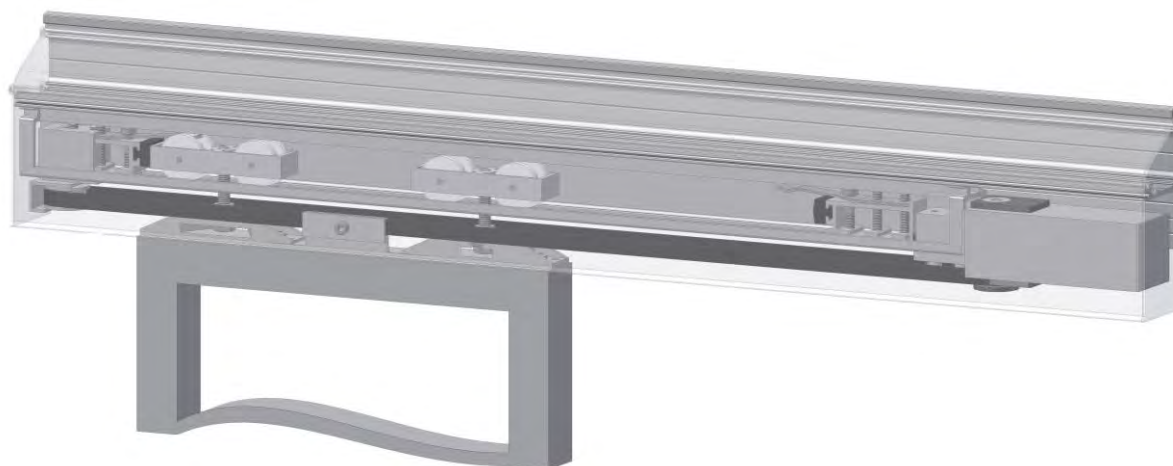




Baier®

Bewegende Licht- und Schattenelemente

Planning and assembly instructions for sliding shutter hinges and drives



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1 General

1.1 About this document

This document contains information for the planning, application and assembly of sliding shutter hinges and drives. You should always read the current version which is available from the manufacturer on request.

Notes and tips are characterised by a grey background.

1.2 Target groups

This document is intended for persons who wish to inform themselves about the use and assembly of sliding shutters.

Assembly work should only be carried out by persons suitably trained and instructed in handicrafts. Electrical connections may only be carried out by electricians. The content of this document must be made available to those carrying out the work, who must have understood its contents and implement them.

1.3 Safety

All relevant standards for products of this type must be observed in addition to the contents of this document. We especially draw your attention to DIN 13659.

As a manufacturing company we have an increased duty to advise our customers. The relevant guidelines and standards must be observed.

1.4 Application guidance

The product described here has been designed as a fitting and drive system for external horizontally sliding sunscreens. Any use outside this scope of application takes place at your own risk.

Sliding shutters are not intended for use as sound insulation, break-in protection or heat insulation.

1.5 Operation and maintenance

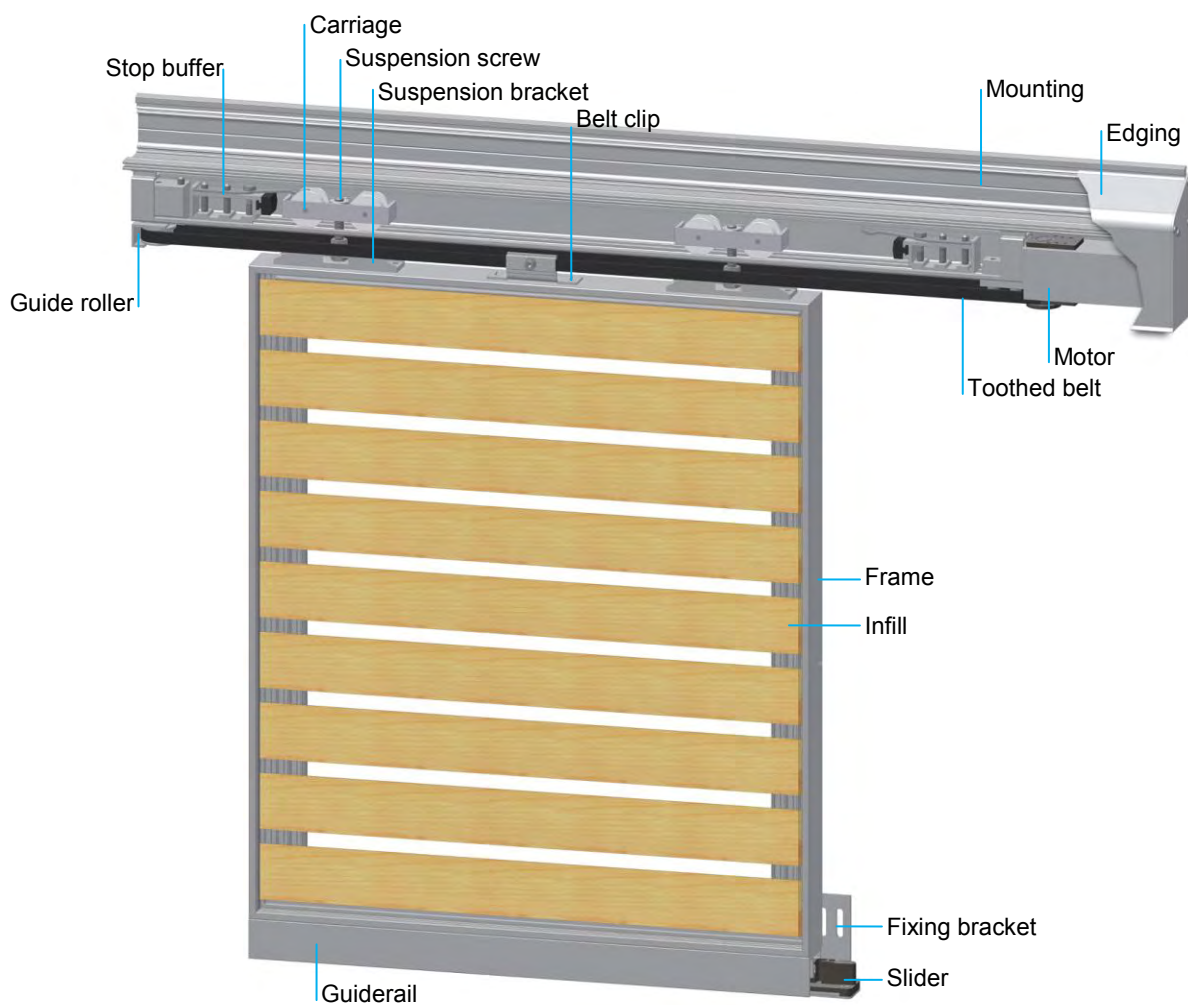
Operation and maintenance of the equipment is explained in a separate document, the "Operation and maintenance manual for Baier sliding shutter equipment). This manual must be made available to operating personnel. All applicable guidelines and maintenance measures must be observed in order to guarantee correct and proper functioning of the equipment.

2 System overview

Basic terms are explained below.

2.1 Basic terms and designations

The following basic terms will be used in the following text for simple and clear communication.



Hanger

The actual sunscreen element.

Main components: normally frame and infill.

This product group has city names.

Mounting

Components necessary for the manual sliding function.

Main components: carriage, suspension screw and bracket, stop buffer, running rail.

Our product group: Olymp.

Fitting solutions

Enable simple, standardised fitting of the mounting to the structure.

Main components: fitting auxiliaries (brackets, mountings etc), linings

Our product group: Herakles

Bottom guide

Holds the hanger in its track at the bottom connection.

Main components: guide rails, fixing bracket, slider

Our product group: Achill

Drive

Manual or electrically motorised drive possible.

Drivers couple several hangers to one motor or four simultaneous manual operation.

Main components: motor, controller, toothed belts, clips, guide rollers, telescopic systems

Our product group: Prometheus

Accessories

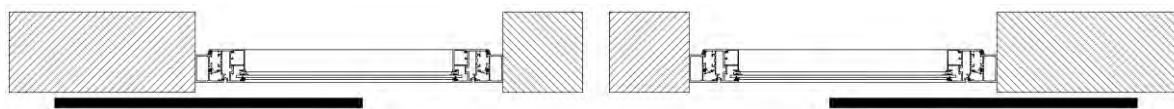
All components not directly necessary for the actual function.

Main components: screws, fitting materials, buffers etc.

Division

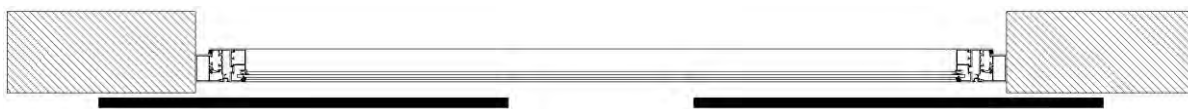
Describes the number and travel direction of the hangers.

2.2 Division diagrams

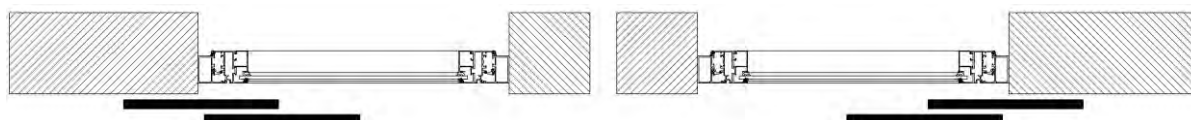


1-leaf, 1 left

1-leaf, 1 right

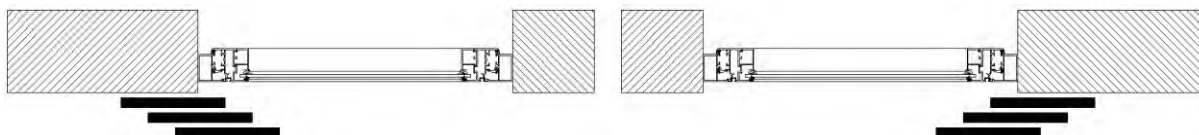


2-leaf, symmetrical, 1 left and 1 right



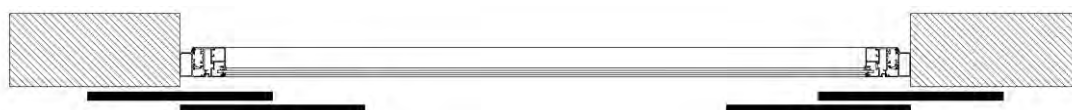
2-leaf, telescopic, 2 left

2-leaf, telescopic, 2 right

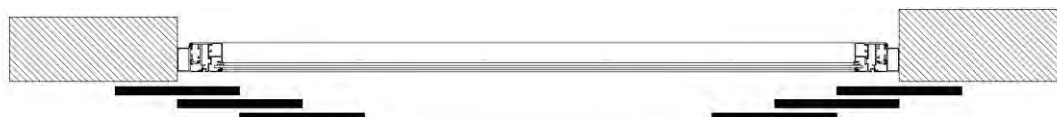


3-leaf, telescopic, 3 left (also multiple)

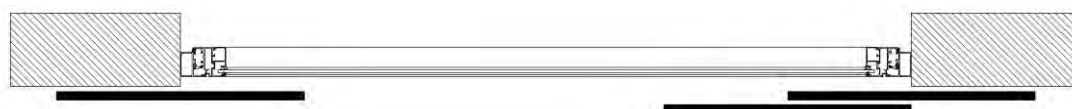
3-leaf, telescopic, 3 right (also multiple)



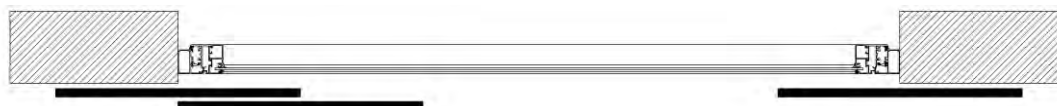
4-leaf, symmetrical, and telescopic, 2 left and 2 right



6-leaf, symmetrical and telescopic, 3 left and 3 right (also multiple)



3-leaf, symmetrical, and telescopic, 1 left and 2 right



3-leaf, symmetrical, and telescopic, 2 left and 1 right

Location information always as seen from outside!

Further variations of multiple telescopic and symmetrical are possible.

3 Single components

3.1 "Herakles" fitting solutions

Enable simple, standardised fitting of the mounting to the structure.

Fitting substrate

The fitting substrate must be sufficient for the loads occurring and must have a plane surface.

Maximum package weight

Maximum admissible leaf weight of hangers standing in front of each other. Example: 5 leaves @ 60kg, 3 leaves to the right, 2 leaves to the left: heaviest package weight: 3 x 60kg = 180kg.

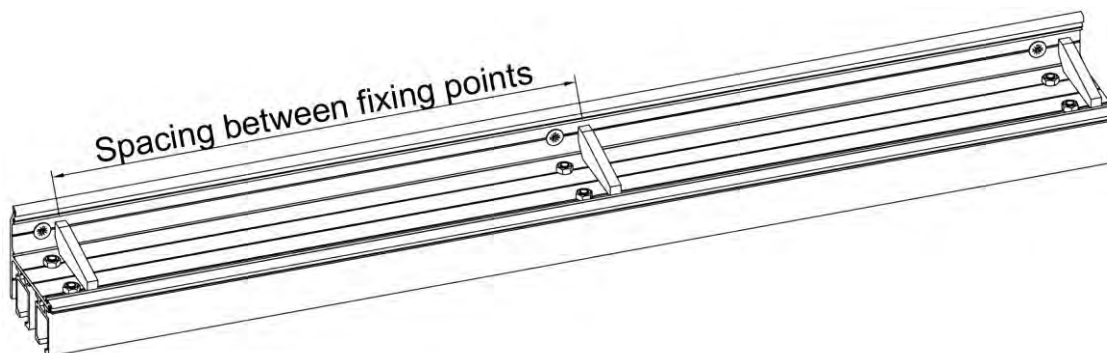
Distance between fixing points

Fixings with the structure must be dimensioned depending on hanger weight, carriage spacing, mountings used, fitting substrate, fixing methods etc.

The following applies as a rule of thumb:

Maximum packet weight	< 60kg min. fixing points every 600mm
	> 60kg min. fixing points every 400mm
	in addition to one each at beginning and end of system

All fixing points such as masonry, running rails and strengthening fixings must be located close to each other.



When fitting profiles and brackets, you must take differential expansion of the materials and of the structure into account.

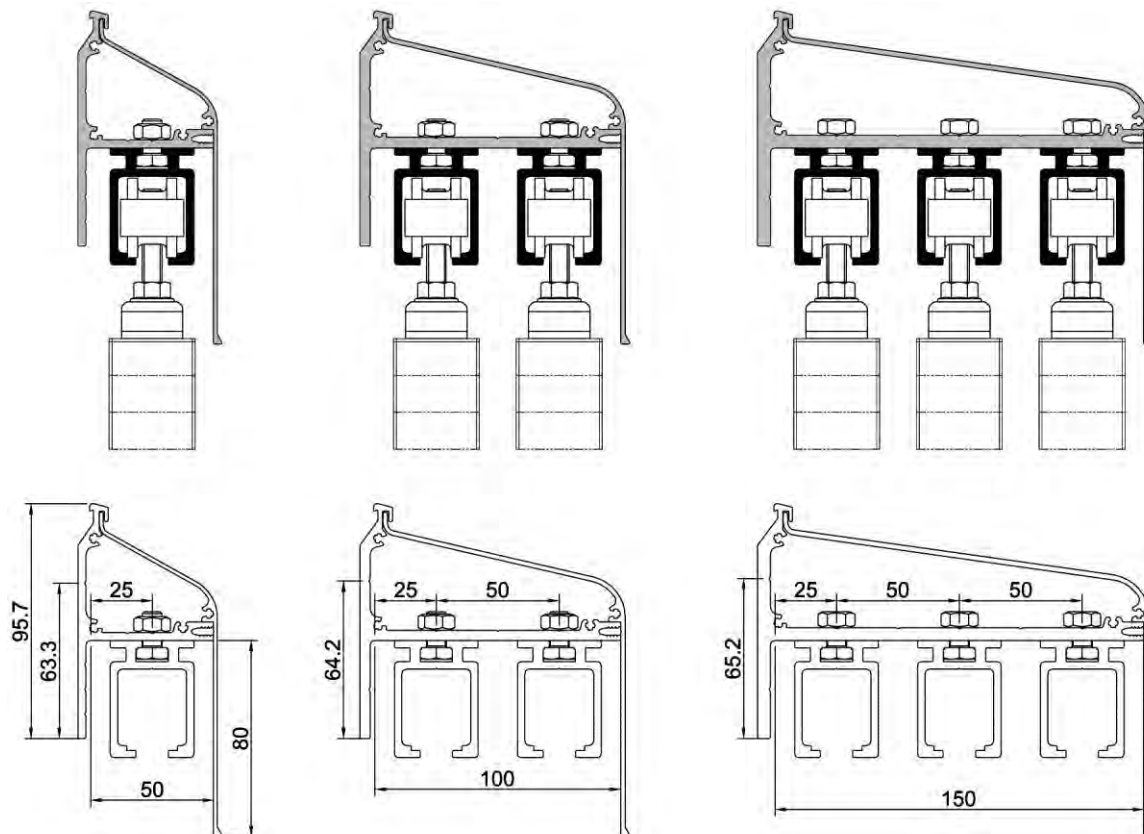
3.1.1 Herakles CS

Profile system consisting of mounting and lining for masonry fixing.

50mm (single-track)

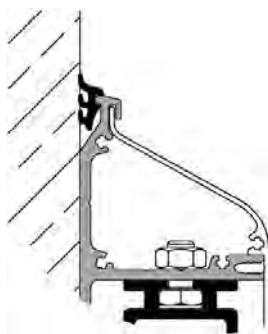
100mm (dual-track)

150mm (triple-track)



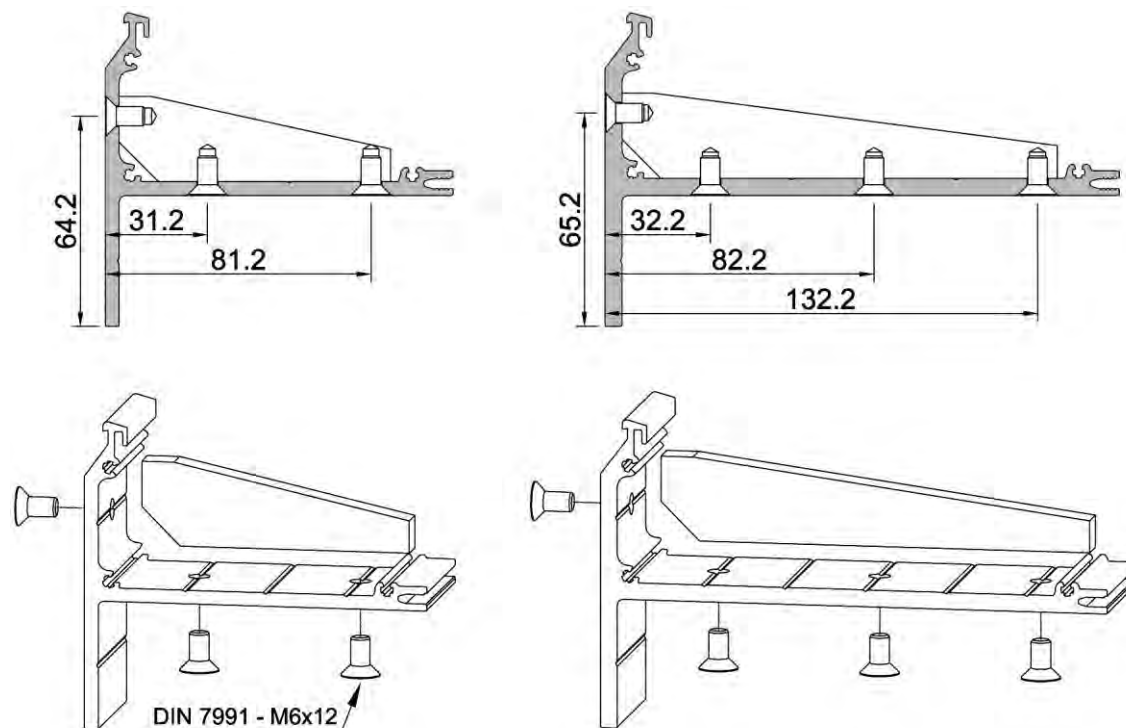
Fitting instructions

- Screw the running rails directly below the mounting profile.
Grooves show the standard distances.
- Fix the side cap using the screw cutouts.
- If necessary, fix the edging in the screw cutouts from the front.
A groove inside the edging shows the correct drilling location.
- Attach rubber for top connection to structure.



Reinforcing ribs

It may be necessary to fit additional reinforcing ribs to stabilise dual and triple-track mounting profiles.



Maximum package weight

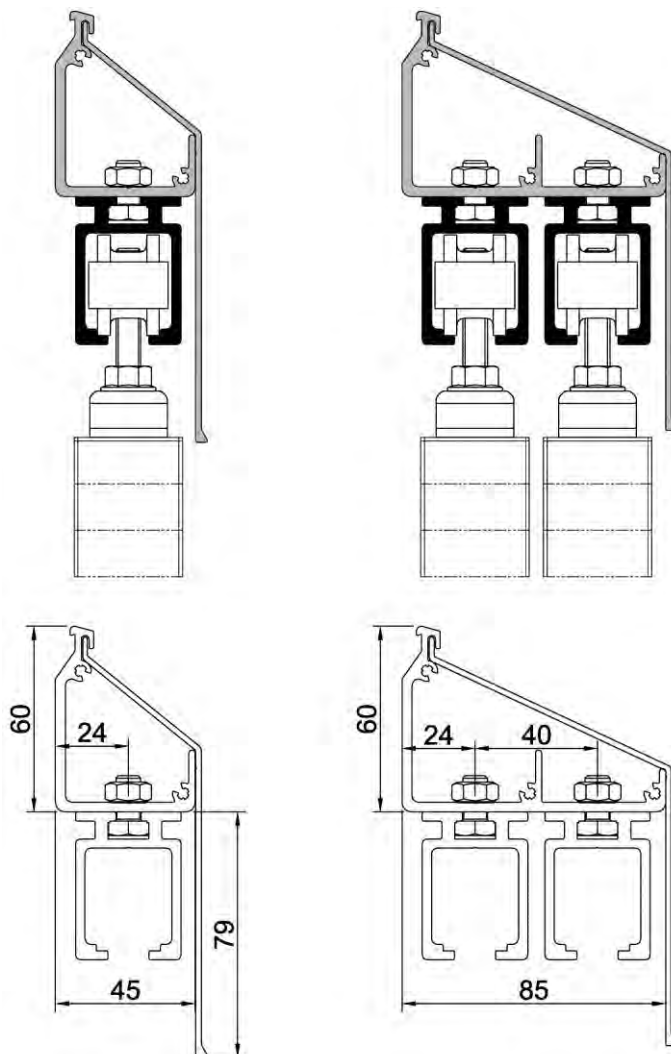
Projection	without reinforcing	with reinforcing
single-track 50mm	100 kg	not available
dual-track 100mm	100 kg	200 kg
triple-track 150mm	100 kg	200 kg

3.1.2 Herakles AT

Profile system consisting of mounting and lining for masonry fixing.

45mm (single-track)

85mm (dual-track)



Fitting instructions

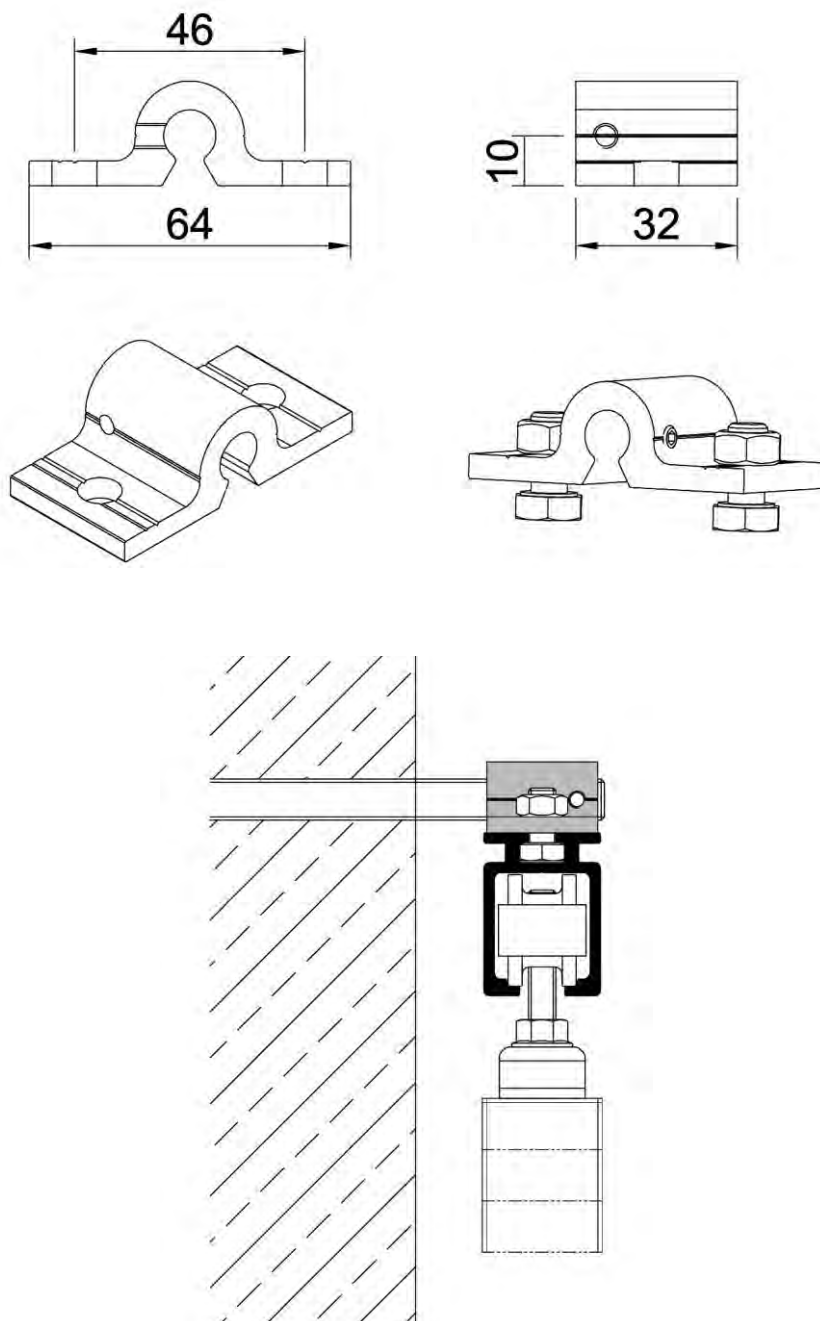
see Herakles CS

Maximum package weight

Projection		without reinforcing	with reinforcing
single-track	45mm	100 kg	not available
dual-track	85mm	85 kg	not available

3.1.3 Herakles GS

Brackets for installation with threaded rods.

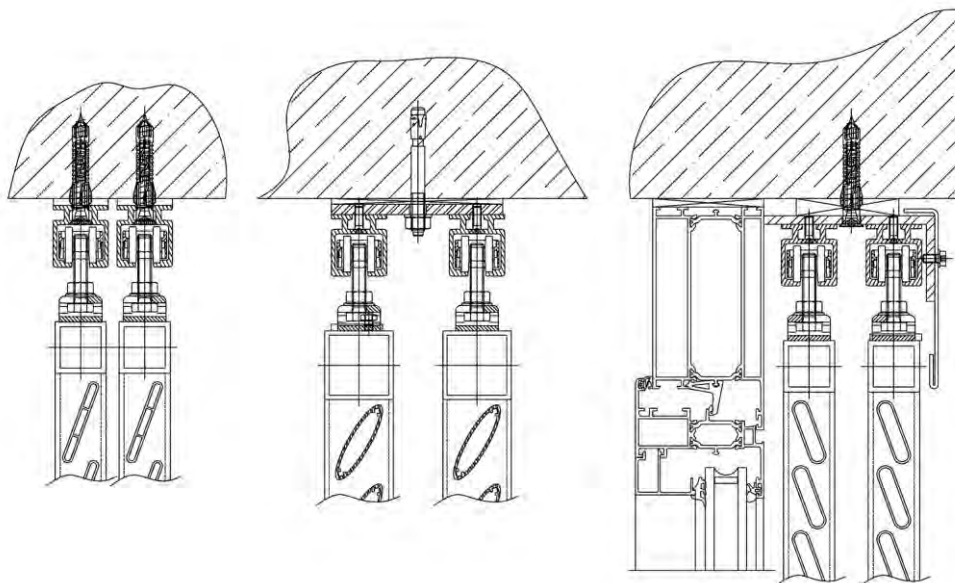


Fitting instructions

- Bolt the running rails directly to the bracket.
A groove in the running rail enables the brackets to be moved.
- Align the running rails in a straight line.
- Depending on the version, fix the bracket to the threaded rod using a grub screw or nut.

3.1.4 Ceiling or doorframe fixing

Fixing of the running rails directly or via a bracket to ceilings or in a door frame.



Observe breakout-zones for fixing materials: fix staggered if necessary.

3.1.5 Individual solutions

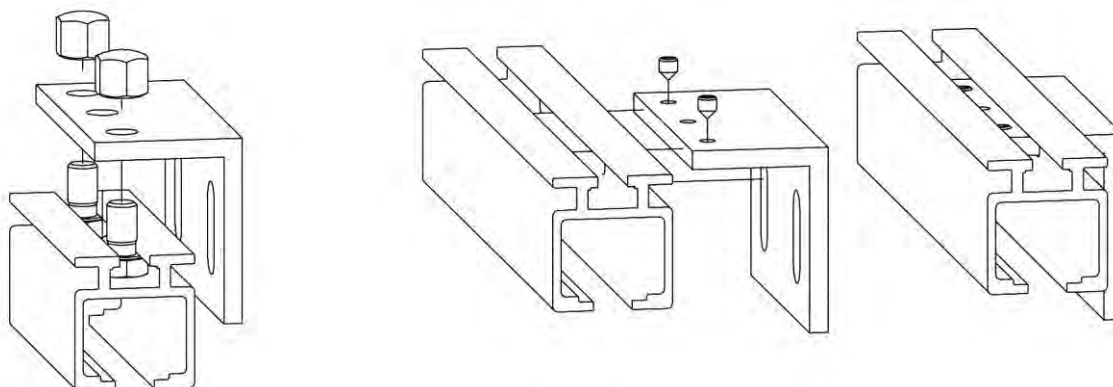
It may be necessary to develop individual fixing solutions.

Whatever the case, motors must be protected from weather influences by suitable coverings.

Fixing bracket

Fixing of running rails using a small fixing bracket on the structure. Design takes place for individual cases due to the wide range of variations.

Moss formation must be prevented by suitable water drainage.



3.1.6 Fitting to insulation

All the fitting auxiliaries previously mentioned are suitable for fitting to insulation. Fitting can take place using on-site substructures, fixing brackets or pressure pads or threaded rods with and without thermal separation.

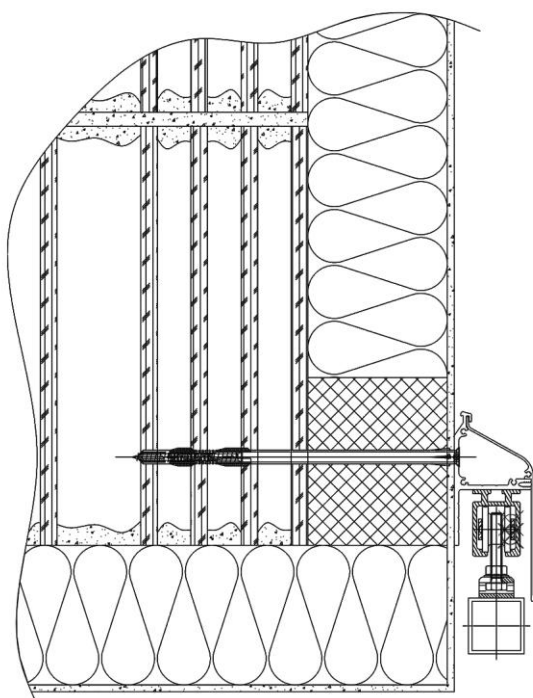
Substructures made of solid wood or metal, continuous threaded rods or similar are only suitable within limits due to the cold or warm bridges which result.

Fixing bracket and pressure pads

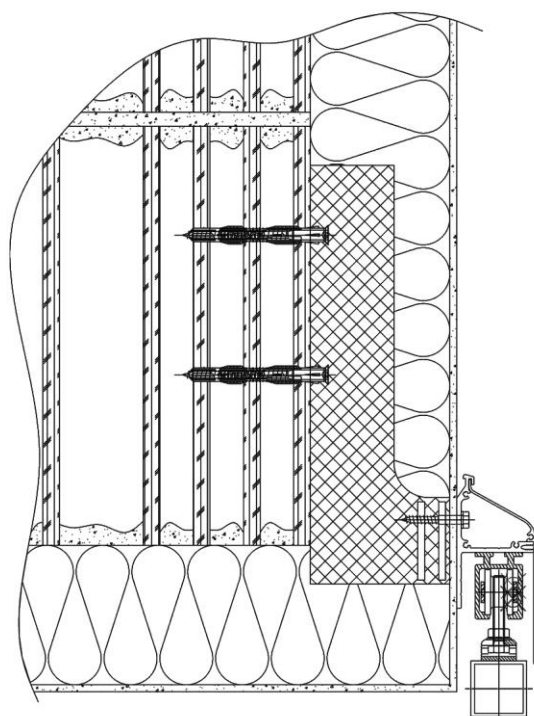
Please see the corresponding manufacturer's documentation for fitting descriptions and load information.

Brackets should be fixed before the insulation is applied.

Circular pressure pad

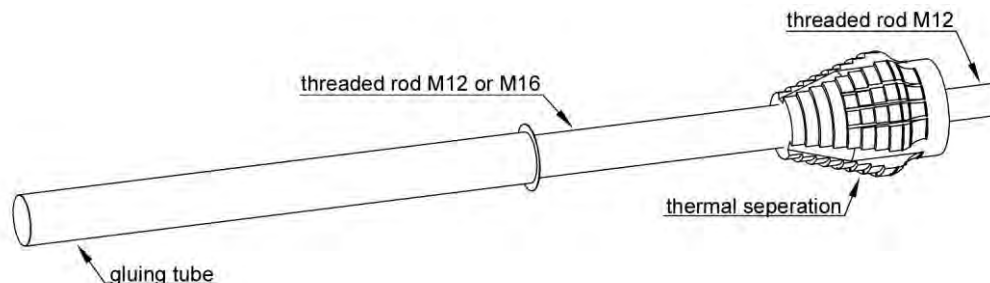


Supporting bracket

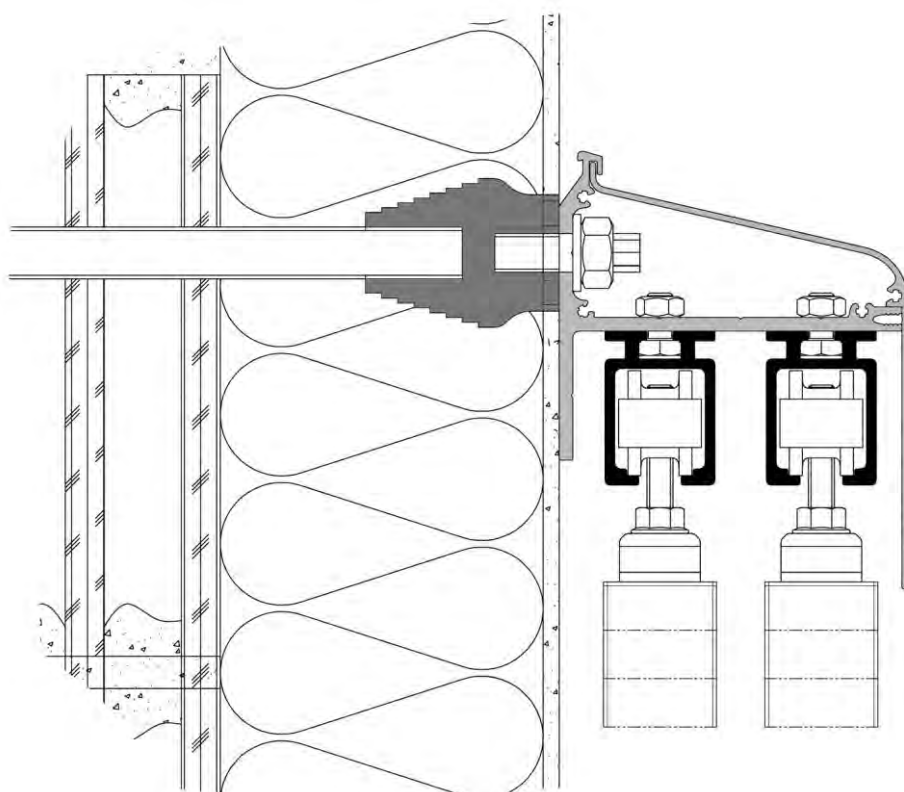


Threaded rods with thermal separation

Please see the corresponding manufacturer's documentation for fitting descriptions and load information.



The threaded rods are mounted subsequently after the thermal insulation and plaster has been applied.



3.2 "Olymp" mounting

This mounting enables manual, linear sliding of the hanger. The range of variations differ in dimensions and maximum leaf weight.

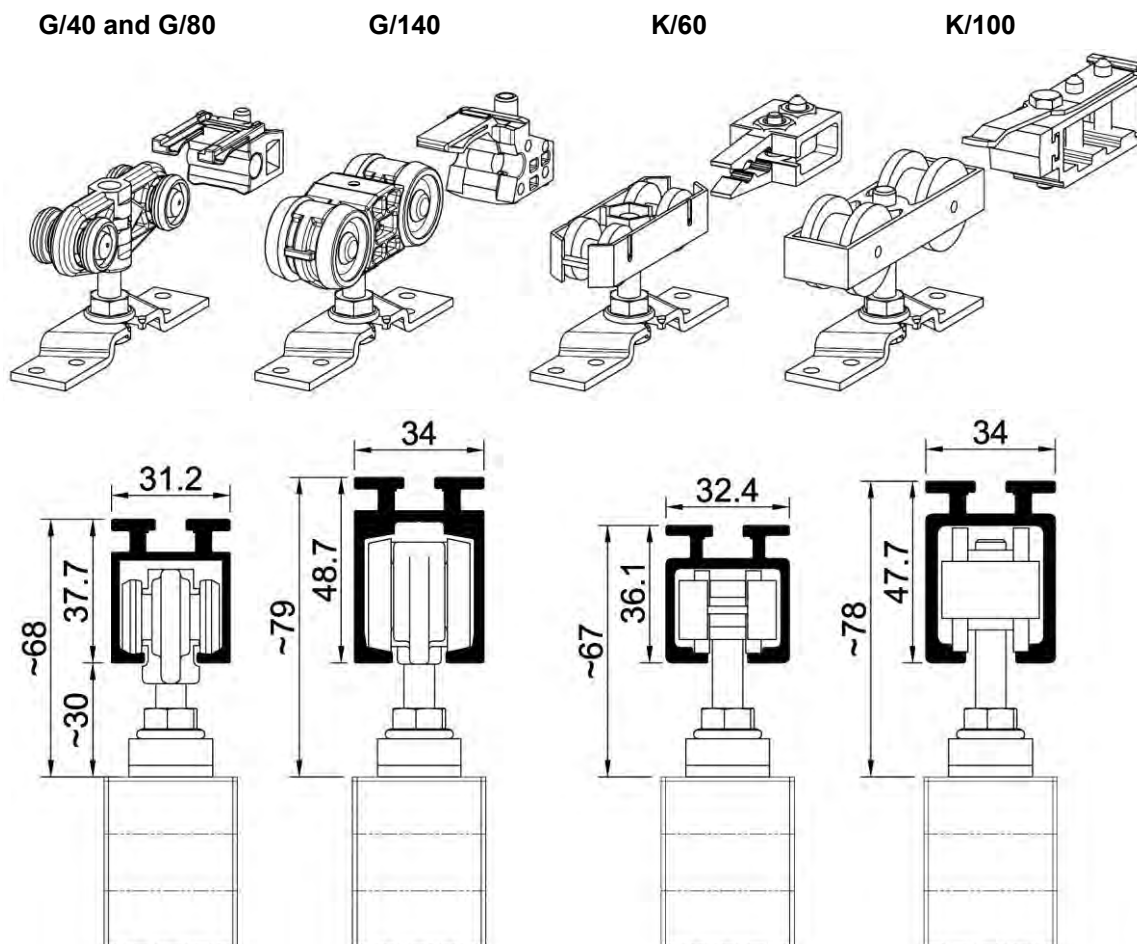
Number and function of mountings

An accessory kit consisting of 2 carriages, stop buffers and suspension brackets with screws is required for each hanger.

The suspension bracket is fixed to the hanger. The suspension screw connects the carriage to the suspension bracket. The carriage is then moved in the running rail. The stop buffers limit the travel path.

3.2.1 Fitting assortment (overview)

The following systems are available: Olymp B/60, K/60, K/100, G/40, G/80 and G/140. The number indicates the maximum hanger weight. Running rails with name LS+ are formed with a groove for fixing with Allen keys (DIN 933).



Several leaves with the maximum hanger weight can be fixed to one running rail.

We do not recommend using more than two carriages per leaf.

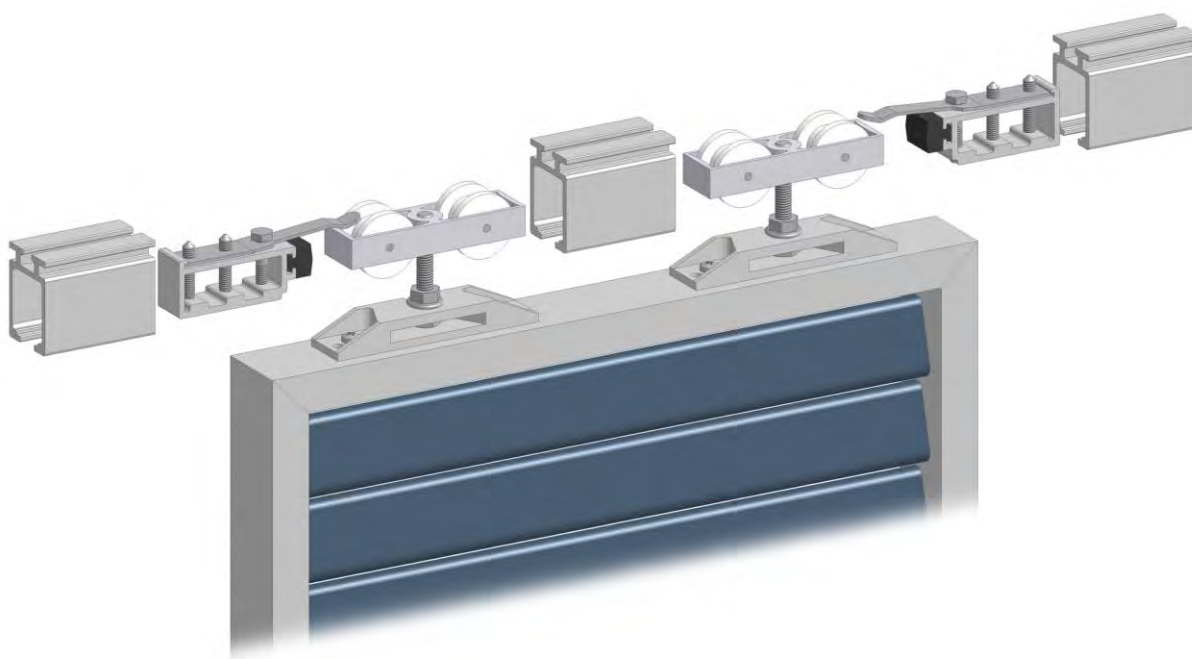
Running rails may not be coated.

3.2.2 Equipping the running rails, fixing mountings

Equipping the running rails

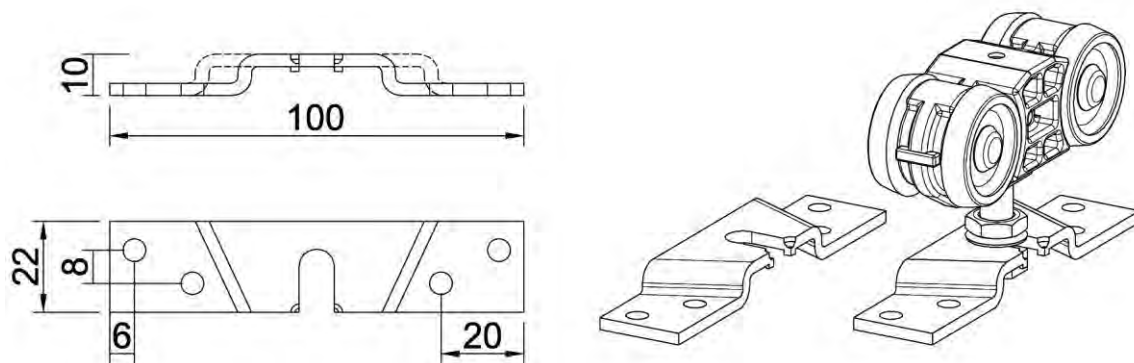
Push the stop buffers and carriages in the correct sequence into the running rails according to the division diagram.

Clean running rails and mountings before equipping.

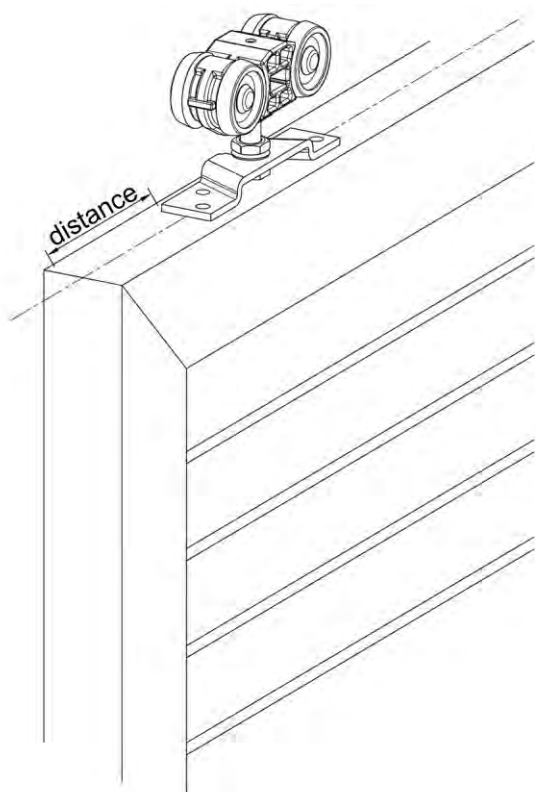


Fitting the suspension bracket and screws

Fit the suspension bracket with suitable fixing material to the top side of the hanger. Screw the suspension screw and nut into the carriage. After the hanger has been mounted, fix the suspension screw and nut.



Distance of the suspension bracket



Option	Distance
Side with stop buffer (manual installation)	80 mm
Side with stop buffer and guide roller Prometheus XS-2/UR	140 mm
Side with stop buffer and motor for 80kg Prometheus XS-2/80/MT Prometheus XS-2/120/MT	270 mm

Adjustment

Adjust the stop buffer in accordance with the required travel path and fix it. Adjust the height by rotating the suspension screw.

Falling hazard! Secure hanger and material during all work.

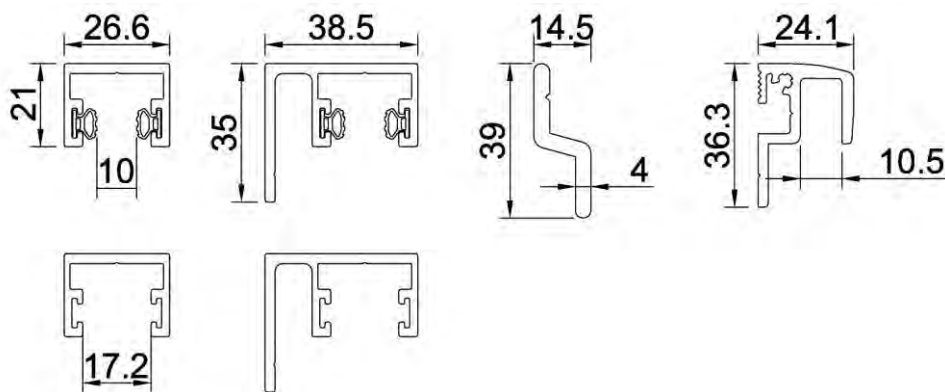
3.3 "Achill" bottom guide

Holds the hanger in its running track at the bottom connection. The hanger must be held by a sufficient bottom guide in any possible position.

Fitting instructions

- Align the running and guide rails in addition to hangers parallel to each other.
- Fix the guide rails to the wall in a straight line and without twisting.
- Check to ensure perfect running.




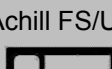












3.3.1 Achill FS guide rails



Slider piping

The GK slider piping for the Achill FS/U and the Achill FS/UL ensures good running characteristics.

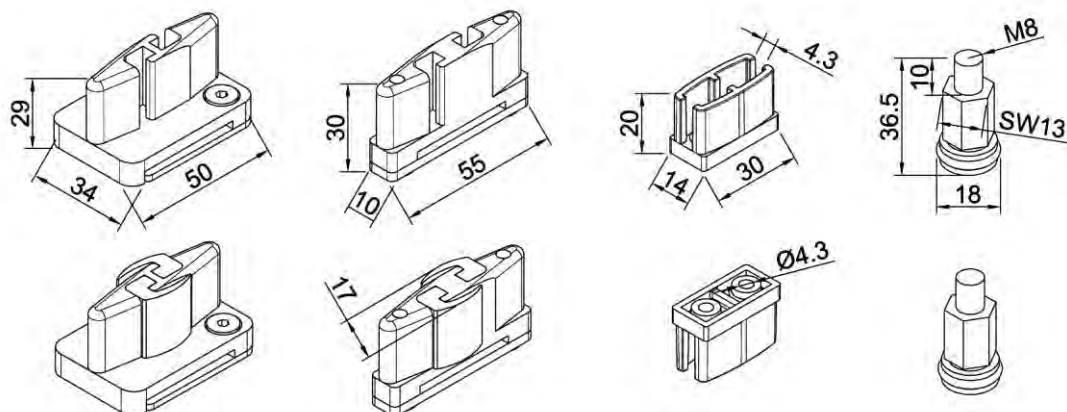
Installation type and names

	Achill FS/U+GK  Achill FS/U 	Achill FS/UL+GK  Achill FS/UL 	Achill FS/WP 	Achill FS/ZP 	Achill FS/SP  Standard profile Local conditions e.g. channels, grilles, floor coverings.
Fixing to hanger					
Continuous fixing to wall					

 = suitable,  = suitable with limitations

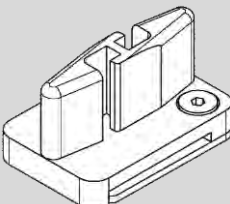
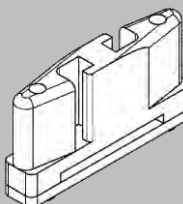
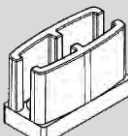

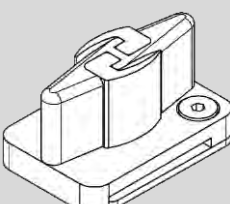
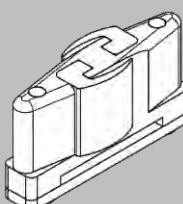







3.3.2 Achill GL slider



Slider inside guide rail to keep hanger in track.



Installation type

Sliders are fixed directly or using a bracket to the hanger or the structure.

	Achill GL/SB/10	Achill GL/SS/10	Achill GL/SL/4/14	Achill RL/18
				
	Achill GL/SB/17	Achill GL/SS/17		
				
Montage direkt				
Montage auf einer Konsole				

 = geeignet,  = bedingt geeignet

3.3.3 Achill MK

Used for connecting sliders and guide rails.

Brackets can only be coated with limitations.

Installation type

Fixing brackets

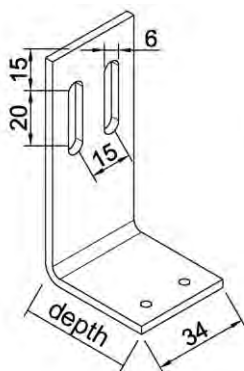
Offset angle

especially suitable for fixing next to window reveals

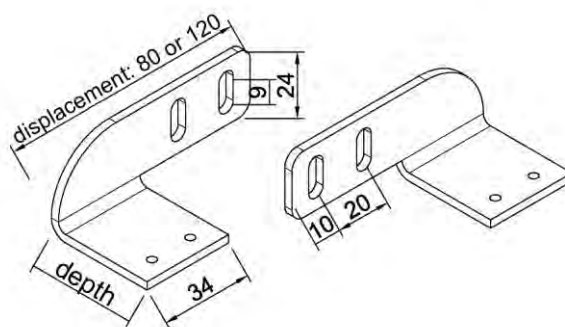
flat bracket

especially suitable for fixing below hanger

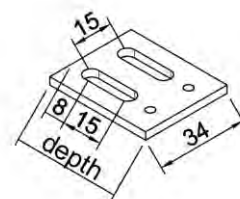
Achill MK/SW



Achill MK/VW










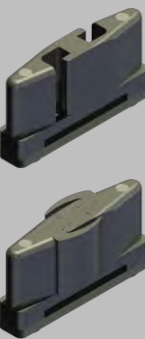













Achill MK/FK



3.3.4 Combination possibilities

Combination possibilities of guide rails and sliders are shown below.

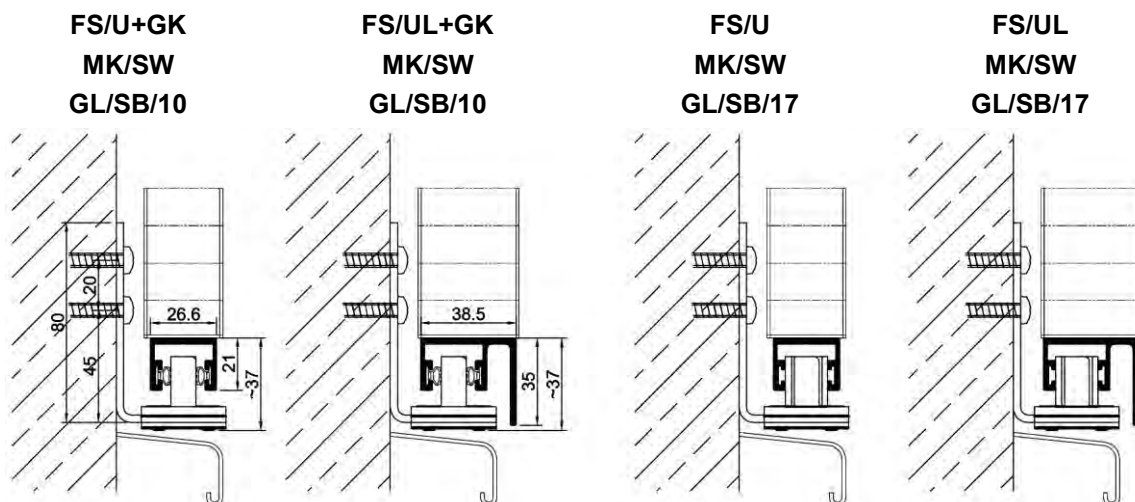
	Achill FS/U+GK 	Achill FS/UL+GK 	Achill FS/WP 	Achill FS/ZP 	Achill FS/SP  Standard profile Local conditions e.g. channels, grilles, floor coverings.
Achill GL/SB 					
Achill GL/SS 					
Achill GL/SL 					

 = suitable,  = suitable with limitations

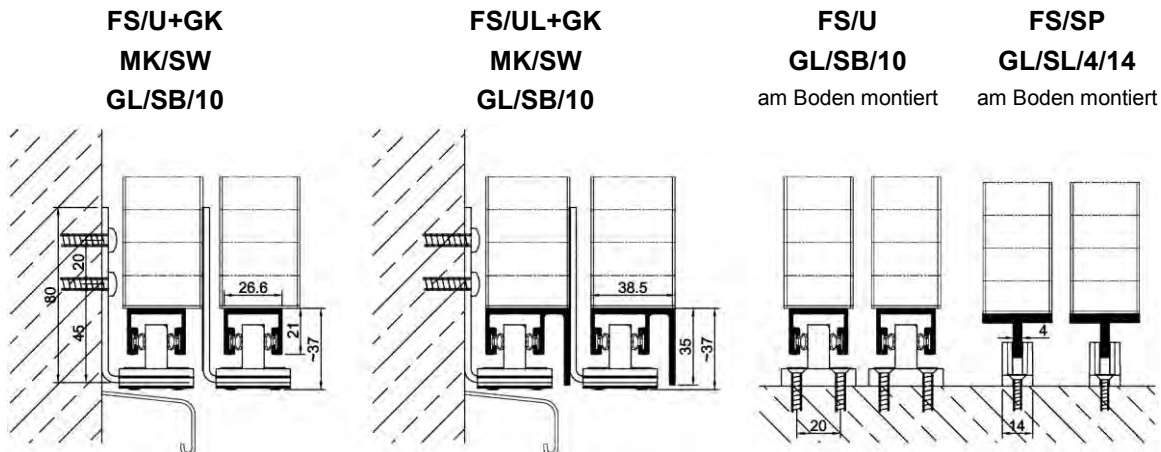
3.3.5 Point guidance

One guide slider on the structure and a guide rail on the hanger.

Several sliders on the wall can only be used with restrictions.

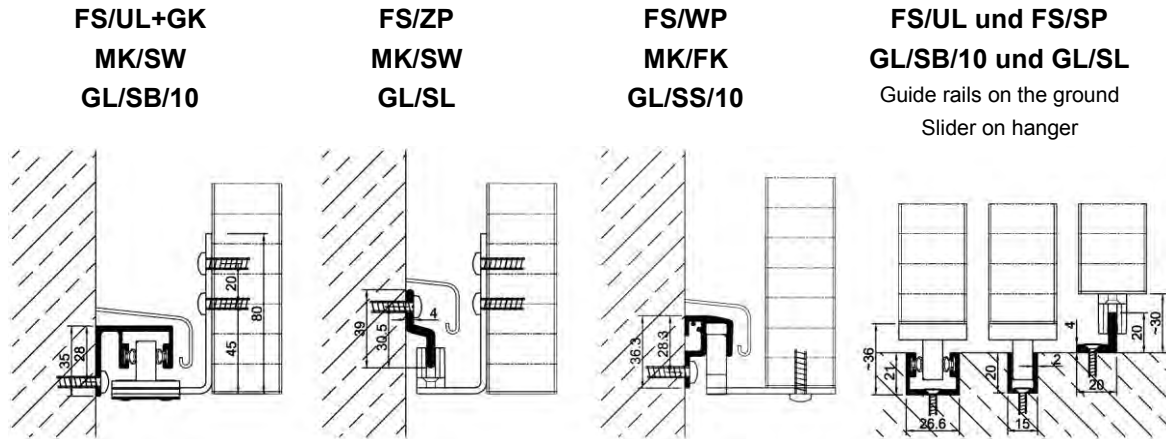


Several hangers in front of each other



3.3.6 Continuous guides

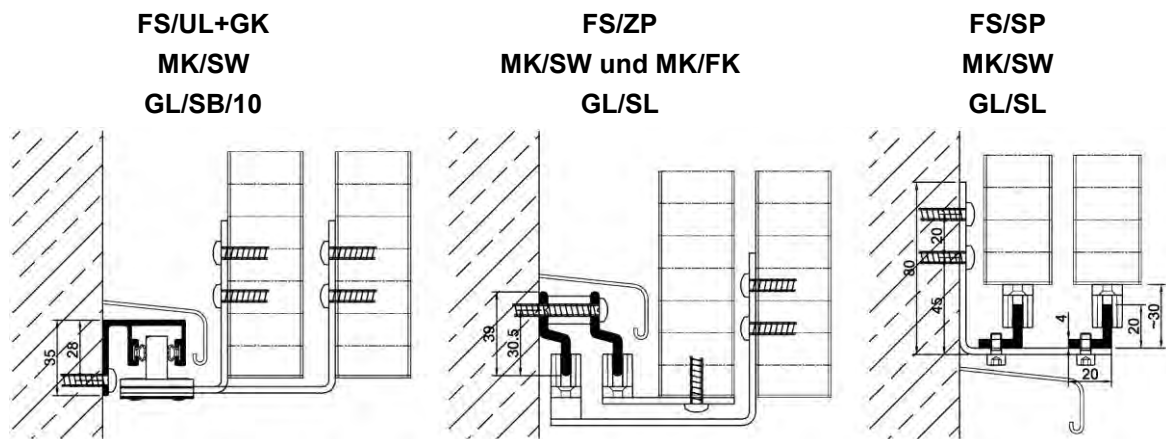
Guide rails mounted continuously along the entire travel path. Slider on hanger.



Several hangers in front of each other

Each hanger is given its own guide rail if several hangers are in front of each other. Otherwise, locate slider so that interlinking is prevented.

In the case of several hangers in front of each other which are coupled together using a point guide, a suitable construction must prevent leaves being operated independently. For example, a telescopic system.

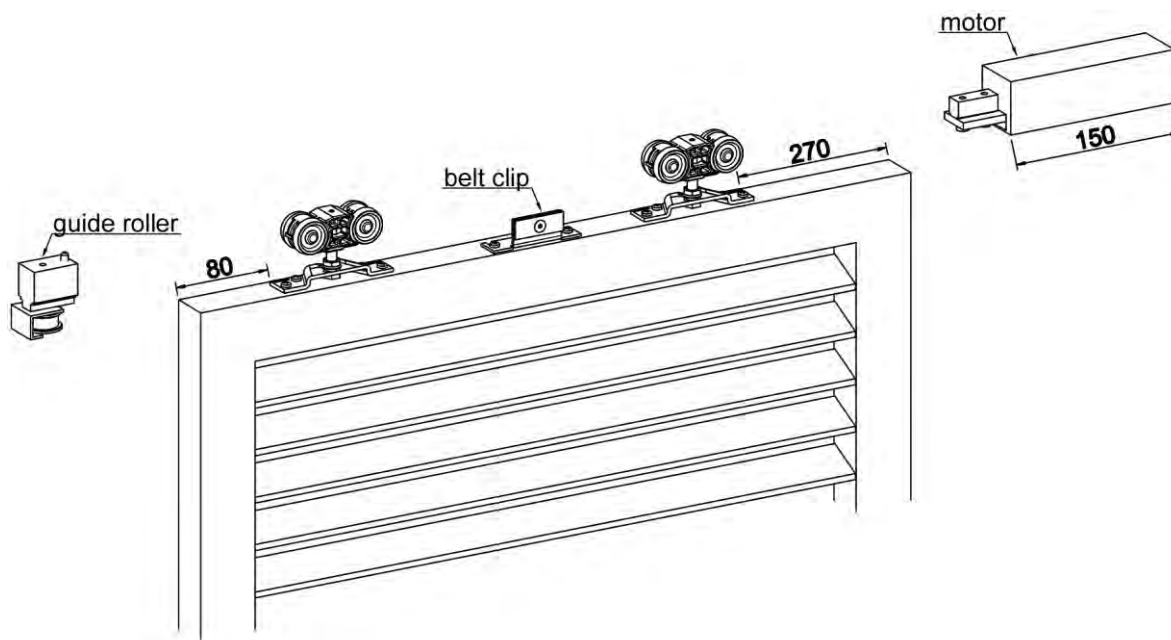


3.4 "Prometheus" drive

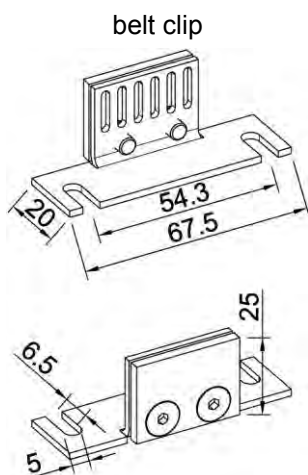
3.4.1 Symmetrical system

Couples two hangers for simultaneous opening to left and right. Consists of two deflection rollers, one belt clip, one driver ridge and a circumferential toothed belt.

Hanger width: see chapter "4 Fitting and hanger dimensioning".
All hangers may have the same width: symmetric arrangement.



toothed belt, stop buffer and running rail not shown
fitting instructions see following page



Fitting instructions

1. Mounting the fittings

Equipping the running rails as described in Section 3.2.2.

2. Equipping running rails with deflection rollers

Push the deflection roller sideways into the running rail. Fix the deflection roller, leave a little space for subsequent tensioning.

3. Mounting belt clip and driver ridge

Mounting the belt clip and driver ridge on the hanger.

Fix belt clip, do not fix driver ridge.

4. Thread in toothed belt and close belt circle

Toothed belt length approximately double running rail length.

Insert toothed belt through deflection rollers. The teeth on the belt point inwards, facing each other.

Close the toothed belt circle by guiding the toothed belt ends into the belt clip.

5. Aligning hangers

Align the hangers in open or closed condition symmetrically.

6. Threading in the driver ridge

Thread the toothed belt into the driver ridge. Adjust the driver ridge.

7. Tensioning toothed belt

Loosen one guide roller. Tensioned the toothed belt by pulling the guide roller.

Fix the guide roller.

3.4.2 Telescopic system for two leaves

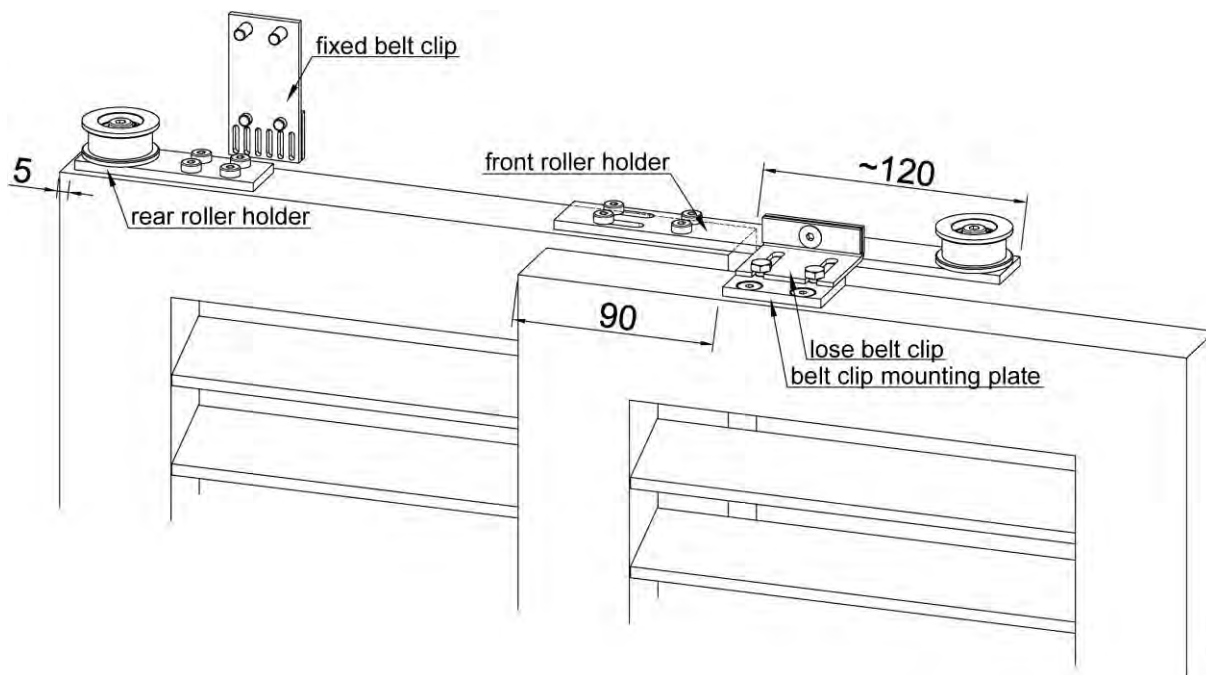
Couples two hangers in front of each other for opening in one common direction.

Components: rear hanger: two roller holders and one circumferential toothed belt
front hanger: one loose belt clip
on the running rail one fixed belt clip

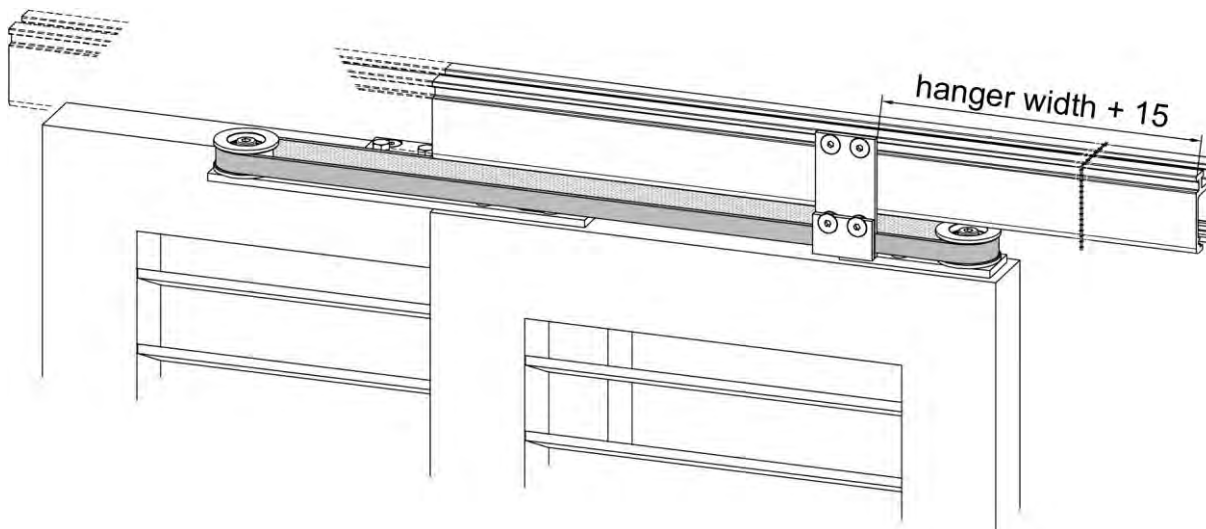
Maximum axis spacing for each running track: 50mm.

Hanger width: see chapter "4 Fitting and hanger dimensioning".

All hangers may have the same width: symmetric arrangement.



toothed belt and running rail not shown, seen from "outside" closed



toothed belt and backmost running rail shown, seen from "inside" closed

Fitting instructions

1. Mounting the fixed belt clip

Before mounting the running rails: mount the fixed belt clip to the running rail

2. Montieren des Rollenhalters

Vor Behangmontage: Beide Rollenhalter am hinteren Behang montieren.

3. Thread in toothed belt and close belt circle

Toothed belt around double hanger length plus 350mm

Insert toothed belt through roller holder. The teeth on the belt point inwards, facing each other.

Close the toothed belt circle by guiding the toothed belt ends into the loose belt clip.

4. Fitting the mounting plate

Fit the mounting plate for loose belt clips to the front hanger.

5. Fitting the mountings and the hangers

Equipping the running rails as described in Section 3.2.2. Fit the hangers.

6. Connecting the hangers

Move the hangers to the park position in front of one other. Fix the loose belt clip (rear hanger) to the mounting plate.

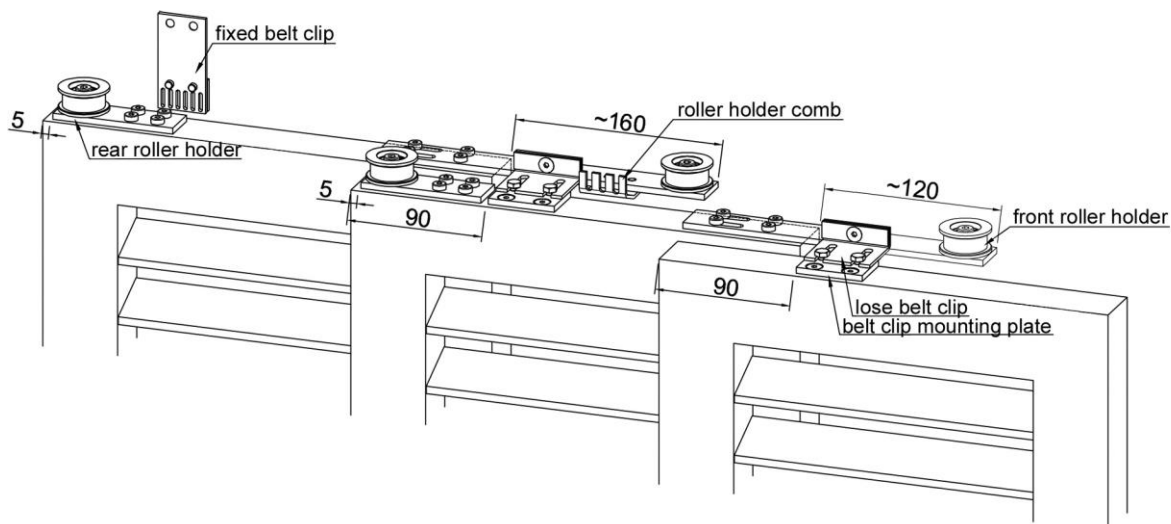
7. Closing the fixed belt clip

Move the hangers to the park position in front of one other. Insert the belt into the fixed belt clip and close it. The bolt has an Allen key on both sides.

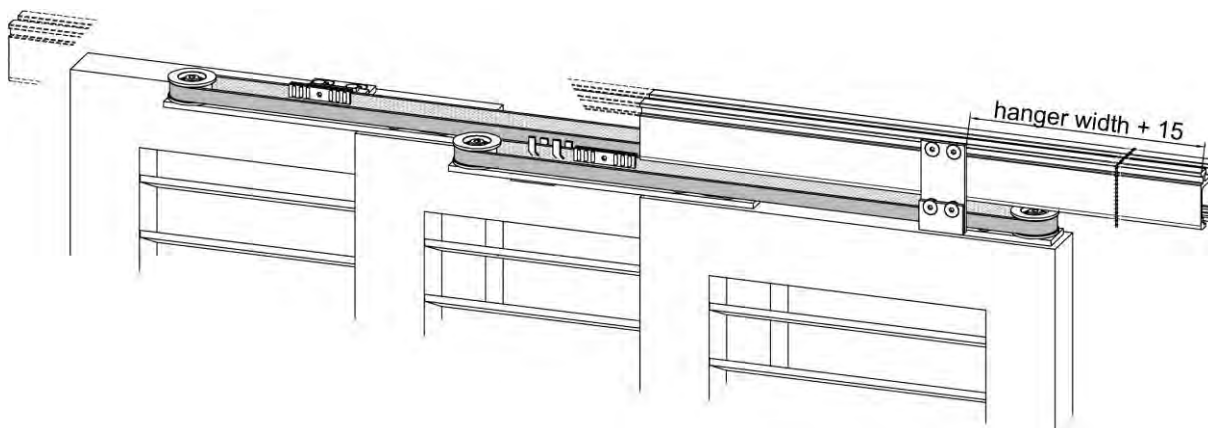
3.4.3 Telescopic system for three leaves

Couples three hangers in front of each other for opening in one common direction.

Components: rear hanger: four roller holders and two circumferential toothed belts
front hanger: one loose belt clip
on the running rail one fixed belt clip



toothed belt and running rail not shown, seen from "outside" closed



toothed belt and backmost running rail shown, seen from "inside" closed

Fitting instructions

Analog to telescopic system for two leaves, see previous section.

3.4.4 Telescopic system for several leaves

Couples more than three hangers in front of each other for opening in one common direction.

Components: see telescopic system for three leaves

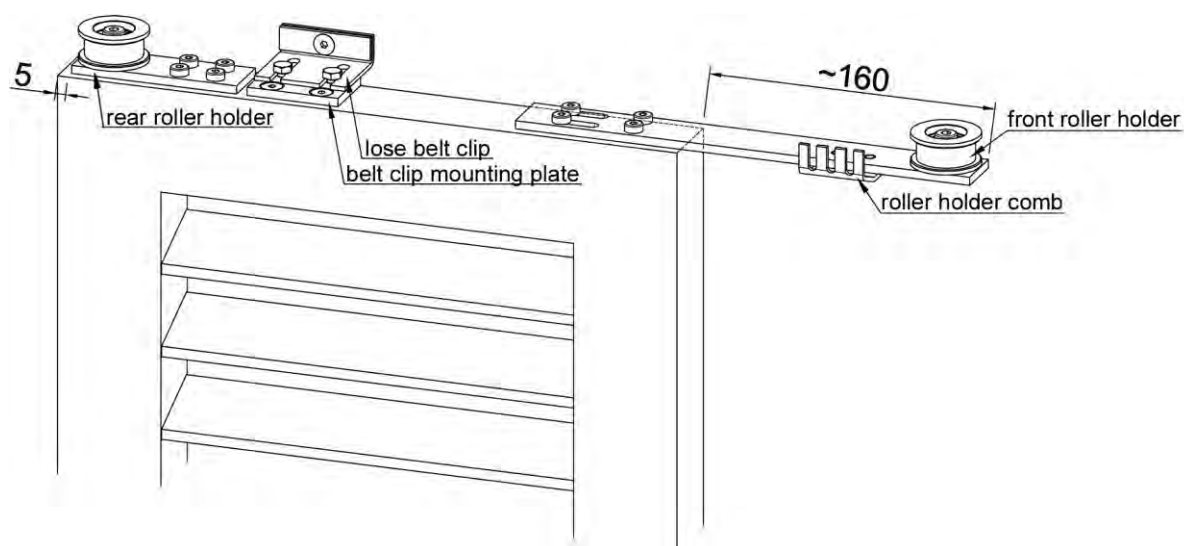
each additional leaf: two additional roller holders and one circumferential toothed belt
one loose belt clip

Fitting instructions

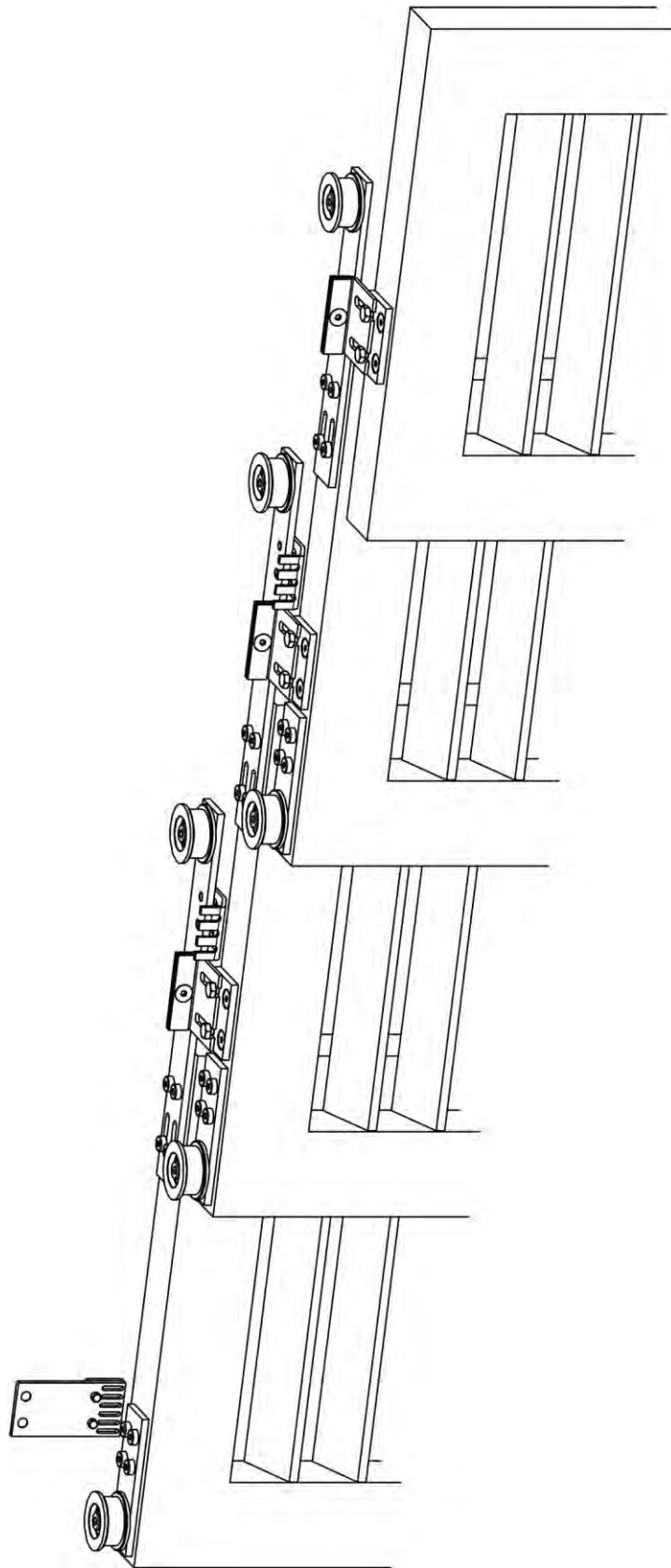
Analog to telescopic system for two leaves, see previous section.

Equip additional leaves in accordance with the following diagram.

Insert equipped hanger between the rearmost and foremost hanger.



toothed belt and running rail not shown, seen from "outside"



4 hangers, toothed belt and running rail not shown, seen from "outside" closed

3.4.5 "Prometheus XS-2" drive

Moves one or, if connected with symmetrical or telescopic system, several hangers electrically.

Components: motor, guide roller, belt clip, controller and toothed belt

Only connect the motor after all fitting is complete.

Also motored applications need stop buffers

Fitting instructions

1. Mounting the fittings

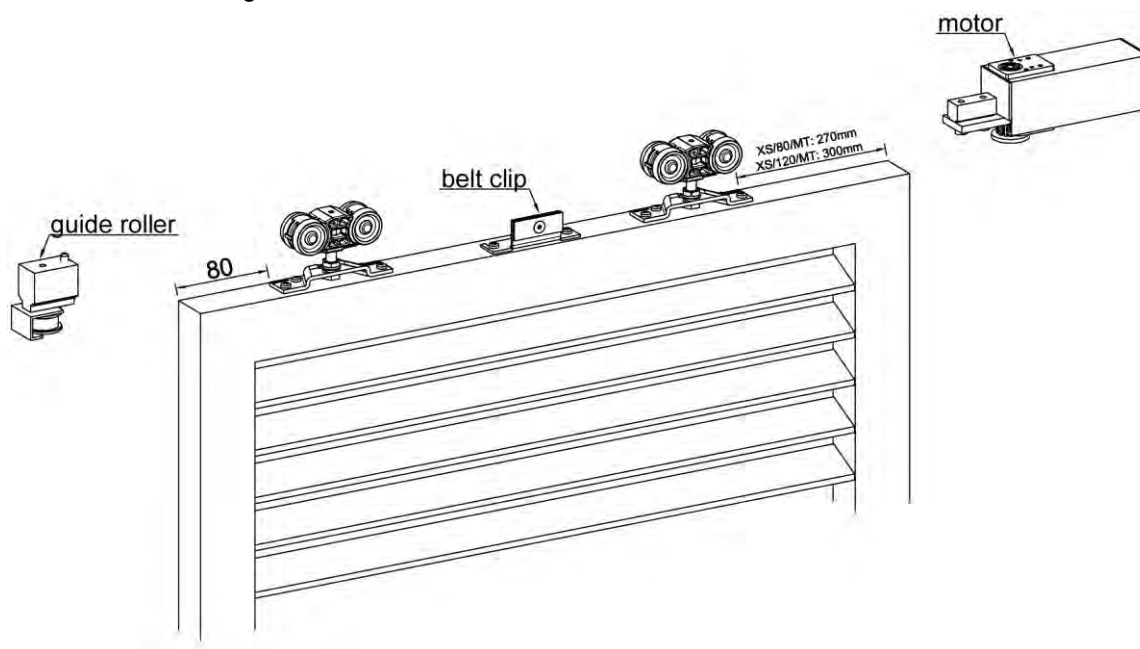
Equipping the running rails as described in Section 3.2.2.

2. Fitting guide roller and motor

Push the motor and guide roller into the running rail and fix them.

3. See symmetrical system

All further fitting instructions are described in Section 3.4.1.



toothed belt, stop buffers and running rail not shown

In the case of symmetrical systems, fix an additional driver ridge.

If the telescopic system is in use, the motor drive should be fitted to the front track.

4 Fitting and hanger dimensioning

4.1 Measuring

In the case of right angled windows, the window reveal width and height must be sufficiently measured (clear height and clear width). When measuring, ensure that there is sufficient space next to the window for the parking hangers.


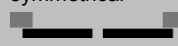
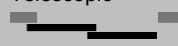


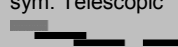
Separate planning is necessary for post and rail or element facades.

The clear height or clear width of the window reveal are not necessarily same as the window height or window width.

All information comprises rough guidelines when using the fittings shown.

4.2 Hanger width and profile length

The recommended hanger width and profile lengths are stated below for the division diagrams (see Section 2.2 for precise description). Widths or lengths are per hanger or per profile for simultaneous division of hangers.

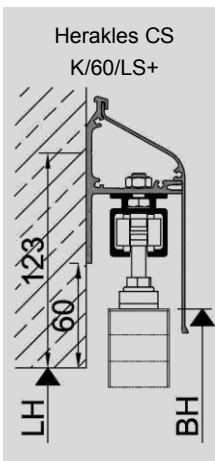
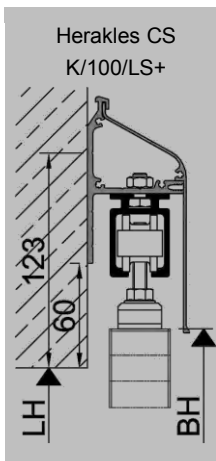
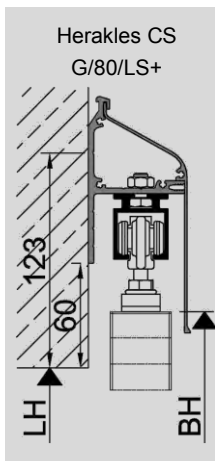
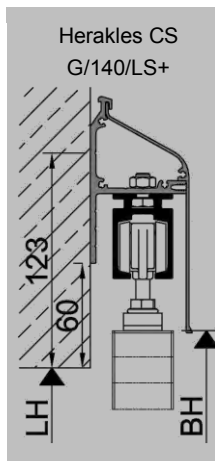
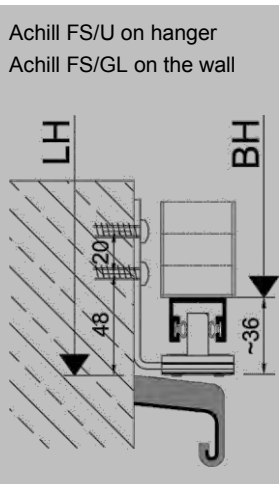
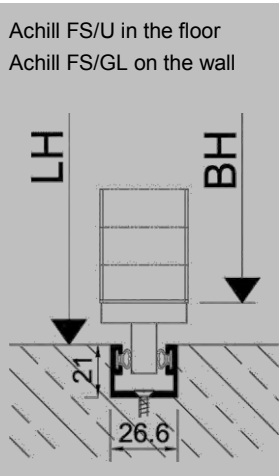
	Hanger width (BB)	Running rail length (LL)		Bracket and edging length (TBL)
		without motor	Prometheus XS-2/MT	
1-leaf 1R / 1L 	LLB + 120	LLB + BB + 60	LLB + BB - 100	LLB + BB + 70
2-leaf 1R 1L symmetrical 	(LLB / 2) + 60	LLB + 2x BB	LLB + 2x BB - 160	LLB + 2 x BB + 10
2- leaf 2R / 2L Telescopic 	(LLB / 2) + 90	LLB + BB + 60 (x 2-tracks)	LLB + BB - 100 (x 2-Spuren)	LLB + BB + 70
3- leaf 3R / 3L Telescopic 	(LLB / 3) + 80	LLB + BB + 60 (x 3- tracks)	LLB + BB - 100 (x 3-Spuren)	LLB + BB + 70
4- leaf 2R 2L sym. Telescopic 	(LLB / 4) + 60	LLB + 2x BB (x 2- tracks)	LLB + 2x BB - 160 (x 2-Spuren)	LLB + 2x BB + 10
3- leaf 2R1L / 2L1R sym. Telescopic 	(LLB / 3) + 60	LLB + 2x BB (x 2- tracks)	LLB + 2x BB - 160 (x 2-Spuren)	LLB + 2x BB + 10

LLB: clear window reveal width; LL: running rail length; TBL: bracket and edging length BB: hanger width
All dimensions in mm

4.3 Hanger heights

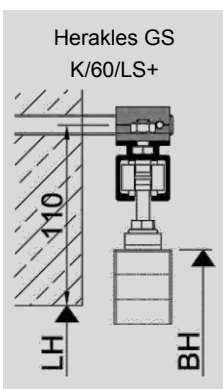
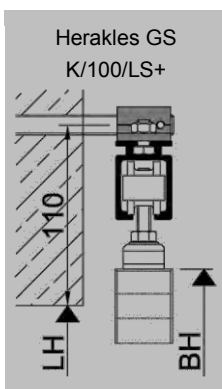
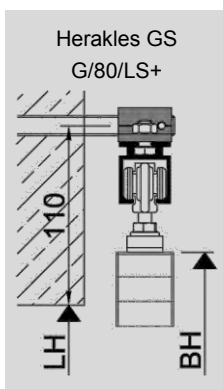
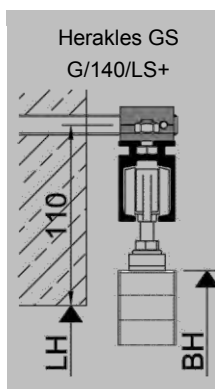
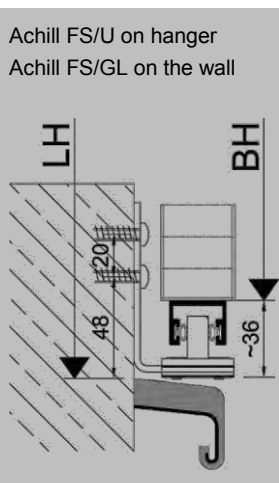
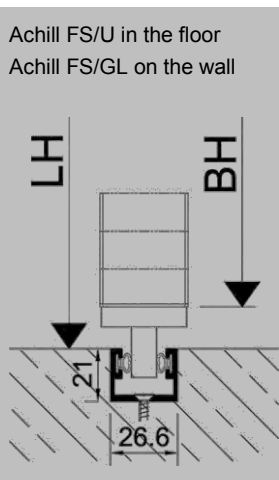
The resulting hanger heights are stated below for various running rails and installation types. Information about hanger height is taken to be plus any possible guide rails.

4.3.1 Hanger height when mounting with Herakles CS

	<div>Herakles CS K/60/LS+</div> 	<div>Herakles CS K/100/LS+</div> 	<div>Herakles CS G/80/LS+</div> 	<div>Herakles CS G/140/LS+</div> 
<div>Achill FS/U on hanger Achill FS/GL on the wall</div> 	LH - 7	LH - 18	LH - 8	LH - 19
<div>Achill FS/U in the floor Achill FS/GL on the wall</div> 	LH + 16	LH + 5	LH + 15	LH + 4

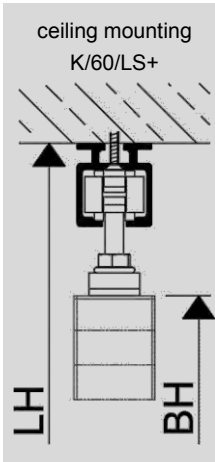
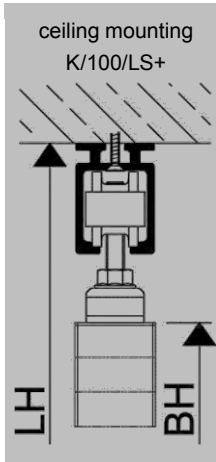
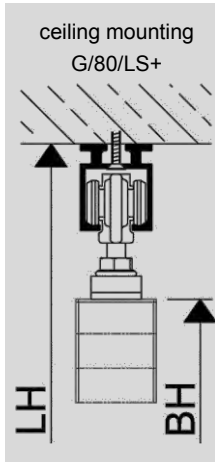
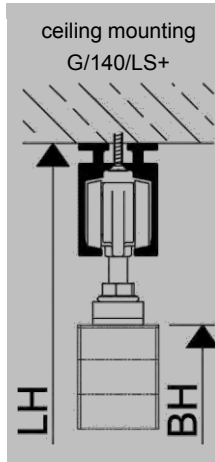
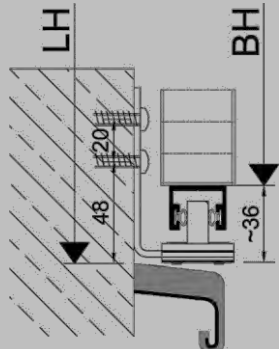
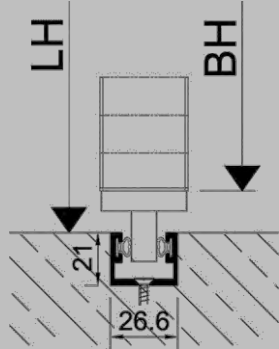
LLH: clear window reveal height; All dimensions in mm; hanger height is taken to be plus any possible guide rails.

4.3.2 Hanger height when mounting with Herakles GS

	<div>Herakles GS K/60/LS+</div> 	<div>Herakles GS K/100/LS+</div> 	<div>Herakles GS G/80/LS+</div> 	<div>Herakles GS G/140/LS+</div> 
<div>Achill FS/U on hanger Achill FS/GL on the wall</div> 	LH - 7	LH - 18	LH - 8	LH - 19
<div>Achill FS/U in the floor Achill FS/GL on the wall</div> 	LH + 16	LH + 5	LH + 15	LH + 4

LLH: clear window reveal height; All dimensions in mm; hanger height is taken to be plus any possible guide rails.

4.3.3 Hanger height for ceiling or doorframe mounting

	<p>ceiling mounting K/60/LS+</p> 	<p>ceiling mounting K/100/LS+</p> 	<p>ceiling mounting G/80/LS+</p> 	<p>ceiling mounting G/140/LS+</p> 
<p>Achill FS/U on hanger Achill FS/GL on the wall</p> 	LH - 107	LH - 118	LH - 108	LH - 119
<p>Achill FS/U in the floor Achill FS/GL on the wall</p> 	LH - 84	LH - 95	LH - 85	LH - 96

LLH: clear window reveal height; All dimensions in mm; hanger height is taken to be plus any possible guide rails.

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