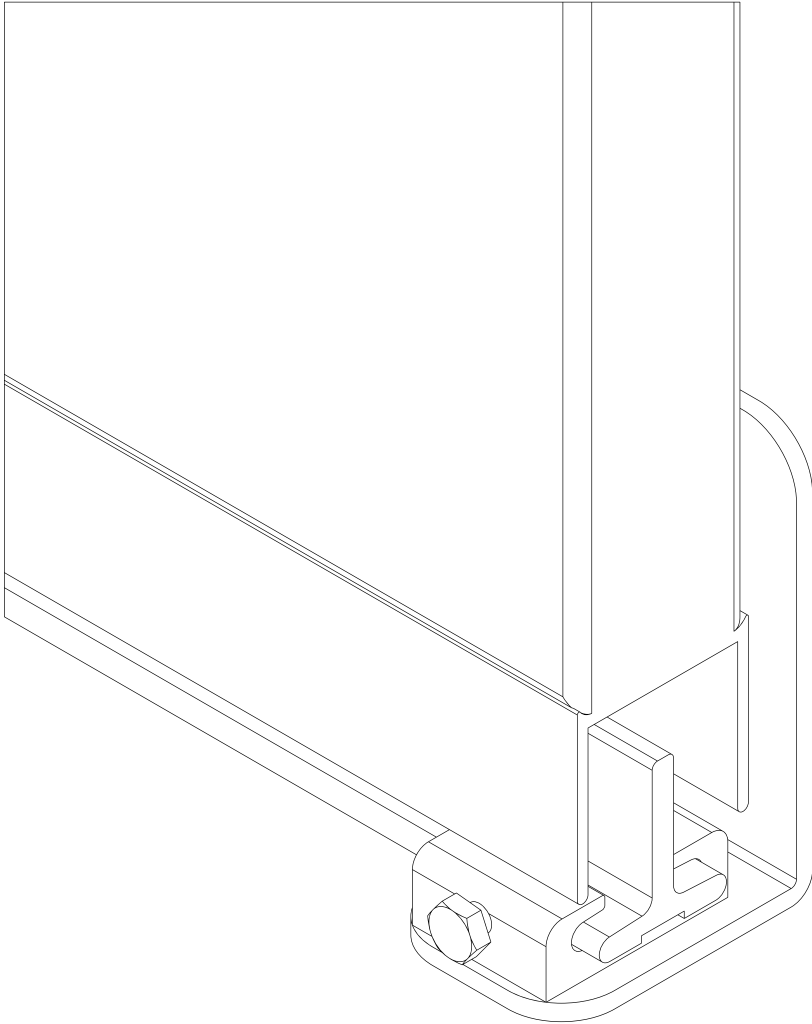
Mounting holes, side guidance bracket Type B
Continuous guide, offset, visible width 34 mm



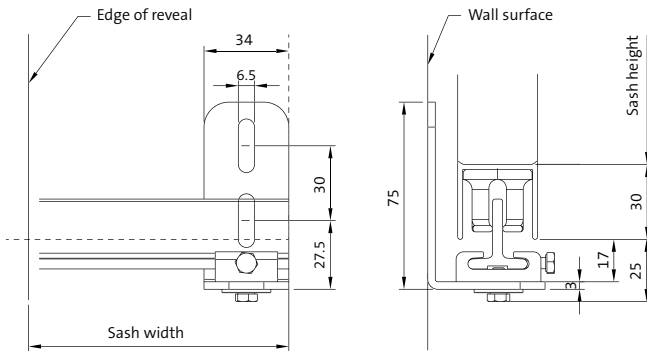
Mounting holes, side guidance bracket Type B
Continuous guide, offset, visible width 44 mm



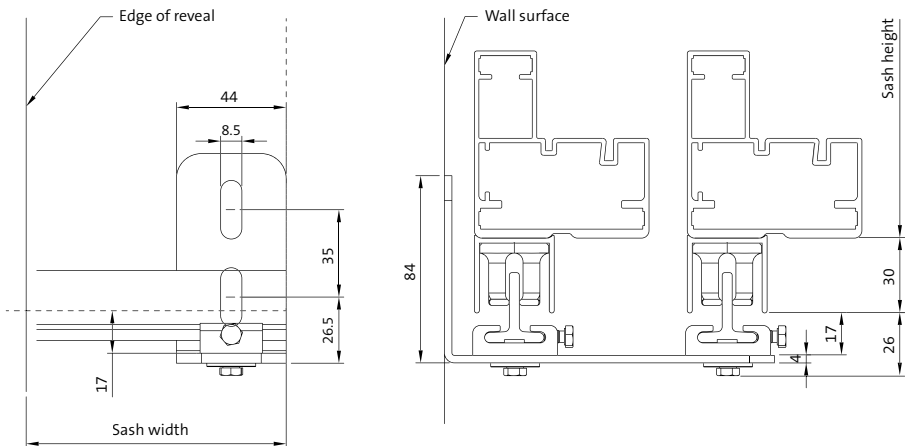
Type B – continuous guide (ECO), straight version



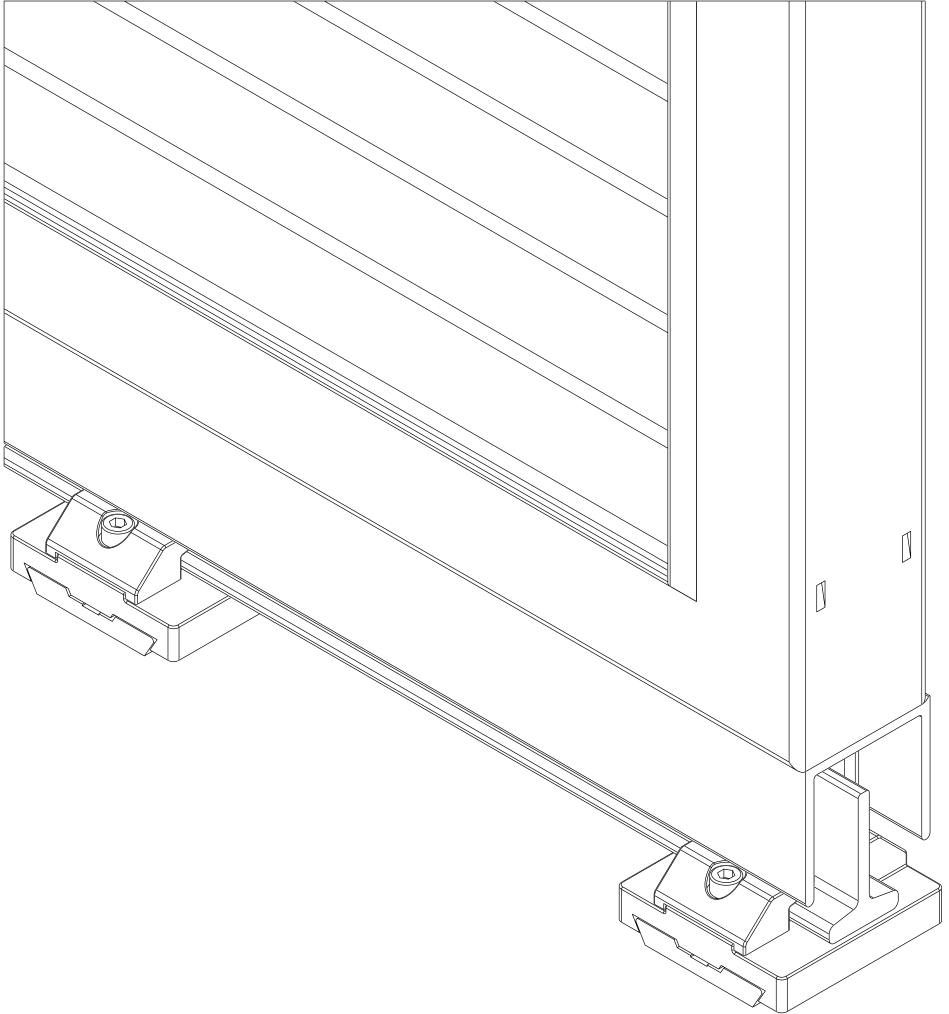
Mounting holes, side guidance bracket Type B
 Continuous guide, straight version, visible width 34 mm



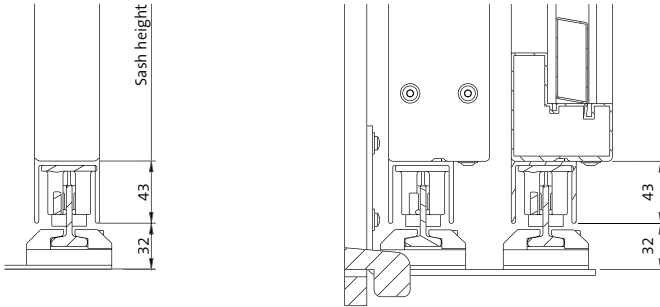
Mounting holes, side guidance bracket Type B
 Continuous guide, straight version, visible width 44 mm



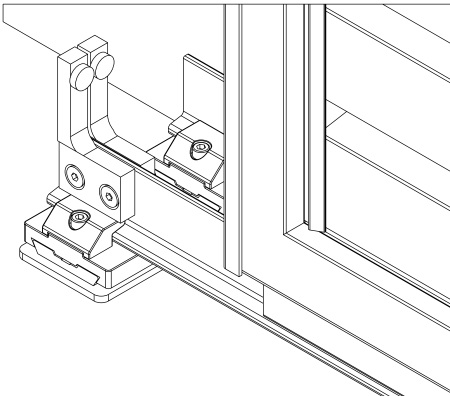
Type C – continuous guide “reinforced”



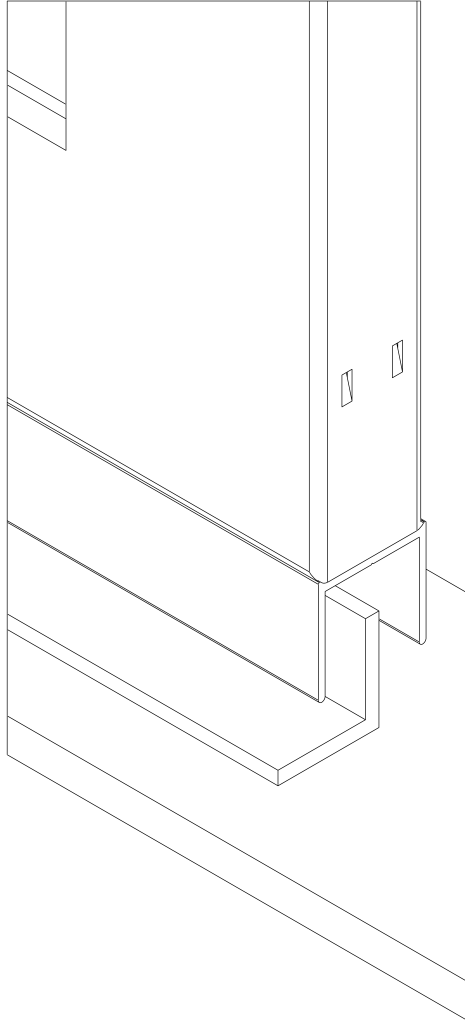
Individual mounting, side guidance bracket Type C „reinforced“,
continuos guide, straight version



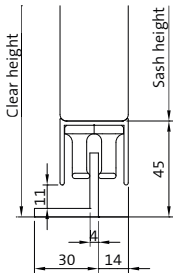
Continuous guides Type C “reinforced”,
with rail stoppers



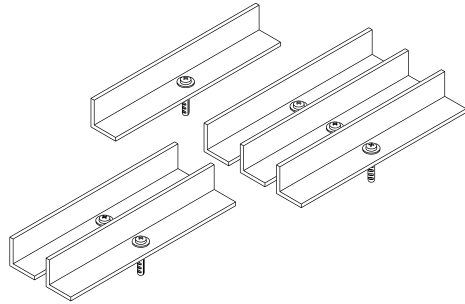
Type D – continuous guide (floor installation)



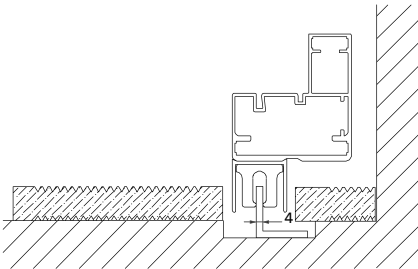
Continous Guide Type D (floor installation)
with guide brackets 30×30×4 mm, single-/double-/triple-rail



Distance to reveal, bottom

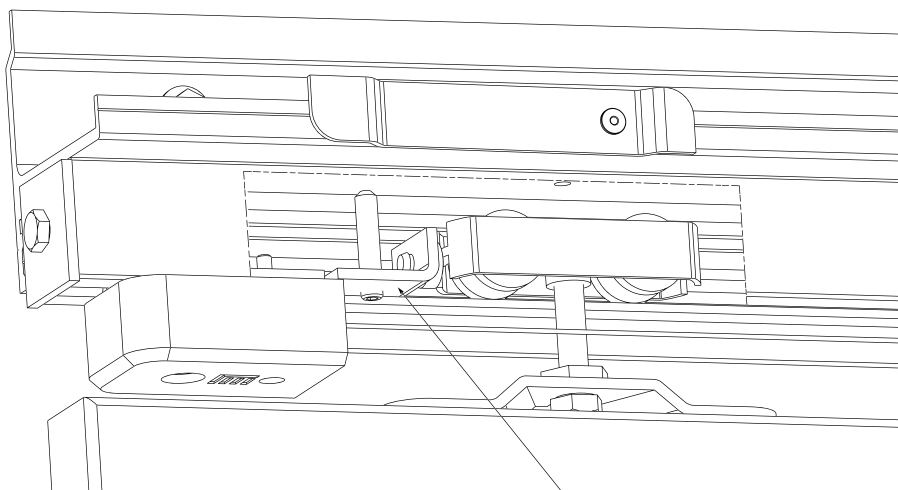


Floor guide Type D for installation on a firm base by building contractor.
There is no adjustment option at mounting Type D.



1.6 Setting trolley stoppers with electrical wire drive

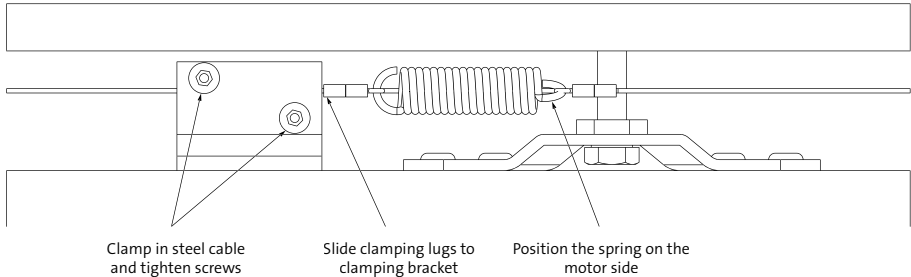
- Push sliding sash into end position
- Move stopper against trolley
- Tighten set screw



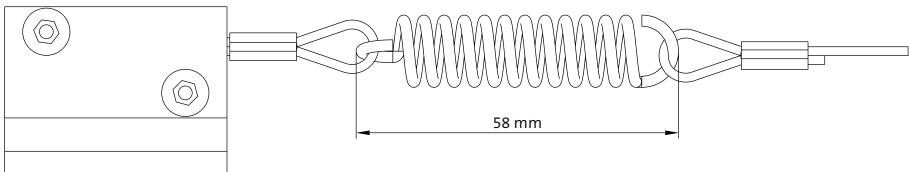
Trolley stopper with set screws

1.7 Coupling sliding sashes to electrical wire drive

- Position steel cable with extension spring to actuated sash.
- Clamp steel cable in clamping parts of the sliding sashes



- Remeasure cable and spring tension and retighten if necessary

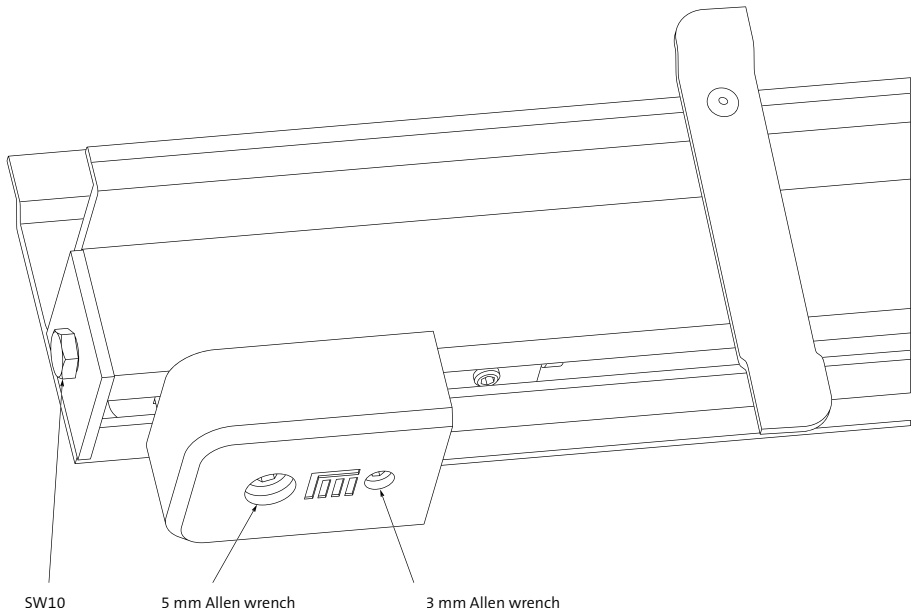


NOTE

An additional sash is clamped in synchronised fashion to the steel cable for diagram 1/L-R, 2/L-RR, 2/LL-R and 2/LL-RR. To accomplish this, move the sashes in Open position and clamp the steel cable firmly in the clamping bead of the sliding sashes.

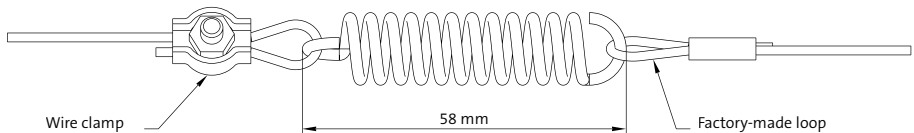
1.8 Retightening steel cable

- Undo set screws at return pulley
- Rotate front-side hexagon screw until the extension spring is tensioned at 58 mm
- Tighten set screws

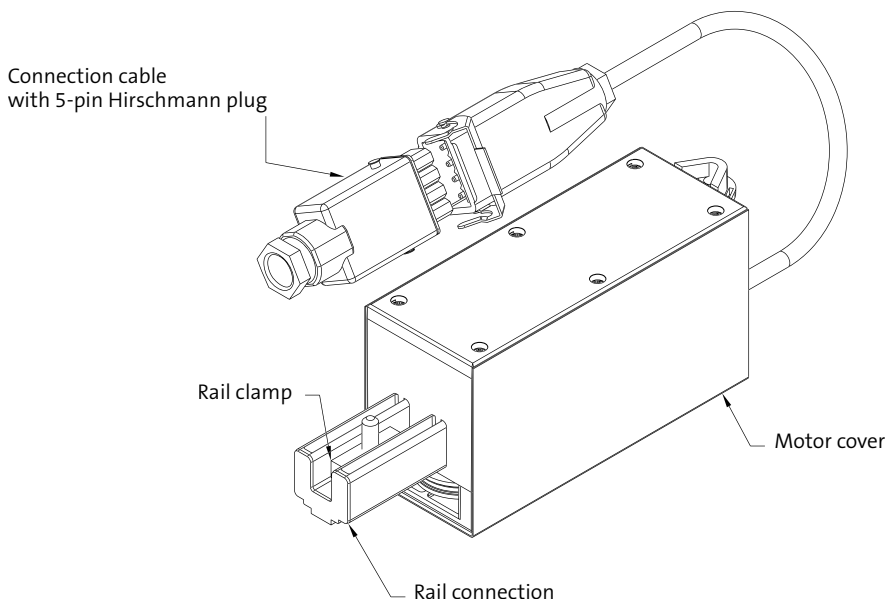


1.9 Electrical sliding systems with excess length (optional)

- Steel cable is delivered loose with a factory-fitted loop
- Installation of the rails and carrier rails
- Tighten steel cable on pulley wheels
- Hook up extension spring in the loop on hand (motor side)
- Slide the loose wire end into the wire clamp and hook up the loop in the extension spring
- Tighten wire clamp and cut off overlapping wire end
- Pre-tension the extension spring to 58 mm
- Clamp steel cable in sash clamping part
- Put system in operation



2. Product description



The EHRET VOLETRONIC 230 V sliding shutter drive is a drive with integrated control for the actuation of sliding shutters.

Properties

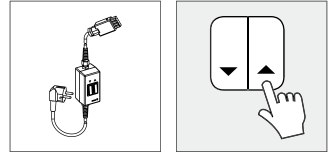
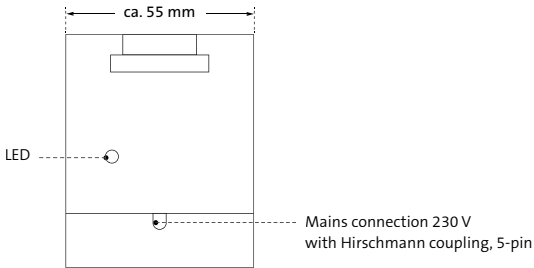
- Configurable running speed
- Electronic locking in end position
- Programming of the pick-up position of double bars and acceleration or delay of the running speed at the beginning, the end and in the pick-up range.
- Creep travel upon reaching the start and end position

Technical data

Power supply	85 VAC–265 VAC, 50/60 Hz, 30 W
Standby	< 1 W
Power input of the Close/Open entrance	< 5 mA (1 W)
Protection class	I
Temperature range in operation	-20°C to +60°C
IP type of protection	IP43
Max. speed	120 mm/s
Max. propulsion	150 N

3. Operating instructions

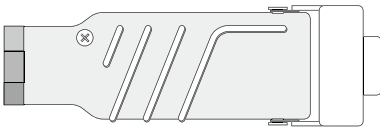
3.1 Connection



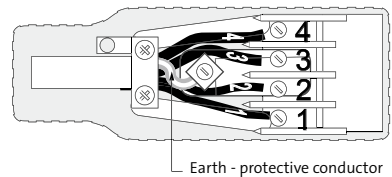
- Monitoring LED on the side of the motor housing (green | yellow | red) used for example for checking the running direction
- The motor is equipped with a 5-pin connection cable with Hirschmann coupling approx. 0.5 m.

3.1.1 Hirschmann coupling phase assignment

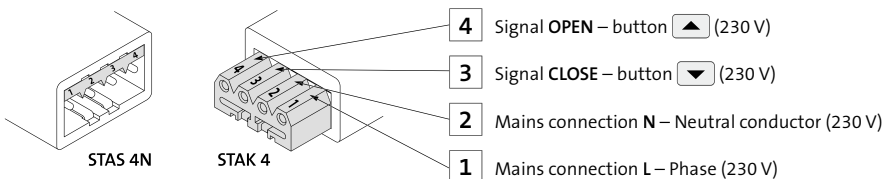
Outside view



Inside view



Cross-section



3.1.2 General notes on installation



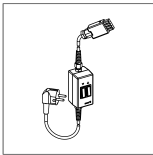
DANGER

- At the time of installation, all connections, as shown schematically in the illustration, are to be connected. **The guarantee expires if the Hirschmann plug is removed.**
- The connection (Phase L) must be equipped with a line safety switch with a maximum nominal current of 6 A.
- The line safety switch must have a switch-off capacity of at least 6 kA.
- The prescribed tripping characteristic is B.
- The line switch should be equipped with a thermal tripping device for overload protection, furthermore it should have an electromagnetic trigger as a protection against short circuits.
- Other requirements may apply to the installation of the line safety switch, depending on the location. For example, it could be necessary to use a line safety switch with additional separation of Phase N in order to switch off all poles. It might possibly also be necessary to have a residual current circuit breaker in the system. The standards and the laws of the respective country with respect to permanent electrical installations are to be complied with (e.g. VDE 0100).
- It is recommended that no more than five drives are secured simultaneously by a single line safety switch.
- Pursuant to VDE 0100 and/or the statutory regulations and standards of the respective country, the permanent electrical installation must be carried out by a certified electrician.
- According to VDE 0022, the operator and the installer are responsible for compliance with the VDE regulations and/or regulations of the energy supplier.

3.2 Commissioning

NOTE

- The correct installation of the sliding shutter drive may be carried out only by authorised specialist personnel; it is only then that the entire functionality can be guaranteed.



Initial commissioning can be carried out once the motor has been correctly installed in the sliding shutter system. As an optional alternative to the serial push-button, the motor can also be tuned through the motor setting & inspection unit V3, 5-wire (art. no. 881057).

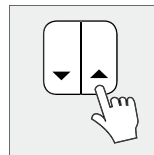
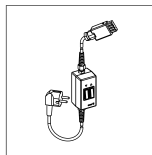
→ Connect the 5-wire Hirschmann coupling to your serial push-button and your electrical circuit!

Only trained specialists are permitted to carry out the installation. If no connector is available at the time of the installation, then the motor adjusting cable (art. no. 881057, optional) must be used.

→ Check the running direction:

If the running direction is correctly set, then the LED display on the motor will light up **green** during ascent ▲ and **red** during descent ▼. If this is not the case, then the running direction must be changed (see chapter “3.3.1 Setting the running direction”).

3.3 Programming serial push-buttons



VOLETRONIC 230 V with serial push-button operation

NOTES

- In order to avoid an unwanted change of parameters, the time (max. 2 sec.) between the individual programming steps must be observed.
- The signal tones must have gone out before the next programming step.
- These specifications must be adhered to without fail before a change of parameters.
- Always check the running direction after a change of parameters. It is displayed accordingly through the LED on the drive housing with **green** for ascent, **red** for descent and **yellow** during the learning run.

Behavior at power breakdown

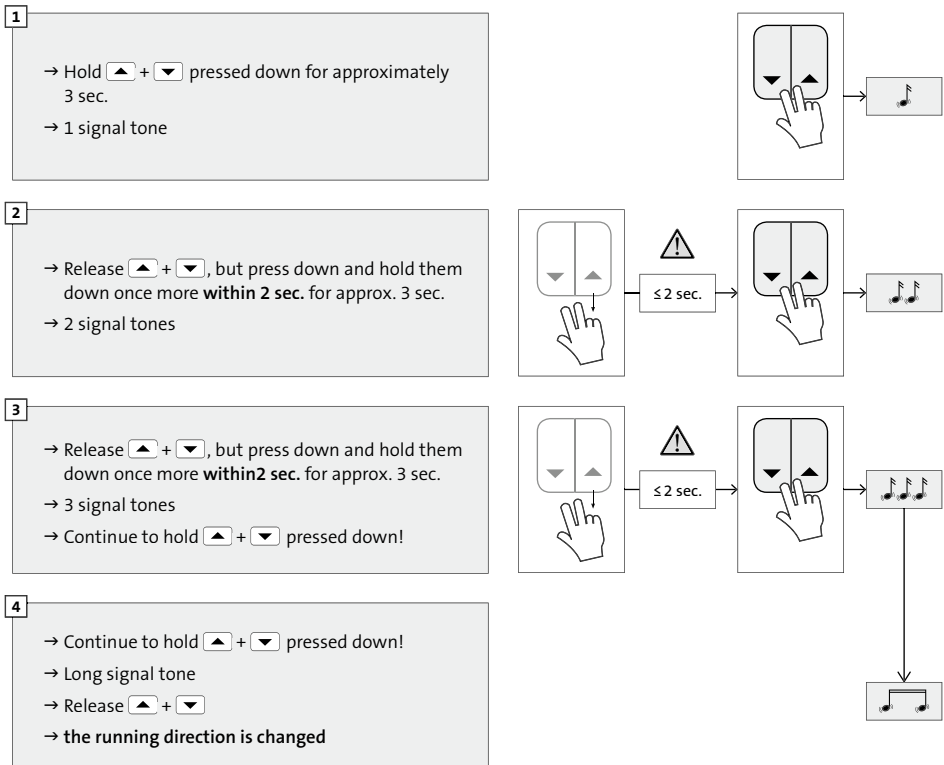
IMPORTANT!

After power breakdown please consider the following practice :

- Move the sliding shutter with push- button **OPEN** or **CLOSE** in direction of motor to until the end position. In this position the control system recognize the reference of the normal working.
- If the sliding shutter has been in position of reference, at power breakdown, it is necessary to have to move the shutter for and backward with push- button **OPEN** or **CLOSE**. After that the function is again guaranteed.

3.3.1 Setting the running direction

- 1 Press and hold down the **Open button** ▲ and the **Close button** ▼ together and simultaneously (approx. 3 sec.), until a brief signal tone is heard and then goes out.
- 2 Release the buttons only briefly, then, within a **maximum of 2 seconds**, press and hold them down simultaneously again until the following 2 signal tones go out.
- 3 Release the buttons briefly again and then repeat the procedure once more.
- 4 However, after the sounding of the 3 signal tones, do not release the buttons until a longer signal tone is heard and goes out. The running direction is thus changed (check the LED).



LED check:

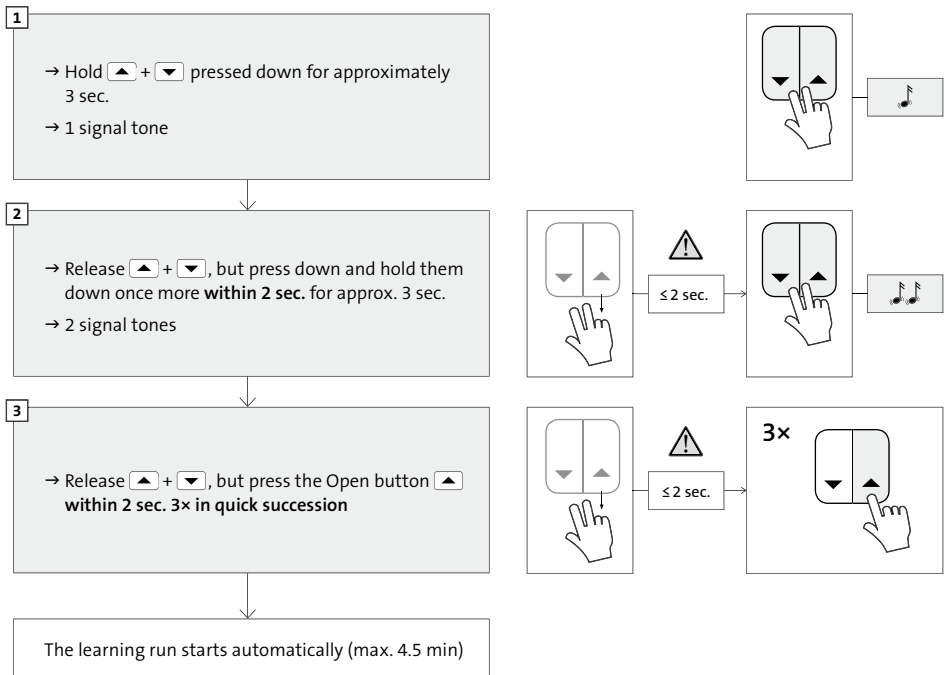
If the running direction is correct, the LED will show:
Ascent ▲ = green
Descent ▼ = red

3.3.2 Executing a learning run




SYSTEMS WITH DOUBLE BARS

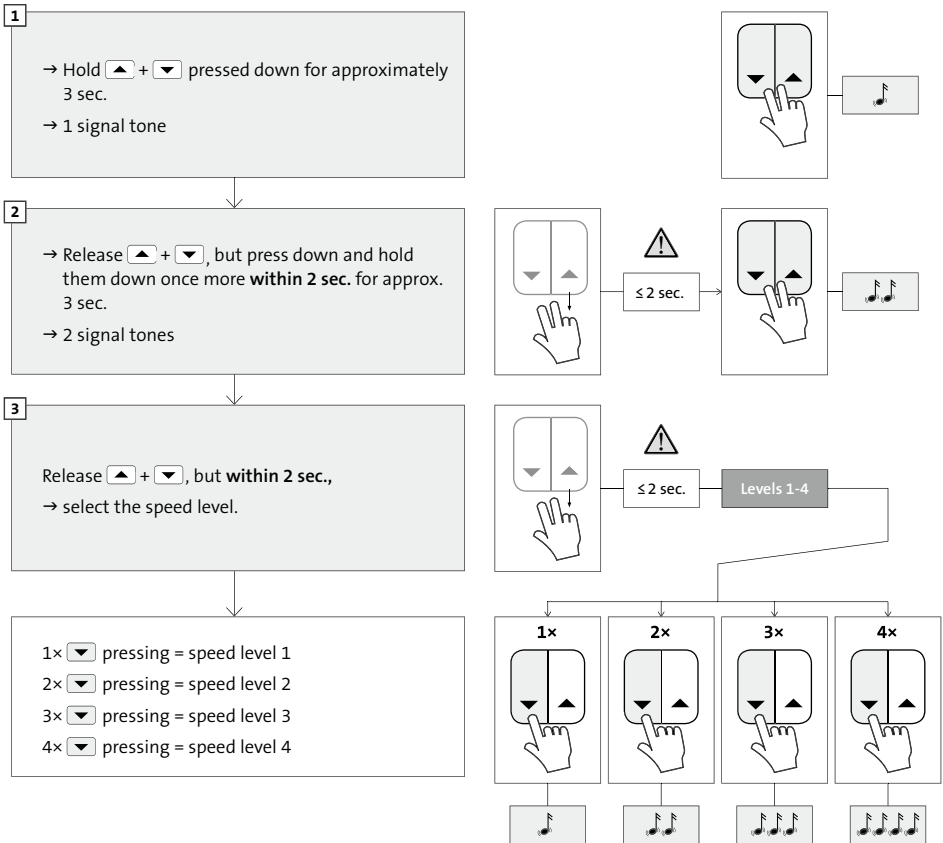
- In the case of systems with **double bars** (a sash that is not connected with the drive cable), the sashes must first be moved into the Open end position.
- The double bars must be manually taught during the learning run. This means: As soon as the powered sash moves the double bar, the **Open button** (▲) and the **Close button** (▼) must be actuated briefly and **simultaneously** (▼▲). A signal tone confirms the programming.
- This procedure must be repeated in the case of systems with several (max. 4) double bars. Each manual actuation of an additional double bar is acknowledged with an additional signal tone.

- 1 Press and hold down the **Open button** (▲) and the **Close button** (▼) together and simultaneously (approx. 3 sec.), until a brief signal tone is heard and then goes out.
- 2 Release the buttons only briefly, then press and hold them down together again once more until the following 2 signal tones go out.
- 3 After the second signal tone, immediately press the **Open button** (▲) 3× in quick succession. The learning run starts automatically.







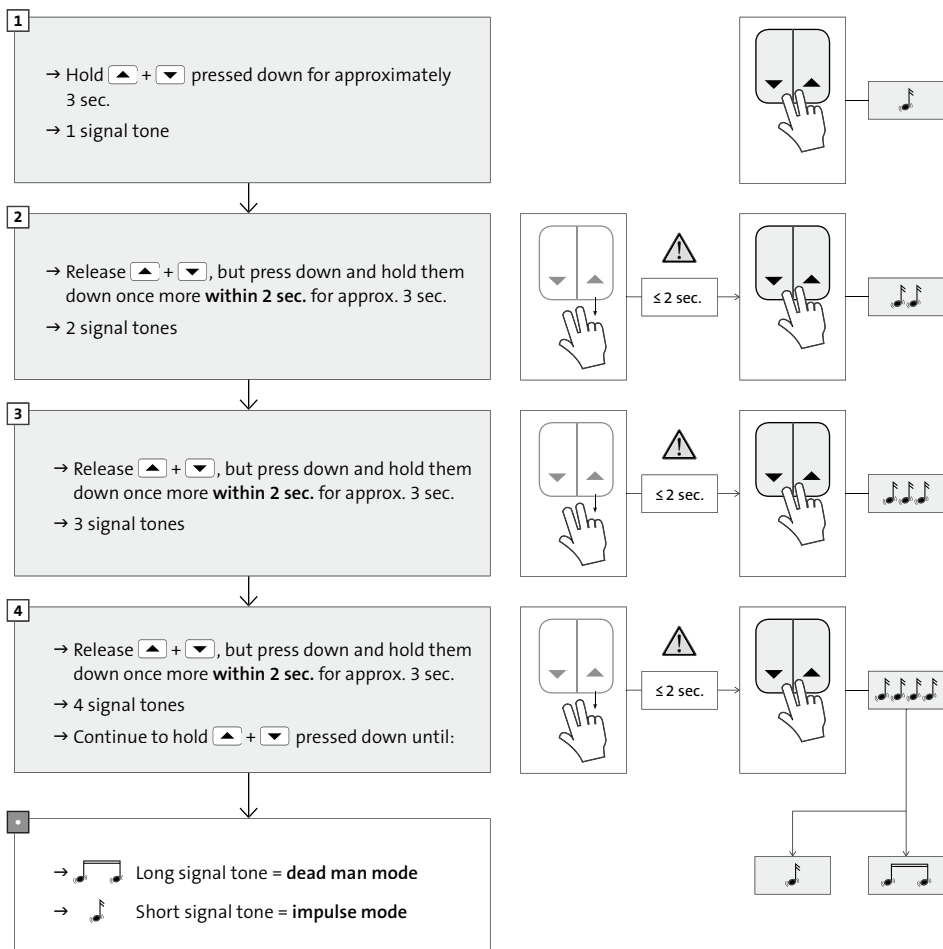
3.3.3 Setting the speed

- 1 Press and hold down the **Open button**  and the **Close button**  together and simultaneously (approx. 3 sec.), until a brief signal tone is heard and then goes out.
- 2 Release the buttons only briefly, then press and hold them down together again once more until the following 2 signal tones go out.
- 3 Release the buttons and then select the desired speed level (max. 4 levels) by repeatedly and briefly pressing the **Close button** . The respective speed level is displayed accordingly by the number of signal tones.



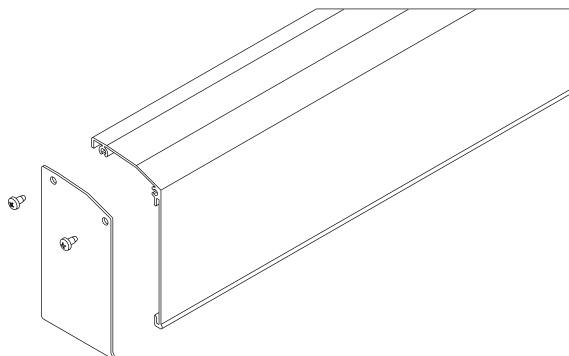
3.3.4 Switching between impulse/dead man mode

- 1 Press and hold down the **Open button**  and the **Close button**  together and simultaneously for approx. 3 sec. until a brief signal tone is heard and then goes out.
 - 2 Repeat this procedure until **two** signal tones are heard and go out.
 - 3 Repeat this procedure until **three** signal tones are heard and go out.
 - 4 Repeat this procedure until **four** signal tones are heard and go out.
- However, after the fourth signal tone sounds, continue to hold the **Open button**  and the **Close button**  pressed down until a brief signal tone confirms **impulse mode**, or a long signal tone confirms **dead man mode**.

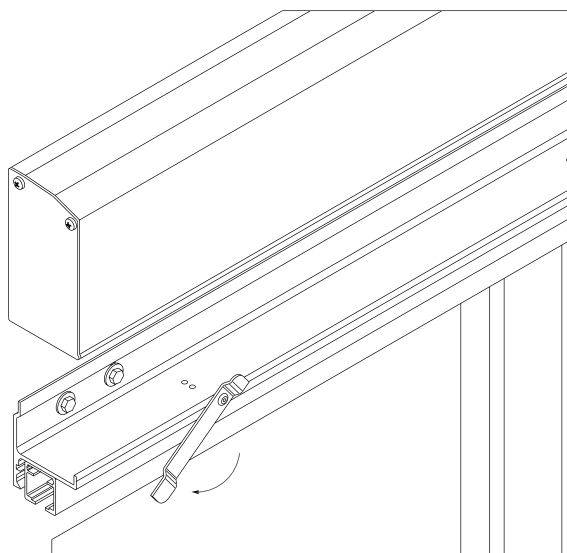


1.10 Installing covers

- Screw lateral cover to the cover profiles

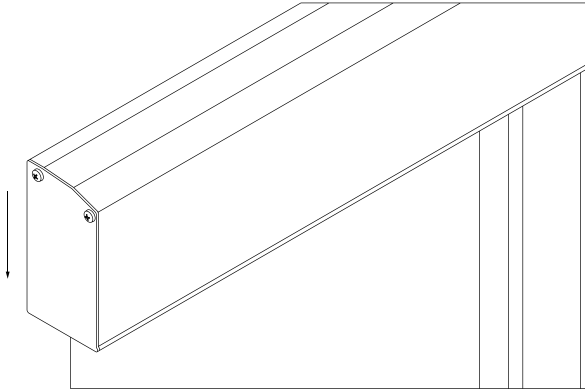


- Set the cover bars at an angle (approx. 45°)

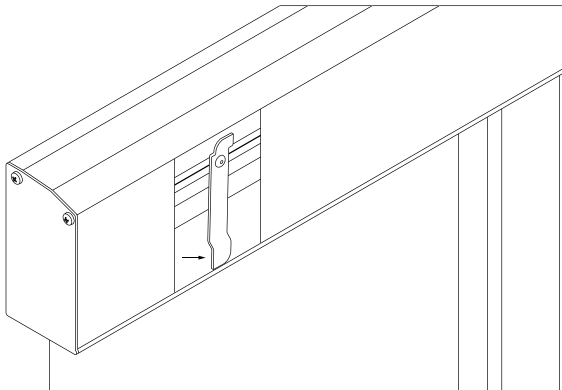


1.10 Installing covers

- Hook up the cover



- Screw in the bars and lock them

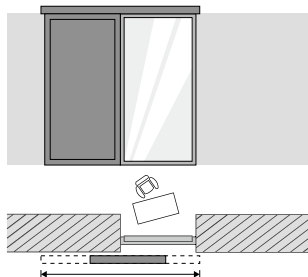


4. Stop diagrams

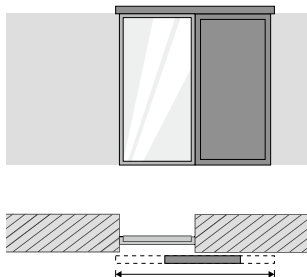


The stop diagrams are sketched as if viewed from inside.
The term 2/LL-R stands for 2 rails, 2 sashes left (LL) and 1 sash right (R).

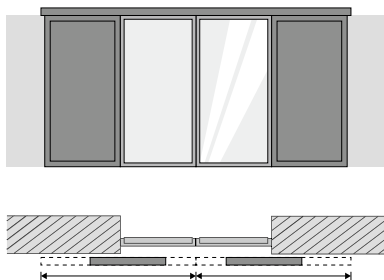
1/R



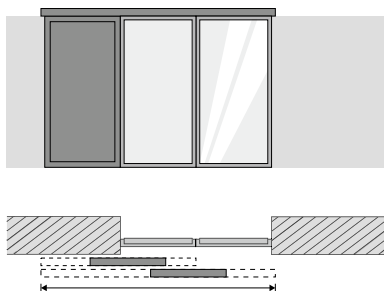
1/L



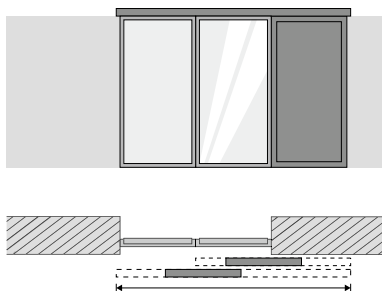
1/L-R



2/RR

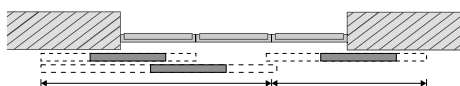


2/LL

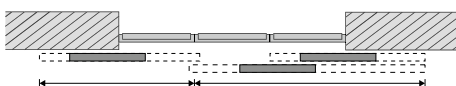


4. Stop diagrams

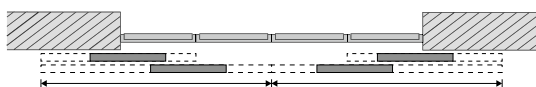
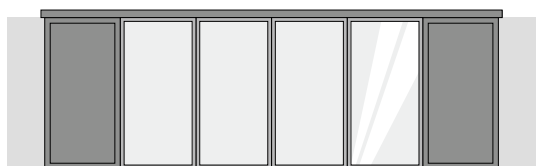
2/L-RR



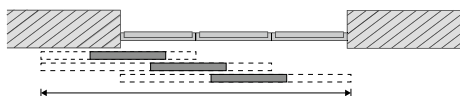
2/LL-R



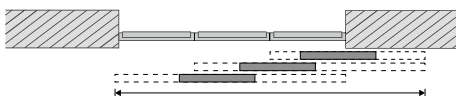
2/LL-RR



3/RRR

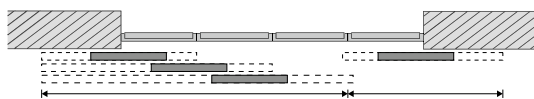


3/LLL

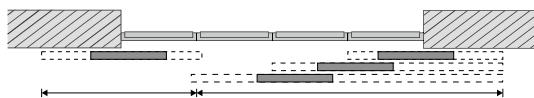
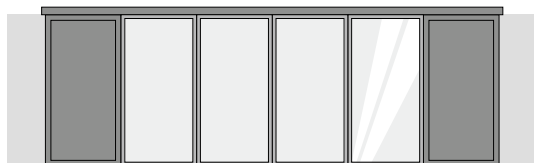


4. Stop diagrams

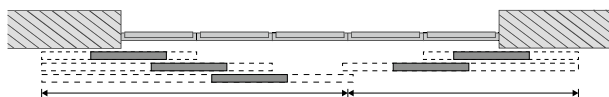
3/L-RRR



3/LL-R

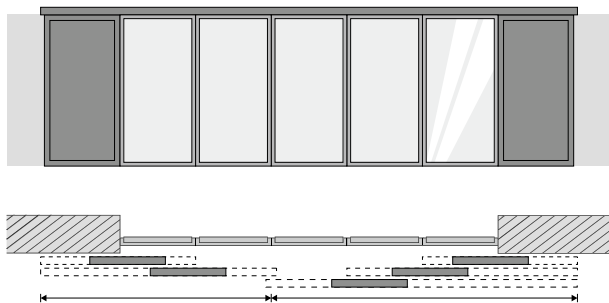


3/LL-RRR

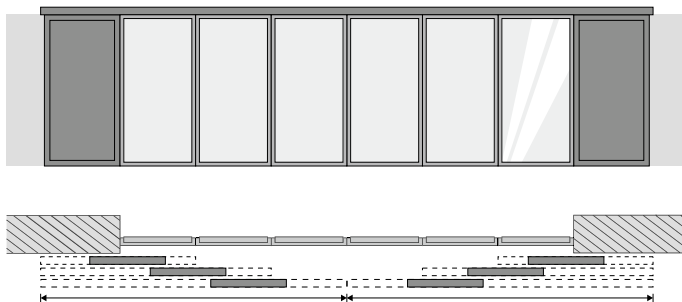


4. Stop diagrams

3/LLL-RR



3/LLL-RRR



5.1 Guide bracket matrix

Lower guide bracket Type A to 32 mm sash depths

Art. no.	1/R	1/L	1/L-R	2/RR	2/LL	2/L-RR	2/LL-R	2/LL-RR	3/RRR	3/LLL	3/L-RRR	3/LLL-R	3/LL-RRR	3/LLL-RR	3/LLL-RRR
813221	1	1	1		1	1	1	1		1	1	1	1	1	1
813121	1	1	1	1		1	1	1	1		1	1	1	1	1
813021	1	1	2			1	1				1	1			
813222				1											
813122					1										
813022				1	1	1	1	2					1	1	
813223									1						
813123										1					
813023									1	1	1	1	1	1	2

Lower guide bracket Type A to 48 mm sash depths

Art. no.	1/R	1/L	1/L-R	2/RR	2/LL	2/L-RR	2/LL-R	2/LL-RR	3/RRR	3/LLL	3/L-RRR	3/LLL-R	3/LL-RRR	3/LLL-RR	3/LLL-RRR
813231	1	1	1		1	1	1	1		1	1	1	1	1	1
813131	1	1	1	1		1	1	1	1		1	1	1	1	1
813031	1	1	2			1	1				1	1			
813232				1											
813132					1										
813032				1	1	1	1	2					1	1	
813233									1						
813133										1					
813033									1	1	1	1	1	1	2

5.1 Guide bracket matrix

Lower guide bracket Type A to 70 mm sash depths

Art. no.	1/R	1/L	1/L-R	2/RR	2/LL	2/L-RR	2/LL-R	2/LL-RR
813241	1	1	1		1	1	1	1
813141	1	1	1	1		1	1	1
813041	1	1	2			1	1	
813242				1				
813142					1			
813042				1	1	1	1	2

5.1 Guide bracket matrix

Lower guide bracket Type B to 32 mm sash depths

Art. no.	1/R	1/L	1/L-R	2/RR	2/LL	2/L-RR	2/LL-R	2/LL-RR	3/RRR	3/LLL	3/L-RRR	3/LLL-R	3/LL-RRR	3/LLL-RR	3/LLL-RRR
814201	1	1	1												
814101	1	1	1												
814001	1	1	2												
814202				1	1	1	1	1							
814102				1	1	1	1	1							
814002				1	1	2	2	2							
814203									1	1	1	1	1	1	1
814103									1	1	1	1	1	1	1
814003									1	1	2	2	2	2	2

Lower guide bracket Type B to 48 mm sash depths

Art. no.	1/R	1/L	1/L-R	2/RR	2/LL	2/L-RR	2/LL-R	2/LL-RR	3/RRR	3/LLL	3/L-RRR	3/LLL-R	3/LL-RRR	3/LLL-RR	3/LLL-RRR
814211	1	1	1												
814111	1	1	1												
814011	1	1	2												
814212				1	1	1	1	1							
814112				1	1	1	1	1							
814012				1	1	2	2	2							
814213									1	1	1	1	1	1	1
814113									1	1	1	1	1	1	1
814013									1	1	2	2	2	2	2

5.1 Guide bracket matrix

Lower guide bracket Type B to 70 mm sash depths

Art. no.	1/R	1/L	1/L-R	2/RR	2/LL	2/L-RR	2/LL-R	2/LL-RR
814221	1	1	1					
814121	1	1	1					
814021	1	1	2					
814222				1	1	1	1	1
814122				1	1	1	1	1
814022				1	1	2	2	2

5.1 Guide bracket matrix

Accessory parts:

Double shutter guides, carriage, cover guard bracket for 32 mm sash depths

Art. no.	1/R	1/L	1/L-R	2/RR	2/LL	2/L-RR	2/LL-R	2/LL-RR	3/RRR	3/LLL	3/L-RRR	3/LLL-R	3/LL-RRR	3/LLL-RR	3/LLL-RRR
813010				1	1	1	1	2	2	2	2	2	3	3	4
813013				1		1		1	2		2		2	1	2
813011					1		1	1		2		2	1	2	2
816011				1	1	1	1	2					1	1	
816012									1	1	1	1	1	1	2
800070				1	1						1	1			
800073									1	1					

Accessory parts:

Double shutter guides, carriage, cover guard bracket for 48 mm sash depths

Art. no.	1/R	1/L	1/L-R	2/RR	2/LL	2/L-RR	2/LL-R	2/LL-RR	3/RRR	3/LLL	3/L-RRR	3/LLL-R	3/LL-RRR	3/LLL-RR	3/LLL-RRR
813010				1	1	1	1	2	2	2	2	2	3	3	4
813013				1		1		1	2		2		2	1	2
813011					1		1	1		2		2	1	2	2
816011				1	1	1	1	2					1	1	
816021									1	1	1	1	1	1	2
800071				1	1						1	1			
800074									1	1					

5.1 Guide bracket matrix

Accessory parts:

Double shutter guides, carriage, cover guard bracket for 70 mm sash depths

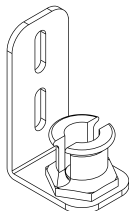
Art. no.	1/R	1/L	1/L-R	2/RR	2/LL	2/L-RR	2/LL-R	2/LL-RR
813012				1	1	1	1	2
816022				1	1	1	1	2
800072				1	1			

Additional guide parts for Type B guides

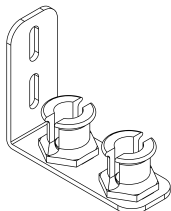
Art. no.	1/R	1/L	1/L-R	2/RR	2/LL	2/L-RR	2/LL-R	2/LL-RR	3/RRR	3/LLL	3/L-RRR	3/LLL-R	3/LL-RRR	3/LLL-RR	3/LLL-RRR
008054	2	2	4	4	4	6	6	8	6	6	8	8	10	10	12

5.2 Article overview of guide brackets

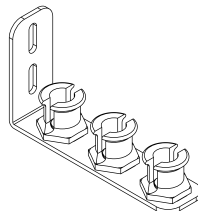
Punctiform profile guides, straight, Type A



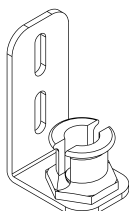
813021



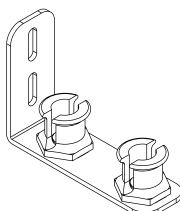
813022



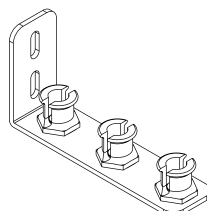
813023



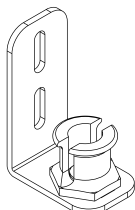
813031



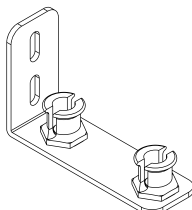
813032



813033



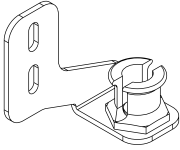
813041



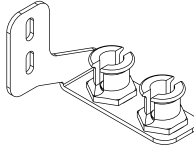
813042

5.2 Article overview of guide brackets

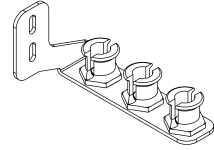
Punctiform profile guides, offset, Type A (right guides are drawn)



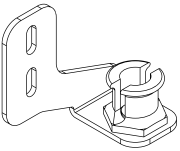
813121 right
813221 left



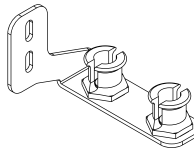
813122 right
813222 left



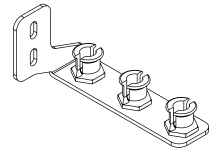
813123 right
813223 left



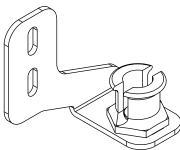
813131 right
813231 left



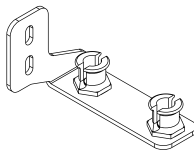
813132 right
813232 left



813133 right
813233 left



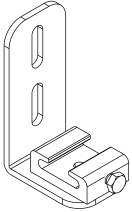
813141 right
813241 left



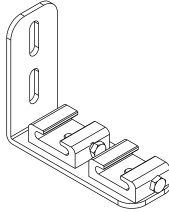
813142 right
813242 left

5.2 Article overview of guide brackets

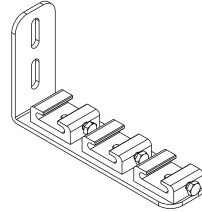
Continuous sliding shutter guides, Type B, straight



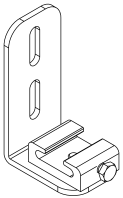
814001



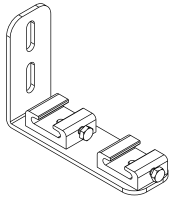
814002



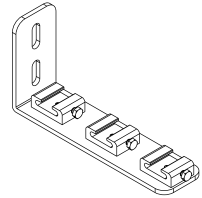
814003



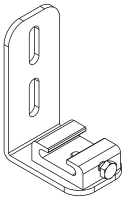
814011



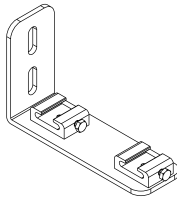
814012



814013



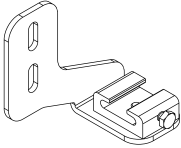
814021



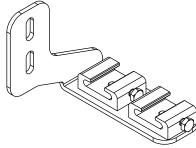
814022

5.2 Article overview of guide brackets

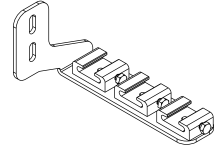
Continuous sliding shutter guides, Type B, offset (right guides are drawn)



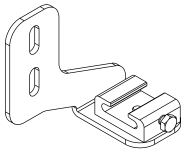
814101 right
814201 left



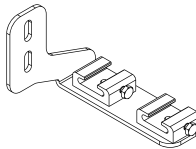
814102 right
814202 left



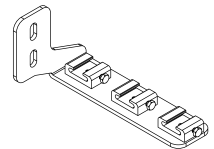
814103 right
814203 left



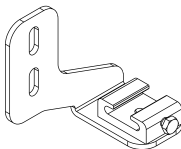
814111 right
814211 left



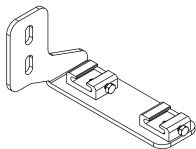
814112 right
814212 left



814113 right
814213 left



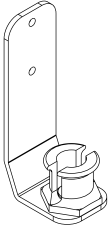
814121 right
814221 left



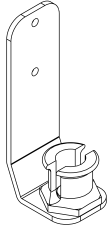
814122 right
814222 left

5.2 Article overview of guide brackets

Double shutter guides



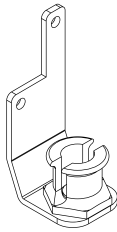
813010



813012



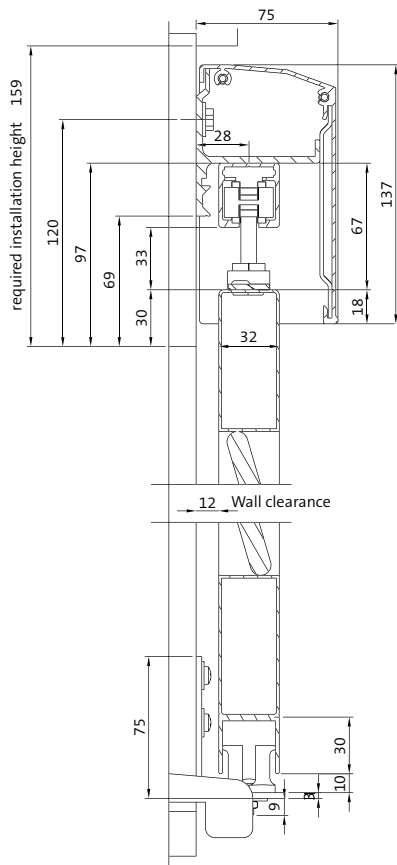
813011



813012

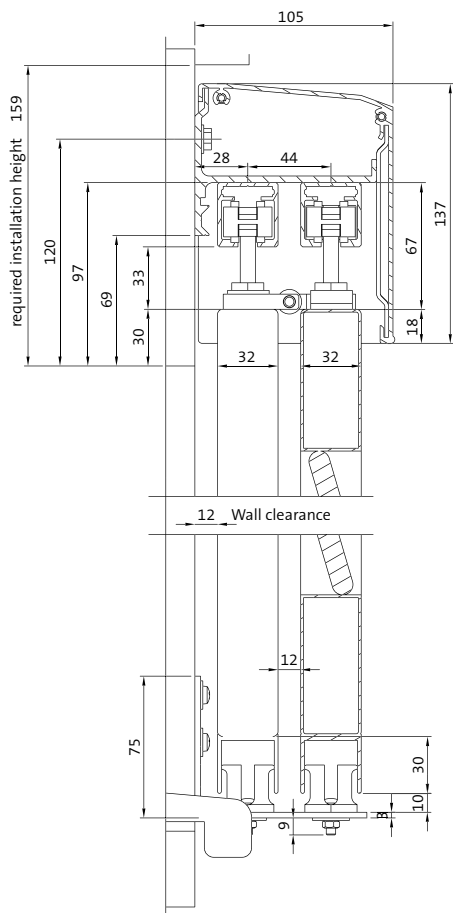
6. System sections

System A75/60 BT32 Type A



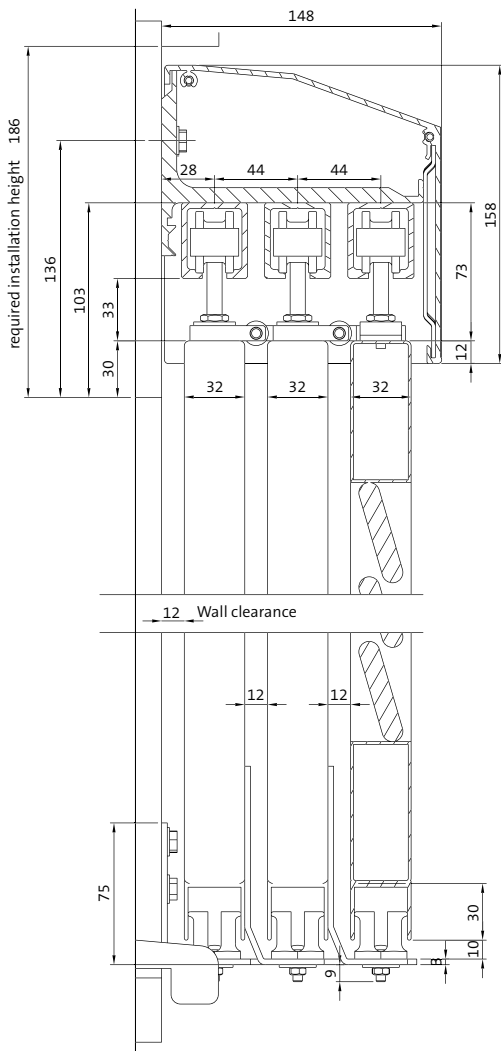
6. System sections

System A105/60 BT32 Type A



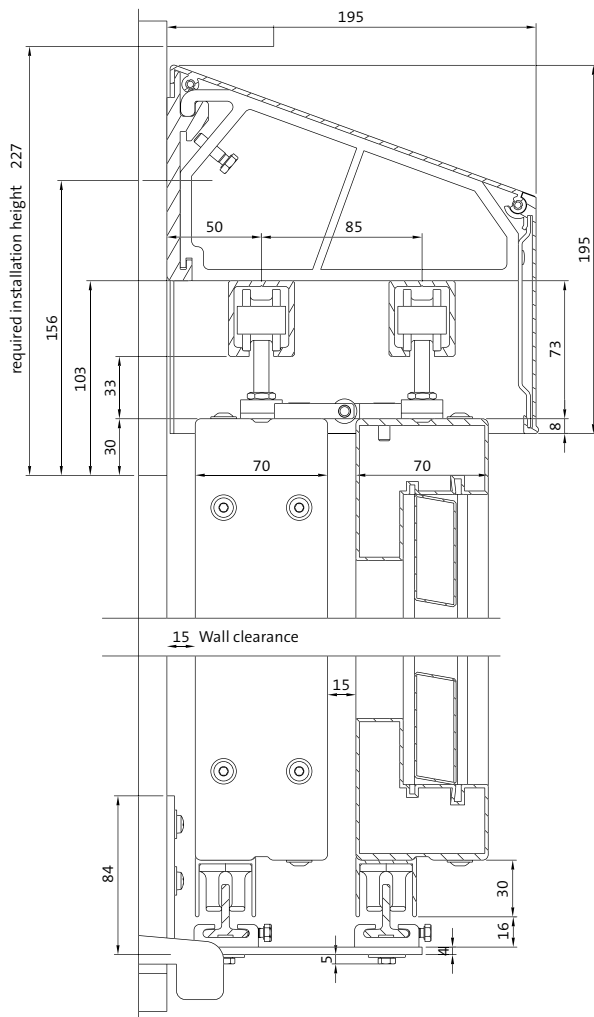
6. System sections

System A148/100 BT32 Type A



6. System sections

System A195/100 BT70 Type B



EHRET GmbH

Aluminium Shutters

Bahnhofstrasse 14 - 18

D- 77972 Mahlberg

Tel. + 49(0) 78 22/439-0

Fax + 49(0) 78 22/439- 116

www.ehret.com