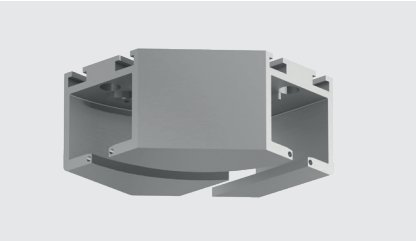
Horizontal Sliding Walls

Technical brochure 2021

HSW EASY Safe
FSW EASY Safe

dormakaba

Content



Support and Guide Elements


PROME
NADEN
GALERIEN
Herrenstraße

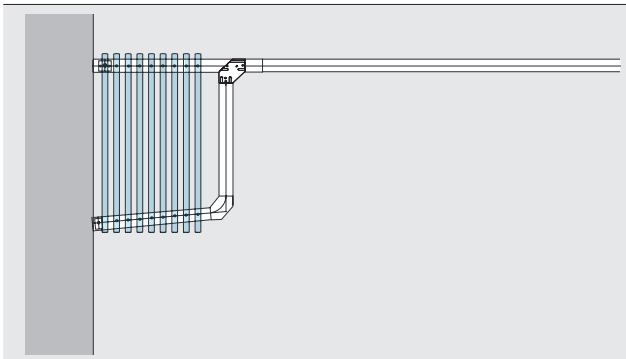
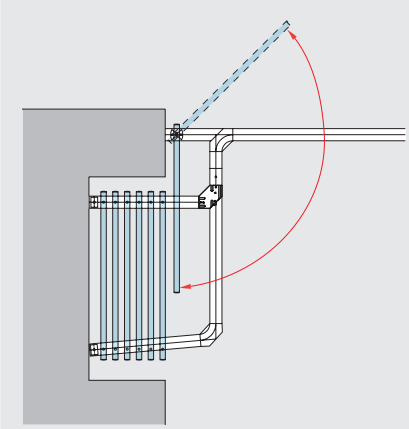
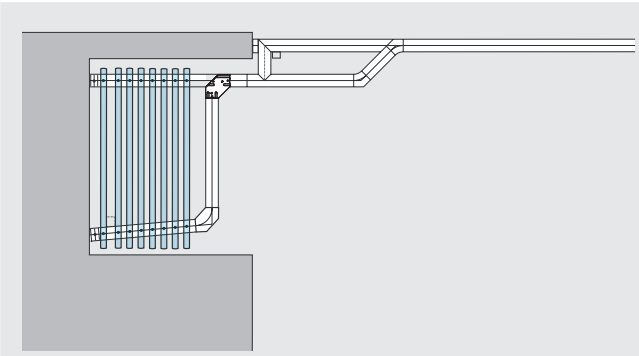
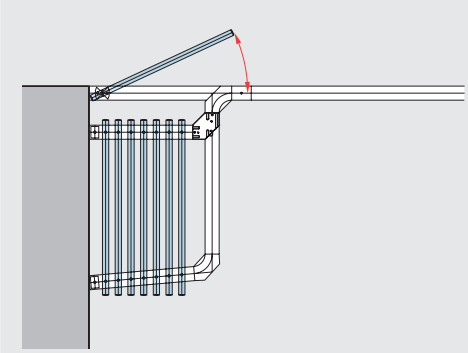
The right stacking arrangement for any situation

Perfect parking every time
Existing structures or unusual layouts often require special solutions, particularly in the design of the stacking area. dormakaba HSW systems can be parked in a range of different positions. The stack of panels can be aligned parallel or square to the frontage, be readily visible for effect or hidden behind columns etc. Another possibility is that of parking the system in line but out of the way, whether behind a wall or in a niche.

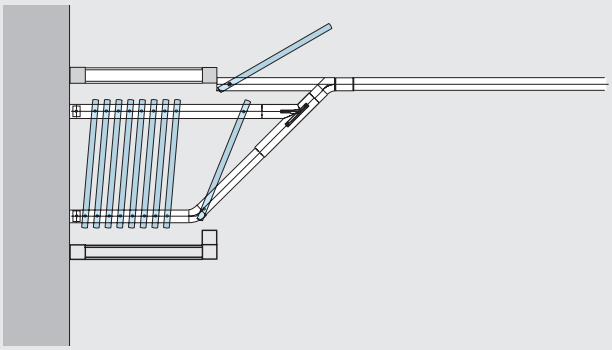
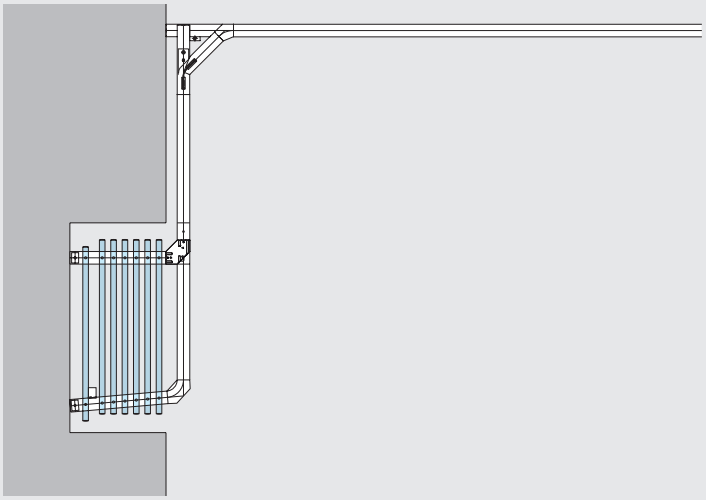
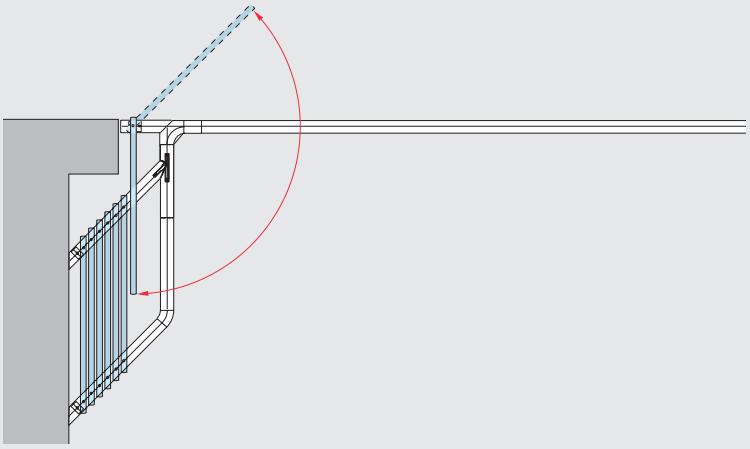
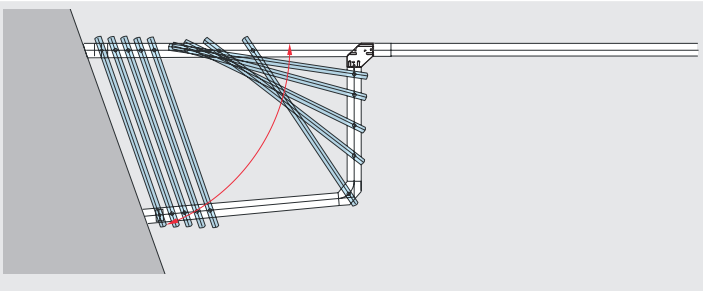
The panels can also perform certain functions when the frontage is open, such as providing the sides of internal store windows and showcases, or, if provided with the appropriate printing on the glass, for adding artistic value to a wall. The following pages show some system solutions devised in answer to a wide range of different problems.

Panels transverse to travel direction

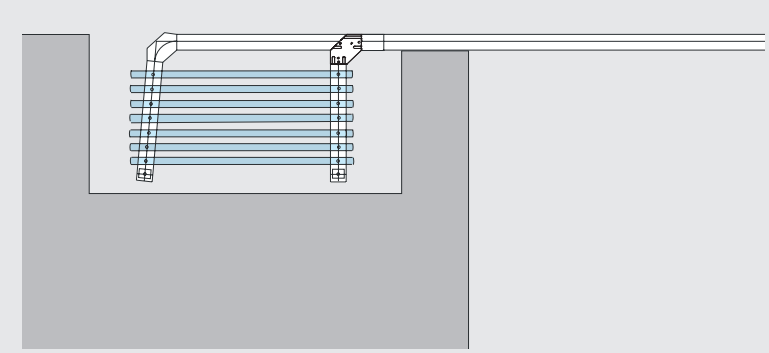
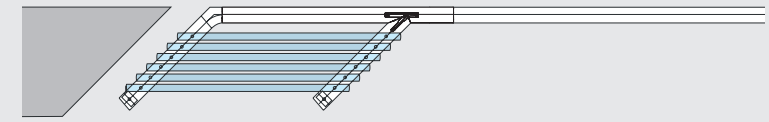
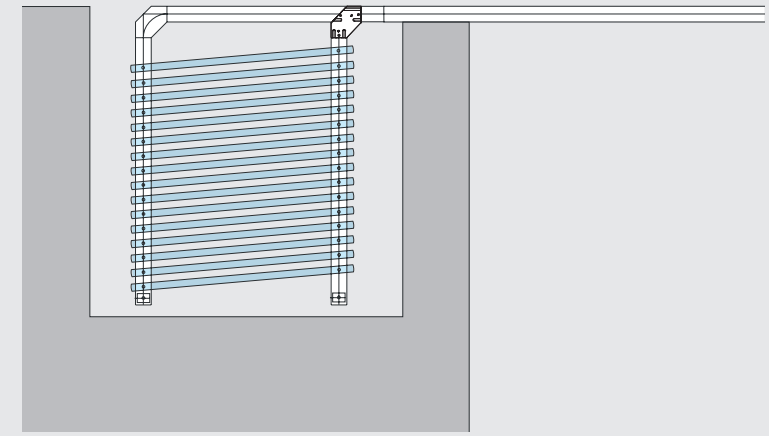
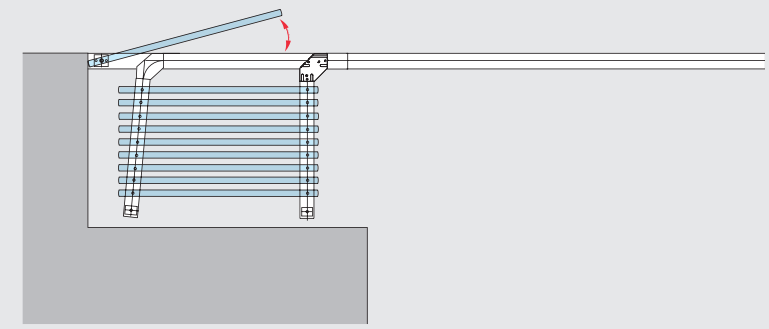
Panels stacked 90° angle transverse to travel direction

	Product description
	**Standard stacking arrangement.** With pivoting end panel, single- or double-action, to use as possible access leaf (left or right, or left and right).
	**Niche stacking.** With pivoting end panel, single- or double-action, to use as possible access leaf (left or right, or left and right).
	**Stacking with reshuffle bypass** (without pivoting end panel). Behind wall projection/fixed side panel (left or right, or left and right).
	**Stacking behind pivoting end panel,** single-action or double-action (left or right, or left and right).

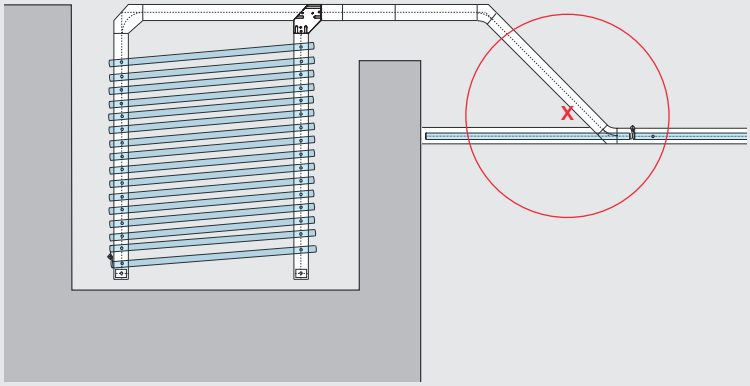
Panels stacked 90° angle transverse to travel direction

	Product description
	**Stacking in a box or niche, behind pivoting end panel,** double-action Sliding panels only, around 135° offset (left or right, or left and right).
	**Stacking in a box/pocket.** For sliding panels or double-action sliding panels (left or right, or left and right).
	**Stacking behind column. Stacking legs at 135° angle.** With pivoting end panel, double-action, to use as possible access leaf (left or right, or left and right).
	**Stacking at acute angle.** All panels brought into position with rear track roller.

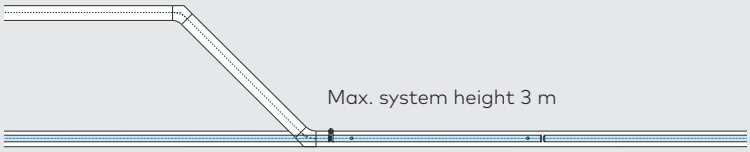
Panels parallel to travel direction

	Product description
	**Stacking in a niche, outer stacking leg at 95° angle** for small number of panels (up to 6) (left or right, or left and right).
	**Stacking legs at 135° angle** (left or right, or left and right).
	**Stacking legs at 90° angle** for large number of panels (more than 6) (left or right, or left and right).
	**Stacking behind pivoting end panel** Outer stacking leg at 95° (left or right, or left and right).

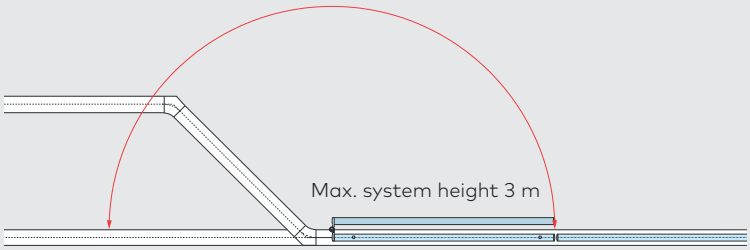
Product description



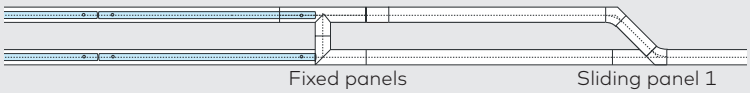
Detail X
Sliding folding panel in closed wall.



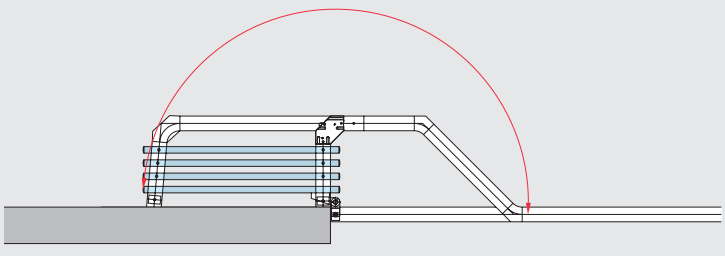
Sliding folding panel ready for sliding into stacking area.



Stacking offset in niche
with sliding folding panel as all connection stacking legs at 90°
(left or right, or left and right).

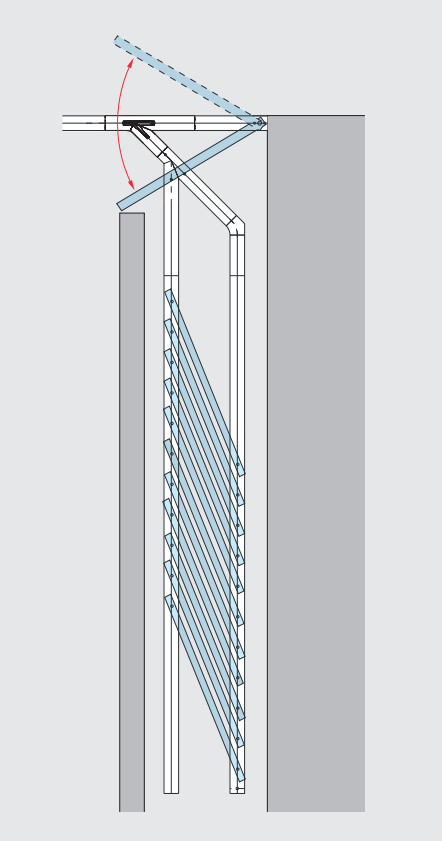


Stacking behind fixed panels
(left or right, or left and right).

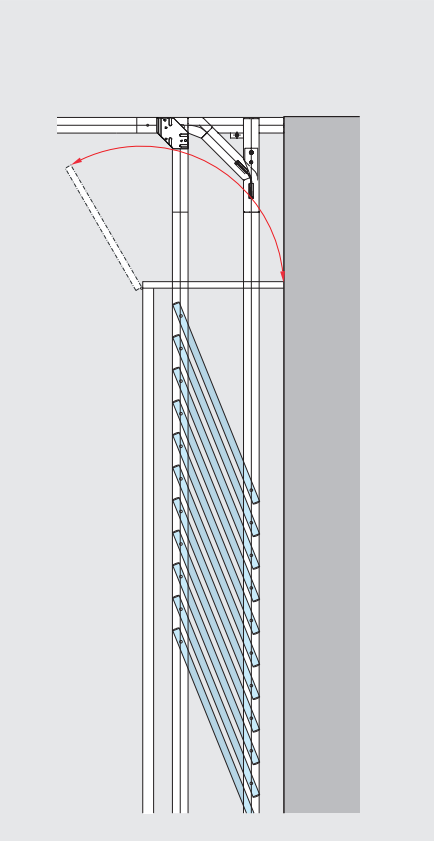


Stacking offset, beyond offset hung pivoting end panel, single- or double-action
(left or right, or left and right).

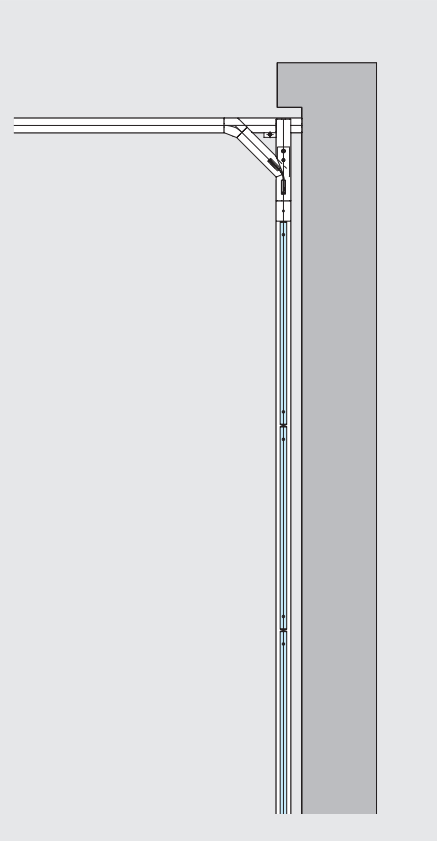
Special stacking arrangements



Stacking at the wall in closed compartment behind pivoting end panel, single- or double-action



Stacking at the wall in closed compartment without pivoting end panel, single- or double-action



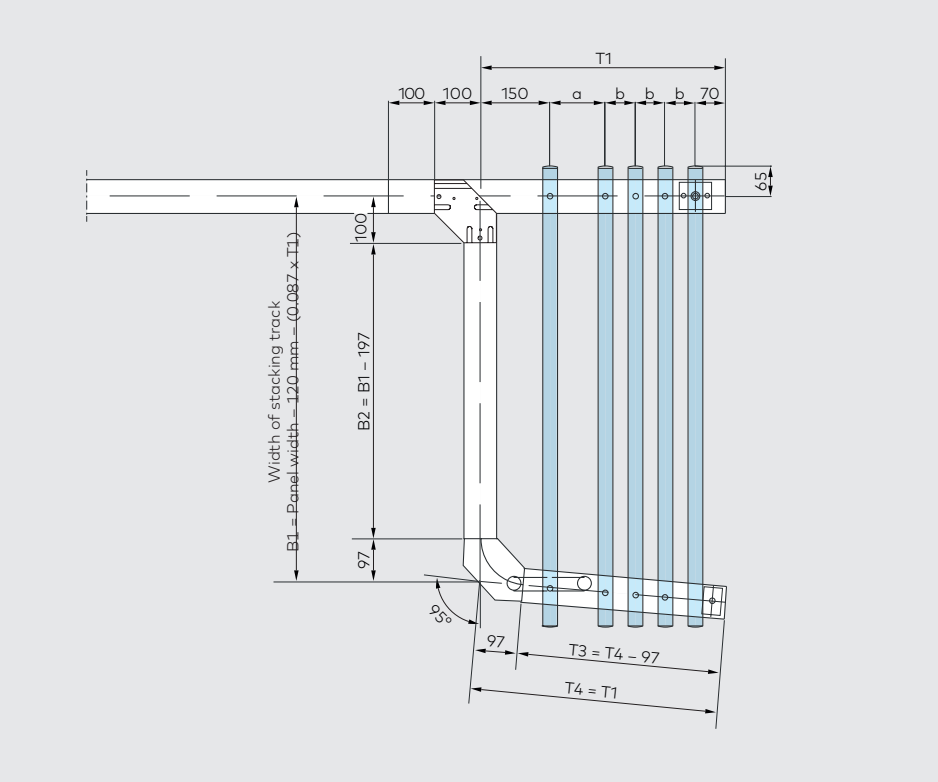
Stacking in front of 90° wall with reshuffle bypass

Stacking panels of varying width.

Stacking with one stacking leg for sliding panels in front of the pivoting end panel, single- or double-action, on each side (2 pivoting end panels/2 sliding panels).

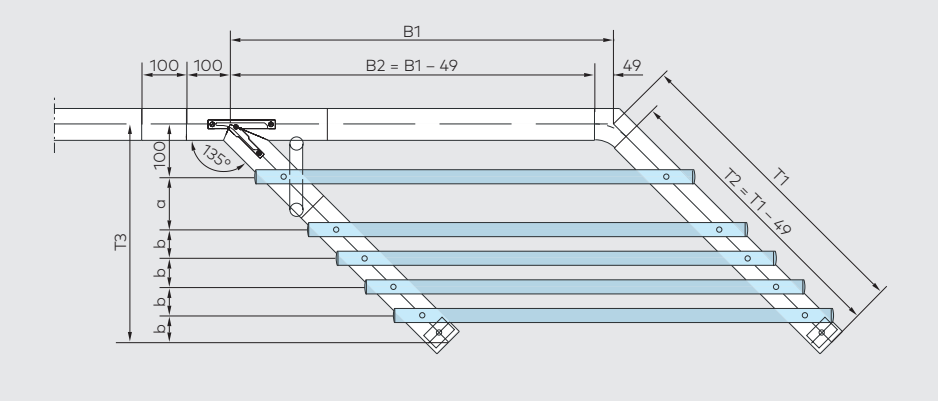
Stacking arrangement calculations

Panels stacked 90° angle transverse to travel direction (left or right, or left and right)



a = depending on pull handle depth
b = 65 mm for HSW EASY Safe

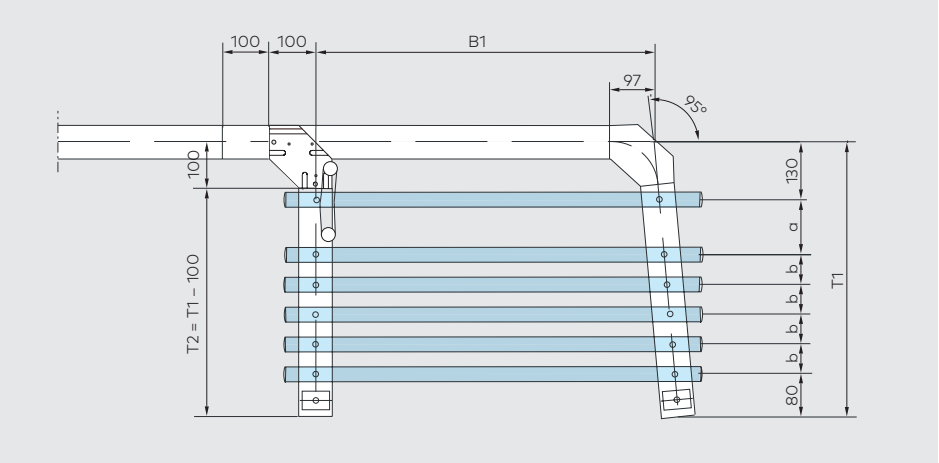
Stacking legs at 135° angle (left or right, or left and right).



a = depending on pull handle depth
b = 65 mm for HSW EASY Safe

B1 = Panel width – 130 mm
T1 = T3 × 1,414 mm

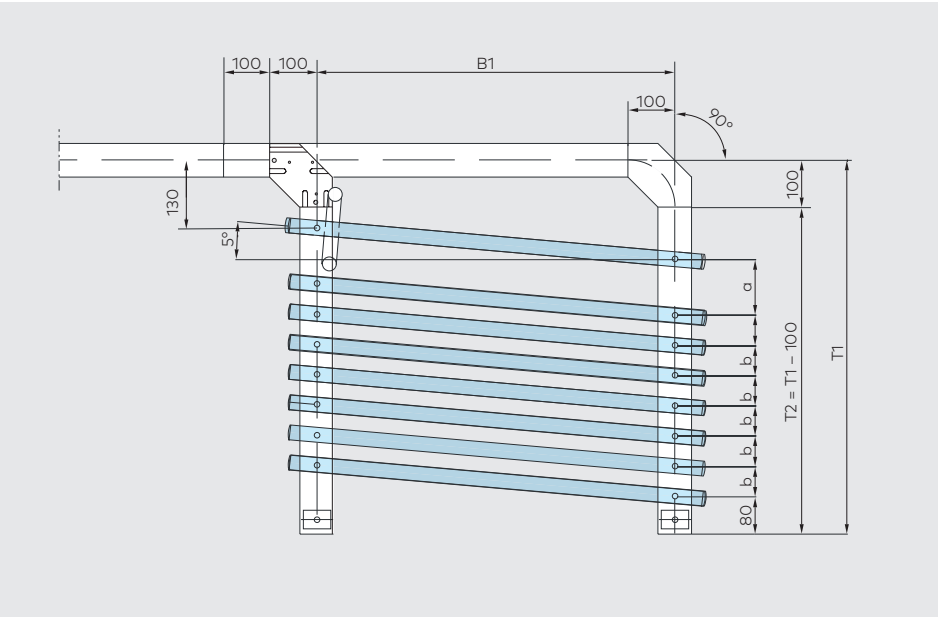
Stacking in a niche, outer stacking leg at 95° angle for small number of panels (up to 6) (left or right, or left and right).



a = depending on pull handle depth
b = 65 mm for HSW EASY Safe

B1 = Panel width – 130 mm –
([T1 – 80] × 0.087)

Stacking legs at 90° angle for large number of panels (left or right, or left and right).



a = depending on pull handle depth
b = 65 mm for HSW EASY Safe

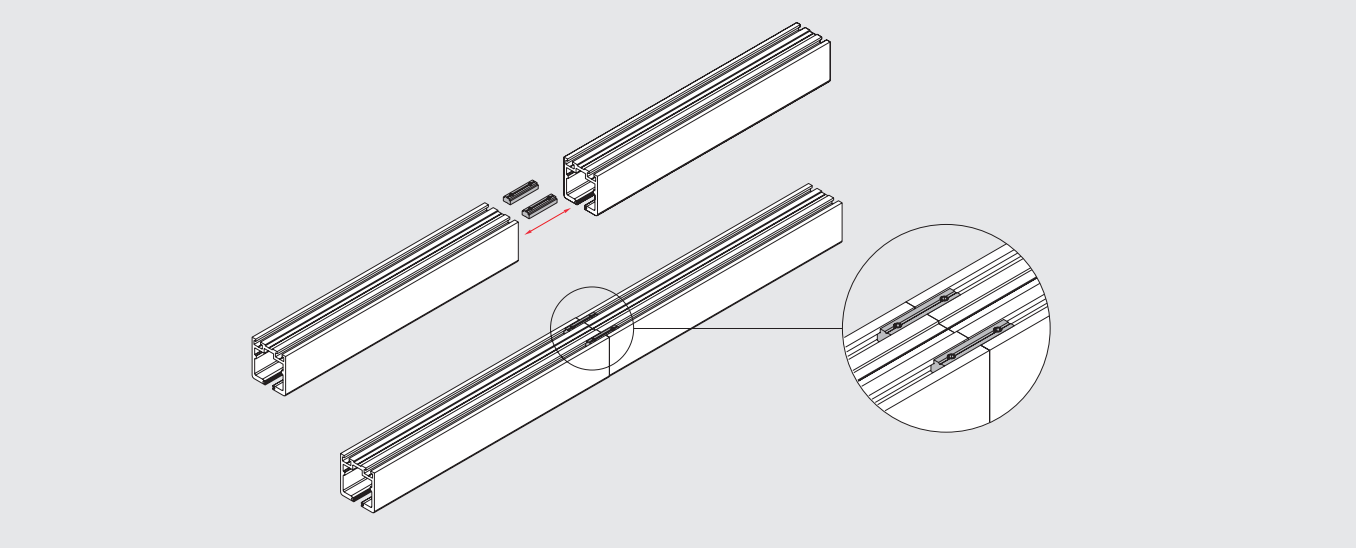
B1 = Panel width – 134 mm

Simple, secure and removable connections

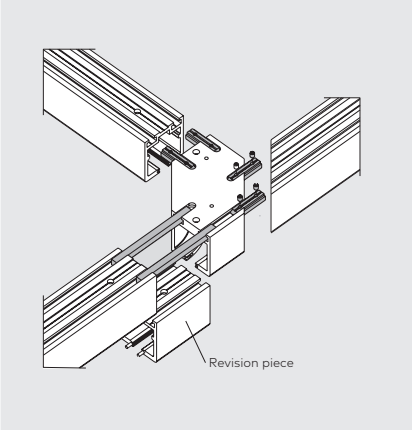
Plug connection of tracks and modules
To provide fast, easy and flexible installation of the track rail sections and the modules it is a considerable advantage when all parts are delivered unwelded. The special HSW track rail design with two parallel channels at the top (suitable for M 10 screws) simplifies the work on site.

- The single track rail sections and modules are connected to each other by special clamp inserts fitted in the provided channels, delivering secure connection.
- If necessary even adjustment cuts of track sections can be done on site.
- In the lower part of the track rails additional pins provide smooth and even passage for the roller carriers.
- Even the stacking construction is fitted together and connected to the frontage track rail in the same way.
- As an option parts of the stacking construction can be delivered pre-mounted.
- The segmentation is realized by mitre cuts and welded connections within single track rail sections as supplied condition. On site the adjacent track rail section then can easily be fitted in a straight line by clamp inserts and pins.

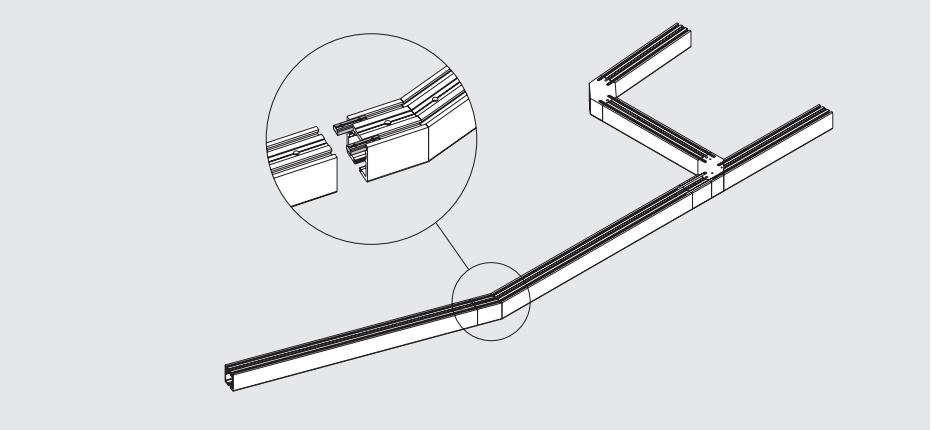
Single track rail section



Stacking construction

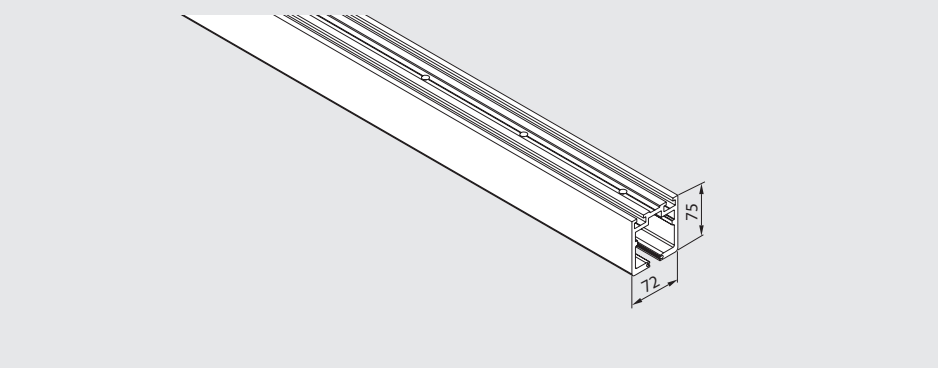


Segmented track rail section

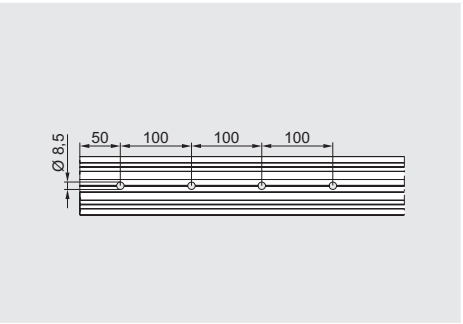


Flexible and stable
Horizontal sliding walls can be constructed in a wide range of different configurations to suit the site of installation, prevailing structural conditions and the planning concept.
With dormakaba HSW systems, a variety of designs can be implemented with ease. Straight and segmented track rails can be combined to produce virtually any serpentine shape required. The track rails in the form of hollow sections combine all the virtues of light weight, stability and torsional stiffness. Flexibility and stability mean that even unusual system configurations can be implemented without problem to give maximum functional reliability.

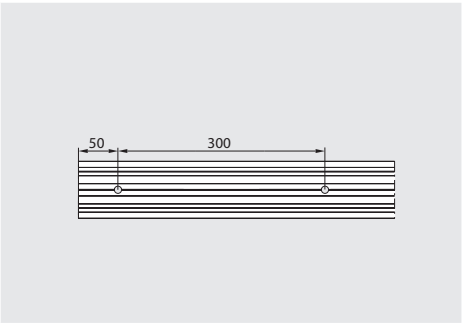
Straight track rail



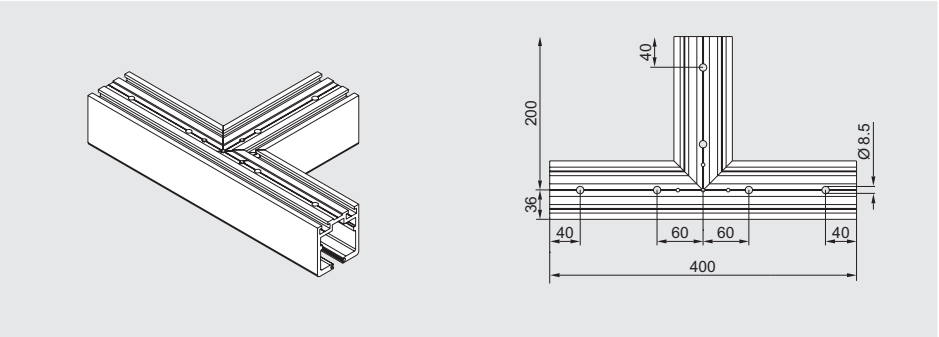
Track rail at stacking area



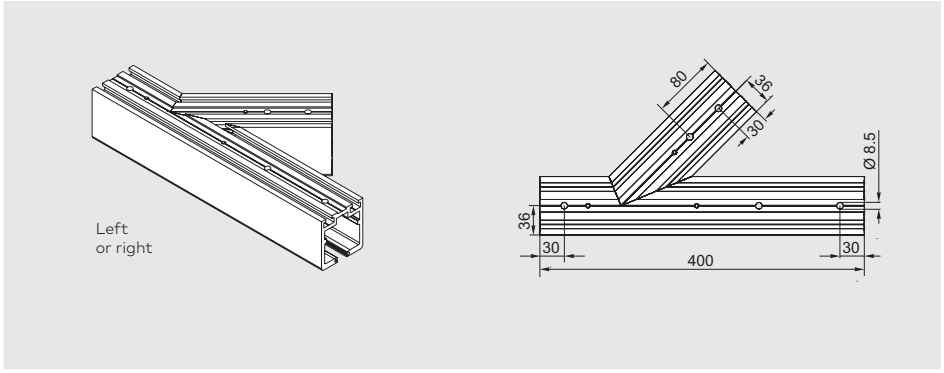
Track rail at assembly frontage



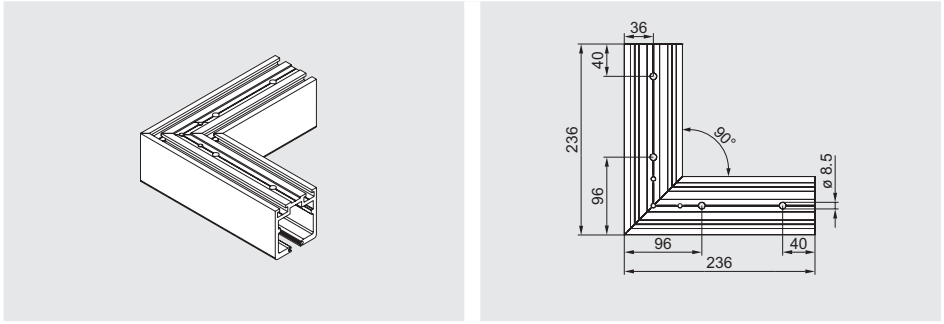
90° T-piece



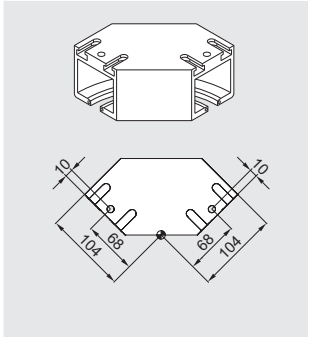
135° T-piece



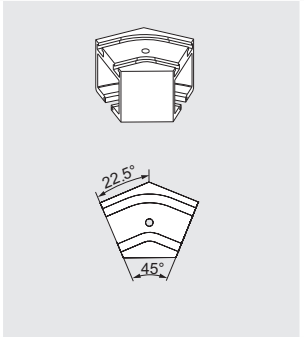
90° L-piece



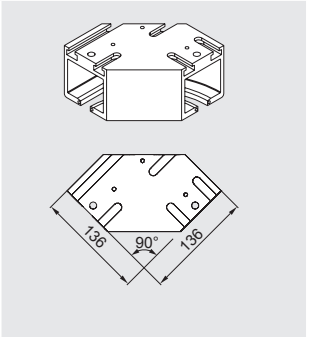
Module 07/09
for 90°/95° angle



Module 06
for 45° angle



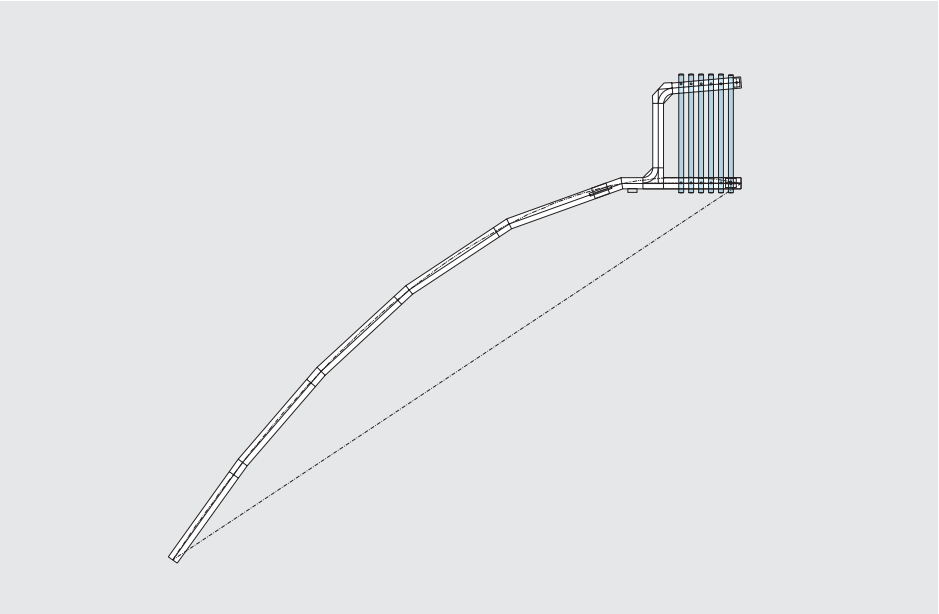
Module 04/05
90° angle left/right



Straight track rail
For a straight-line system configuration, a drill hole interval of 300 mm in the track rail is sufficient, while the stacking area requires an interval of 100 mm. Where the track assumes an angle of 161 – 179°, the track rail is mitred, while at angles between 90 and 160°, a segment is incorporated. The standard modules available are indicated in the adjacent illustrations.

Segmented track rail
With the segmented track rail, it is possible to implement the dormakaba HSW as a polygonal partition or frontage. In so doing, it is essential to note the following requirements:

- The panel width and segment chord length must be properly coordinated;
- Segment panels are provided at the bottom with locks or face-mounted floor bolts
- It is important to ensure that the opening sweep of single-action and double-action panels does not give rise to collisions.



Panel Systems

HSW EASY Safe

Security in use and elegance in design

Outstanding strengths of the HSW EASY Safe system:

- The optional safe use of laminated safety glass increases security and also widens the creative possibilities.
- A visible status display with a clear colour system indicates the status of the top locking device on the single-action sliding panel or double-action sliding panel. This gives a better overview and even more security.
- Double brush seals in the top are standard and can be added to the bottom to successfully minimise drafts.

Intelligent solutions for more convenience and security

HSW EASY Safe – More clarity and easier locking thanks to status display

Locking status at a glance
Security and convenience in one: The top door locking device clearly shows the locking status of the door panel on the status display. This gives the user a greater feeling of reassurance and security.

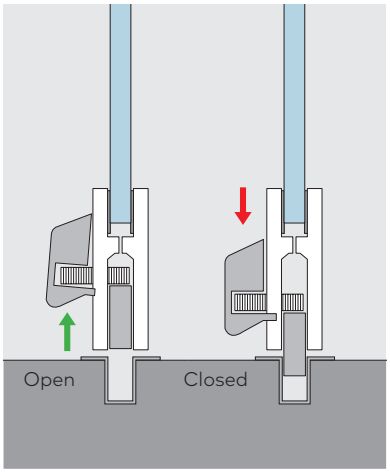
Less draft for even greater comfort
Innovative double brush seals in the top and optional in the bottom door rails improve door closure and noticeably minimize the amount of draft. The vertical brush seals, which are also optionally available, can be fitted up to the full height of the panel and give additional draft proofing – for noticeably greater comfort.

Simple locking with hand or foot

Multilock – Three locking possibilities in one component

The new Multilock system opens up a new world of simplicity
The Multilock combines three locking possibilities in one compact element and can be installed effortlessly in the bottom door rail.

Easy foot-operated opening and closing



Simplicity with clear benefits:
The 3-in-1 Multilock can be offered in three options for secure locking: side locking device, front locking device or cylinder lock.

- Maximum convenience with foot-operated locking options for the face-mounted floor bolt – simple and hassle-free.

Innovative hold for more security

VSG – Improved security with the optional use of laminated safety glass

Creative freedom combined with security
Thanks to the innovative Clamp&Glue bonding technology, the HSW EASY Safe system allows the use of highly secure laminated safety glass. With the insertion of inlays within the laminated safety glass, the horizontal sliding wall can be used as a custom design element, thus setting new standards in interior design.

Hassle-free installation thanks to the new Clamp&Glue technology
The fixing process with HSW EASY Safe is incredibly simple. The special adhesive is fed through an injection hole in the two upper door rail halves to the adhesive channel where it spreads out evenly. After a drying time of just 15 minutes the panel can then be installed.

Attractive added value:

- Laminated safety glass makes the application of HSW EASY Safe not only attractive, but also more secure.
- The innovative Clamp&Glue technology enables easy bonding and also ensures that fittings and LSG (from TSG) are held firmly in place.
- Special inserts in the laminated safety glass offer huge design freedom as well as additional functions such as protection from the sun, noise reduction and privacy screening.

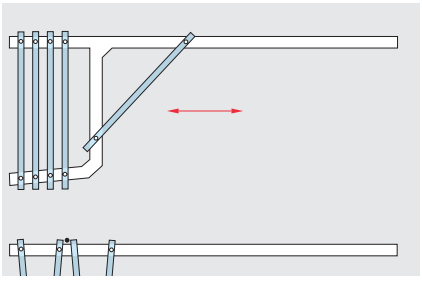
The inlay can be gradually pressed out using clamping force. The bonding of the glass with the fitting prevents the fitting from slipping out of the glass due to possible decrease in clamping force.

HSW – Transparent versatility

Horizontal sliding walls are used in a wide range of different project types. These partitions can be flexibly designed to suit the site of installation, structural conditions and design concept.

They can satisfy a broad spectrum of requirements in relation to styling, material and finish or colour, and can also be equipped with individually fabricated panels to perform special functions.

HSW – Horizontal Sliding Walls
Panels slide individually – stacking track required



HSW EASY Safe
Glass assembly with top and bottom door rail

Product overview

HSW EASY Safe
With the HSW Easy system, the panels create a continuous transparent face completely without side frame elements.

FSW EASY Safe
The FSW EASY Safe folding sliding wall system offers both high transparency and enhanced user safety. Door rails top and bottom and roller carriers at the end of every second panel make it ideal for inline configurations. Visually compatibility with HSW EASY Safe panels means that both systems can be effectively combined in the access frontages of a building.

Use and features	HSW EASY Safe	FSW EASY Safe
Shop fronts	●	●
Internal room divider	●	●
Glass thicknesses (mm) Toughened safety glass (TSG)	10/12/15/19	10/12/15/19
Glass thicknesses (mm) Laminated safety glass (comprising TSG sheets)	13.5/17.5	13.5/17.5
Assembly height (max. mm)	4.000	3.000
Panel width (max. mm)	1.250	1.100
Panel weight (max. kg)	150	80
Access panels (pivoting type)		
– Pivoting end panel, single-action	●	●
– Pivoting end panel, double-action	●	●
– Offset hung end panel	●	●
– Single-action sliding panel	●	●
– Double-action sliding panel	●	●
– Invisibly integrated door closer ITS 96	●	

Panel design

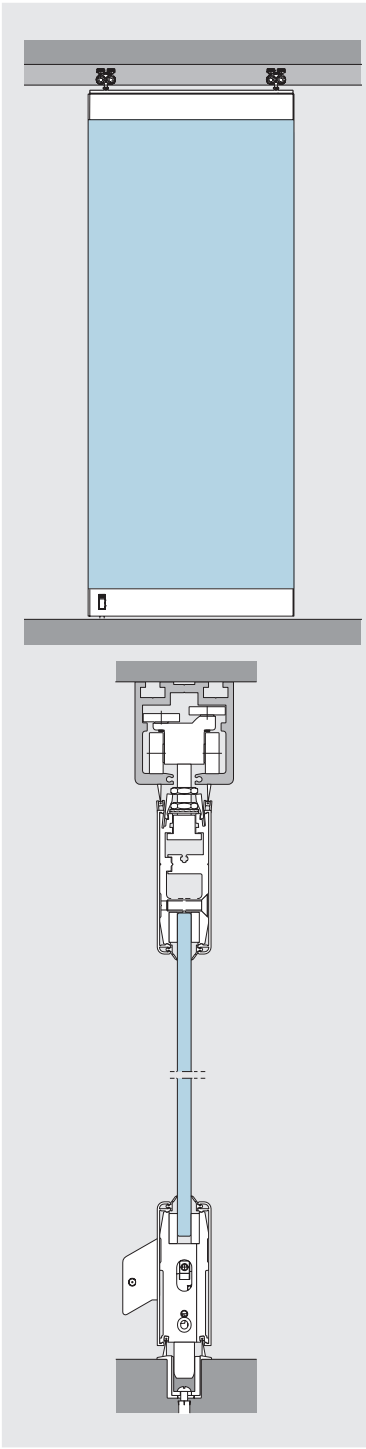
With the features that the different panel types have in common **HSW EASY Safe** satisfies all the requirements placed on transparent façades in the typical applications that arise.

- All panel types are provided with a bottom and a top door rail, which hold the glass safely.
- HSW assembly only with sliding panels, pivoting end panels and fixed panels can do without an additional carrier profile. For single- and double-action sliding panels the carrier profile is indispensable. When an assembly incorporates single- or double-action sliding panels then the carrier profile is provided for all panel types.
- The glass panes can have the following glass thicknesses: 10 mm, 12 mm, 13.5 mm, 15 mm, 17.5 mm and 19 mm. (tolerance range +/- 0.5 mm)
- When using laminated safety glass the Clamp&Glue technology provides secure hold without the need for glass drilling.
- The top panel profile (either door rail or carrier profile) incorporates a double brush seal as standard. As an option the bottom door rails can have double brush seals as well.
- Excellent draft protection is reached when additional sealing profiles with matching double brushes are used at the vertical glass edges as well.

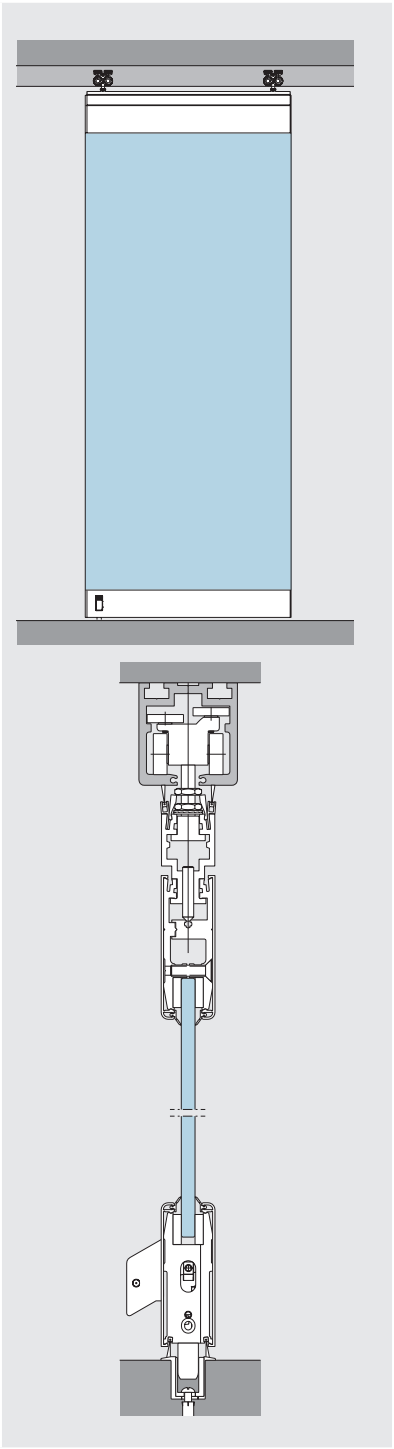
HSW EASY Safe is certified to have reached the following tests:

- Wind load (Frame bending): EN 12210 Class 1
- Endurance strength: DIN EN 1527 Class 3 and DIN EN 1191 Class 3
- Side impact: DIN EN 13049 Class 5 (highest class)
- Corrosion: DIN EN 1670 Class 4
- EPD (Environmental Product Declaration): ISO 14040

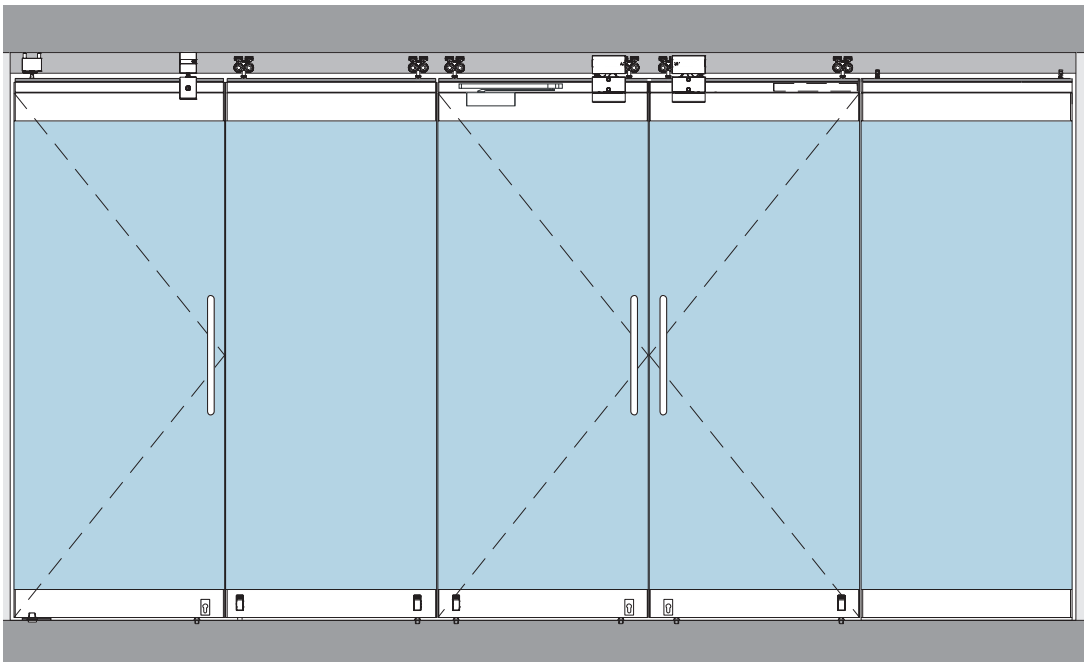
Sliding panel
without carrier profile



Sliding panel
with carrier profile



HSW EASY Safe – Panel functions



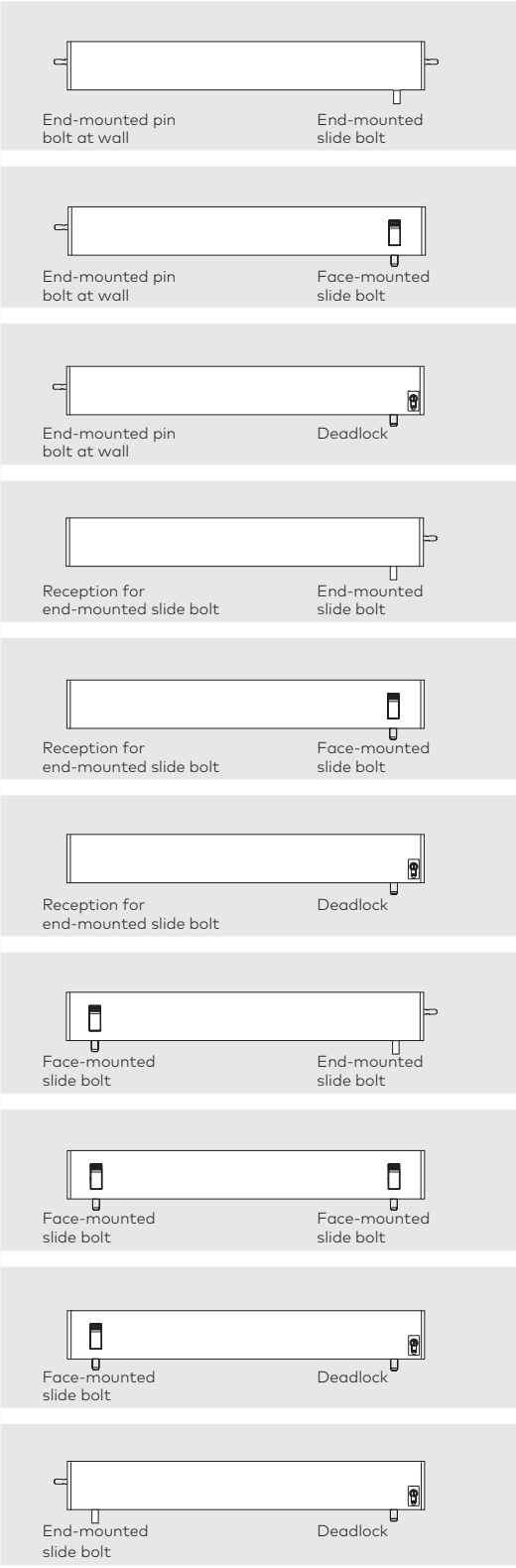
A presentation of the offset hung end panel and the slding folding panel is available on pages 41 and 42

	Pivoting end panel, single- or double-action Non-sliding. Single-action panel with floor pivot and TS 92/TS 73 door closer. Double-action panel with floor pivot or BTS floor spring.	**Sliding panel** Basic movable panel without additional function.	**Single-action sliding panel*** Single-action sliding panel with TS 92 cam-action door closer, operational when frontage closed. (Alternatively with ITS 96.)	**Double-action sliding panel*** With ITS 96 door closer, operational when frontage closed.	**Fixed panel** Fixed panel design matching the design of the sliding panels in the assembly.
Max. assembly height	4,000 mm	4,000 mm	3,600 mm	3,600 mm	4,000 mm
Max. panel width	1,250 mm	1,250 mm	1,250 mm (1,100 mm)	1,100 mm	1,250 mm
Max. panel weight	150 kg	150 kg	120 kg**	120 kg**	150 kg

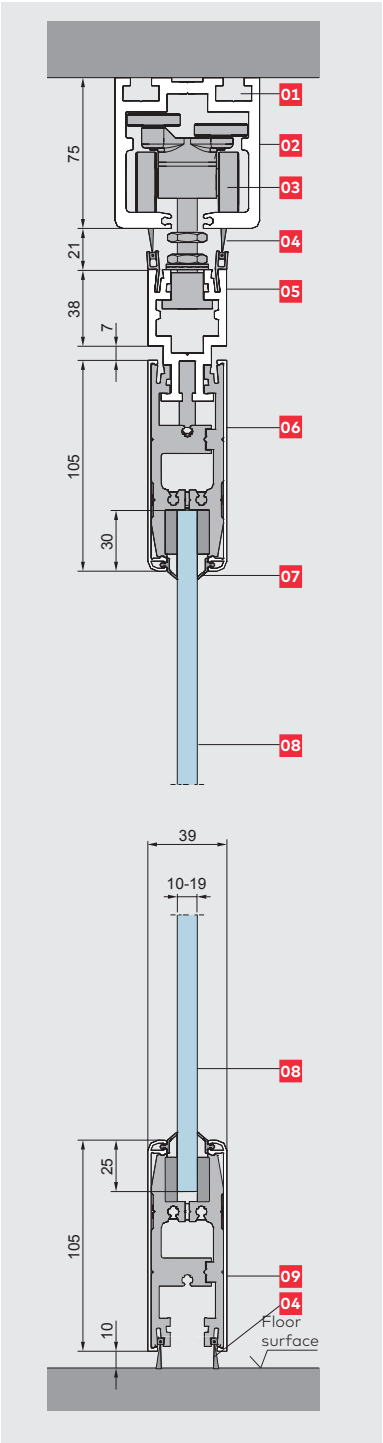
The individual panels can also be of differing widths. The largest width should not exceed max. 115% of the smallest width.
*For these panel types please consider our notes on portal systems on page 65.
**Note: The maximum permissible weight relates to the complete door assembly, including handles.

Door rails and general details

Bottom locking devices
All depicted combinations are also available as mirror arrangements.



General parts and measurements



Irrespective of the function of the individual panels, an HSW EASY Safe system comprises the following basic components:

01
Two parallel channels suitable for M 10 screws and clamp connectors

02
Track rail

03
Roller carrier

04
Double brush seals on top (bottom layout is optional)

05
Carrier profile

06
Top door rail and (consisting of basic profiles, cover profile and lateral end caps)

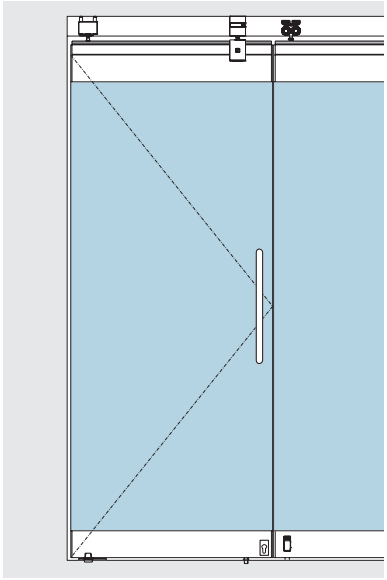
07
Rubber seal, bridges the gap between cover profile and glass panel

08
Toughened safety glass or toughened laminated safety glass 10-19 mm (by others)

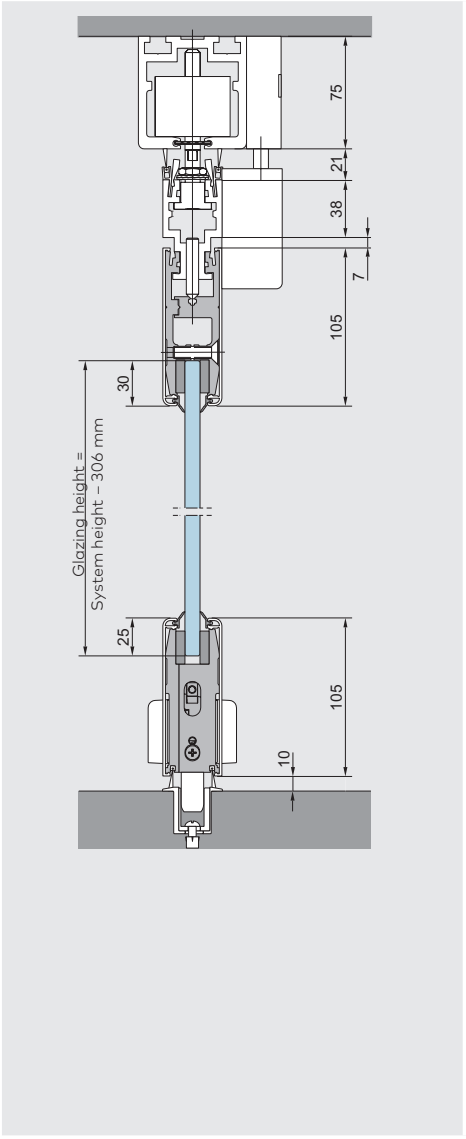
09
Bottom door rail, both comprising base profiles with cover profiles and end caps

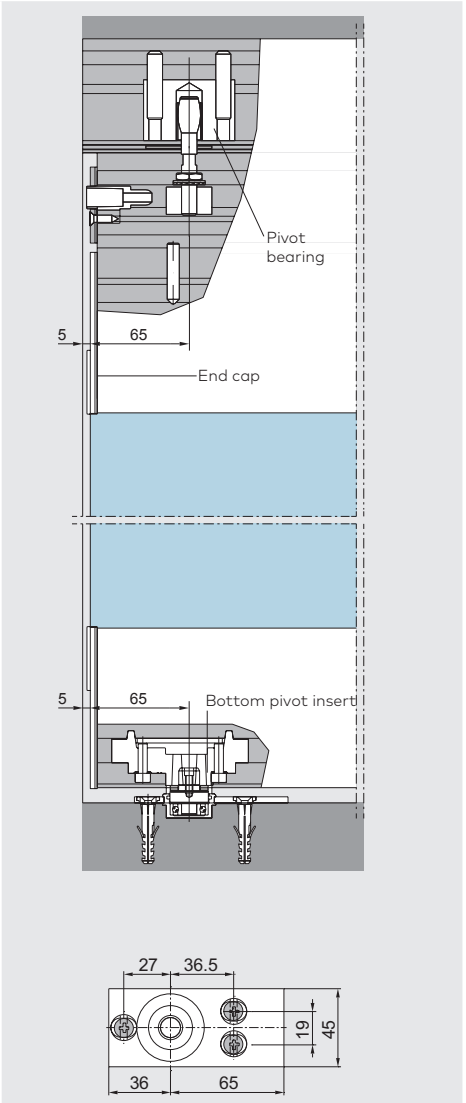
Pivoting end panel

single- or double-action



Pivoting end panel, single or double-action, with floor pivot
Non-moving and always equipped with a locking deadlock and the option for an additional upper locking unit.



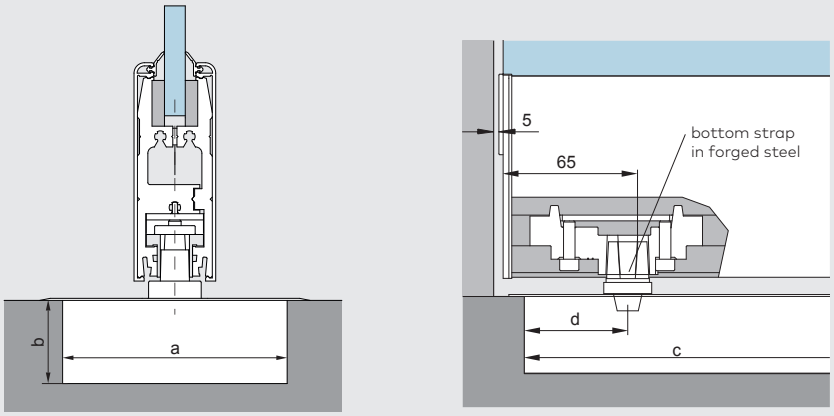


Article No.	Description
9409000000201	HSW ES BASIC PIVOTING END PANELS
9409000000206	HSW ES COMFORT PIVOTING END PANEL

Pivoting end panel, single-action
with stop-type end caps top and bottom.
Pivot point variants:
- Floor pivot with round spindle, optional combined with TS 92 overhead door closer*
- BTS 84 for panels up to 100 kg, with optional hold-open at 90° door opening angle
- BTS 80 for panels up to 150 kg with adjustable hold-open device

Pivoting end panel, double-action
Pivot point variants:
- Floor pivot with round spindle
- BTS 84 for panels up to 100 kg, with optional hold-open at 90° door opening angle
- BTS 80 for panels up to 150 kg with adjustable hold-open device

Pivoting end panel, single- or double-action, with floor spring



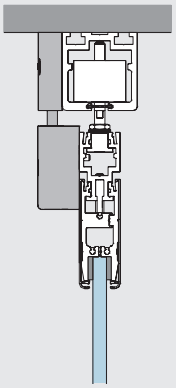
Mounting dimensions (in mm)

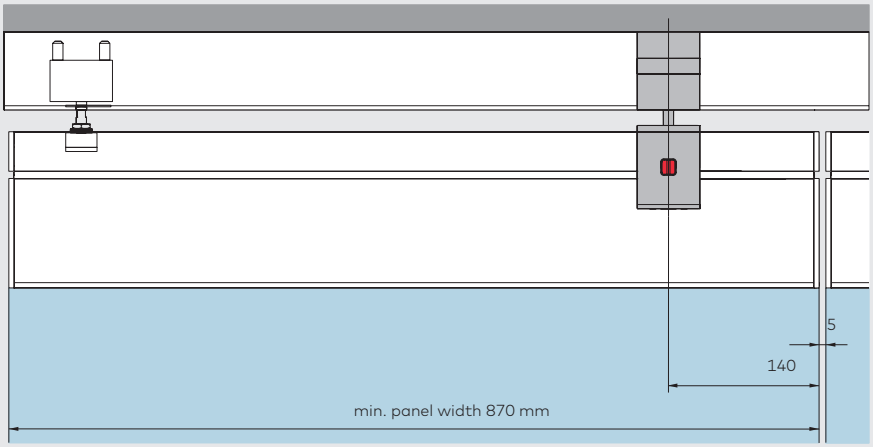
	BTS 84	BTS 80
a	108	78
b	40	60
c	306	341
d	51–58	51–57

* Data and features TS 92 see page 35.

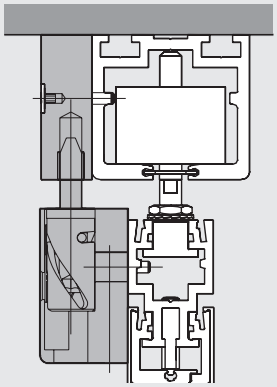
Pivoting end panel

single- or double-action, with additional upper locking bolt

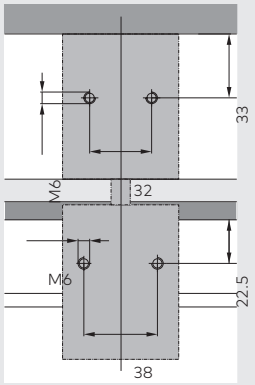




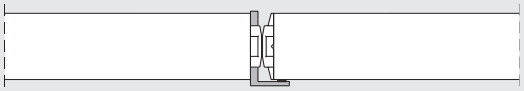
Additional upper locking bolt



New drill hole of pattern



End cap with stop (optional)

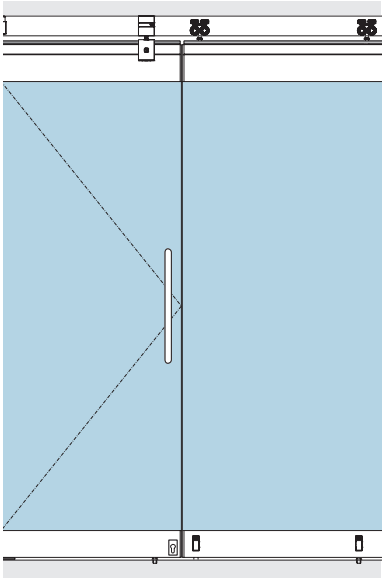


BTS Floor Spring Information

Data and features		BTS 80			BTS 84		
Spring strength (EN)		3	4	6	2	3	4
Standard and external doors	≤850 mm				●		
	≤950 mm	●				●	
	≤1,100 mm		●				●
	≤1,400 mm			●			
Closing speed adjustable by valve	130°–0°				●	●	●
	130°–20°				●	●	●
	175°–0°	●	●	●			
Delayed action (adjustable by valve) (selectable alternative to the hold-open feature)		●	●	●			
Max leaf weight (kg)		300	300	300	100	100	100
Hold open	90°				●	●	●
	adjustable	●	●	●			
Dimension	Length	341	341	341	306	306	306
	Overall width	78	78	78	108	108	108
	Height	60	60	60	40	40	40
Door closer tested to EN 1154		●	●	●	●	●	●

Sliding panel

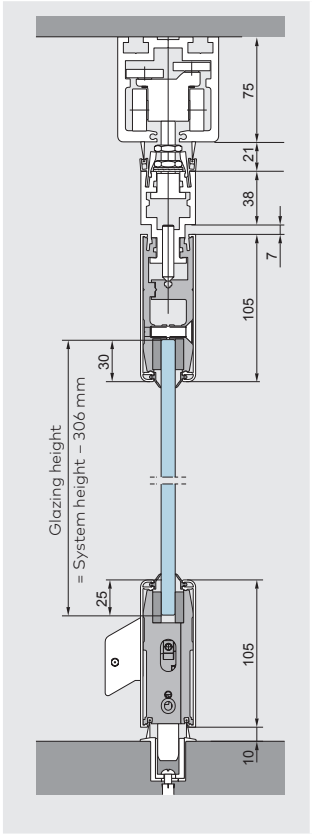
Basic movable panel without additional function.

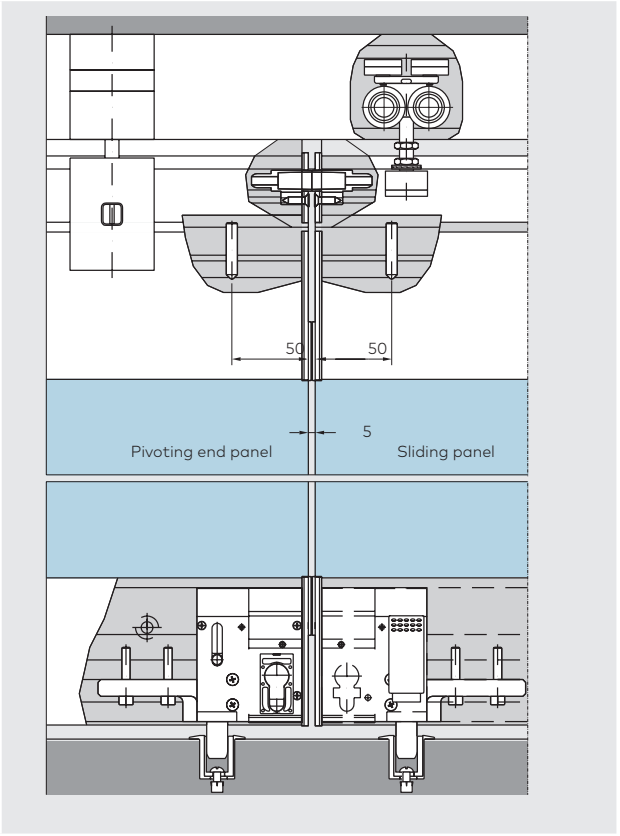


The sliding panels are movable. Once in their closed position, they are locked.

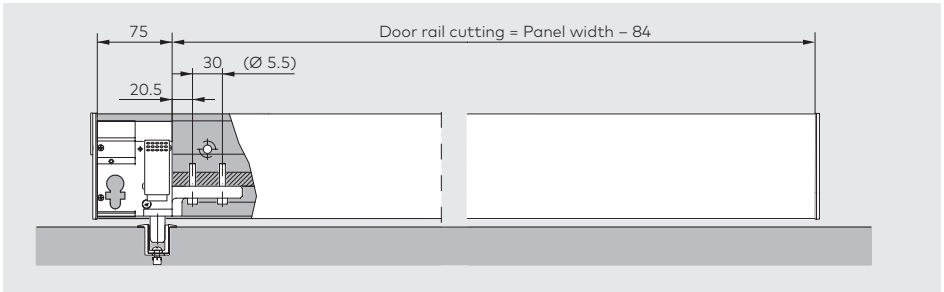
The locking components provided in the bottom door rail can be face-mounted slide bolts, end-mounted slide bolts, end pin bolts or deadlocks.

The structure of the bottom door rail applies also to single-action/double-action sliding panel.

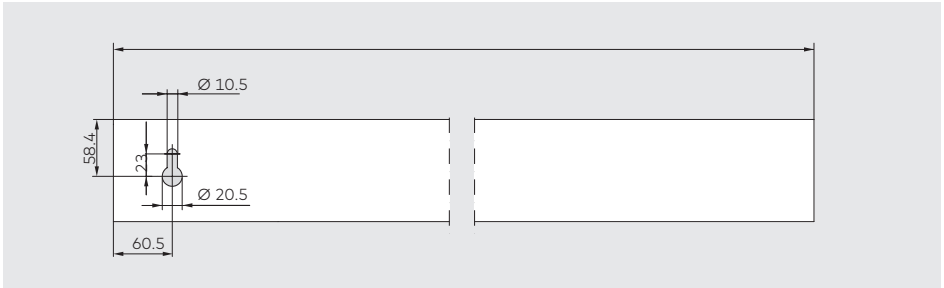




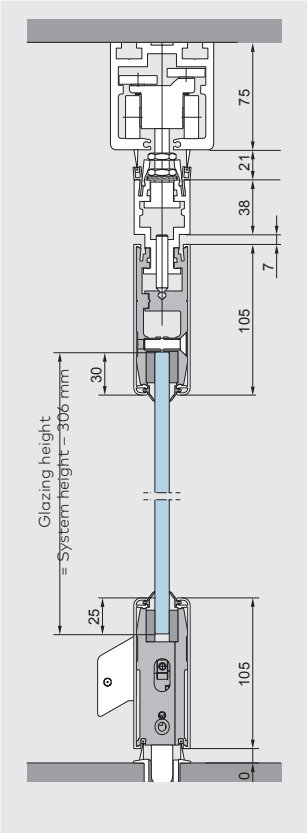
Bottom door rail with face-mounted slide bolt

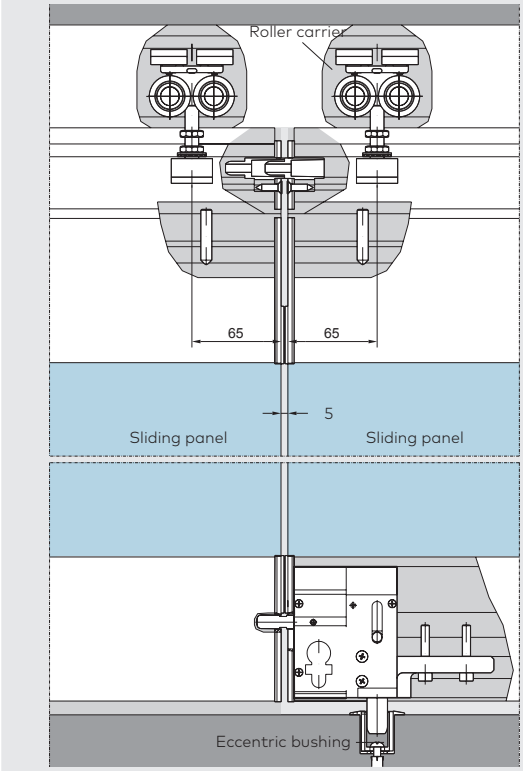


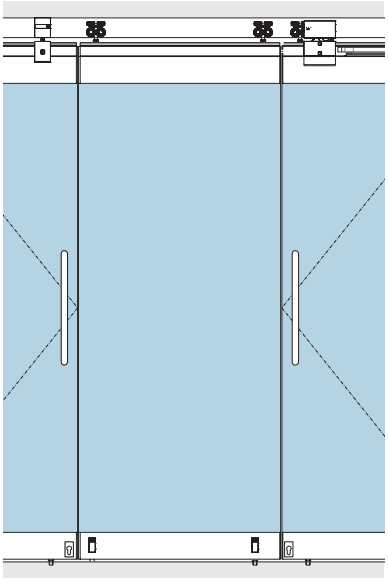
Machining of cover profile (face-mounted slide bolt)



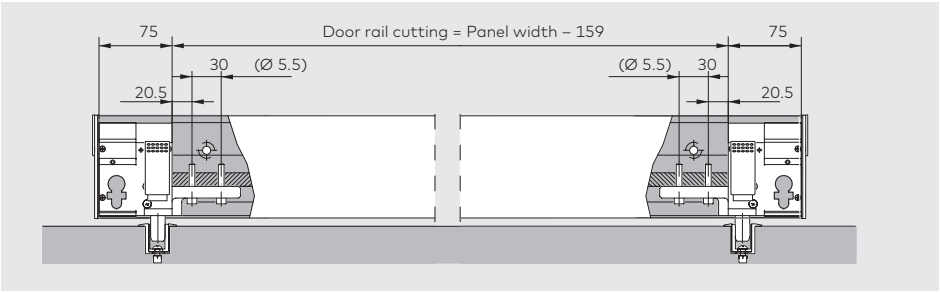
Article No.	Description
9409000000200	HSW ES BASIC SLIDING PANEL
9409000000205	HSW ES COMFORT SLIDING PANEL



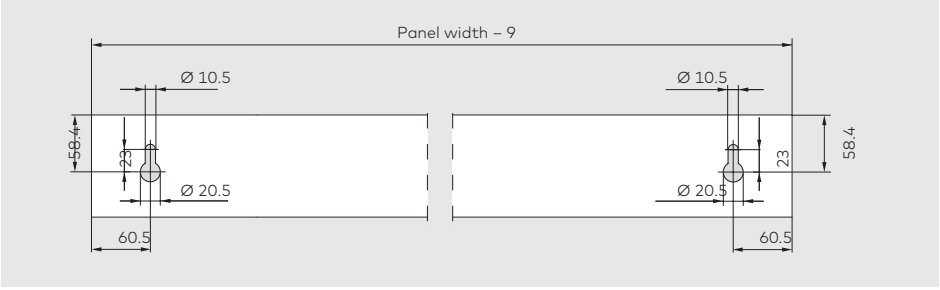




Bottom door rail with face-mounted slide bolt on both sides

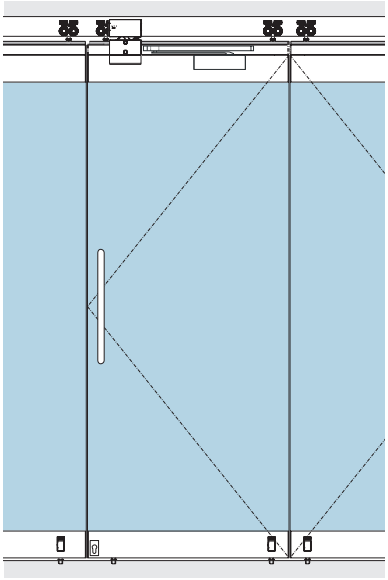


Machining of cover profile (face-mounted slide bolt)

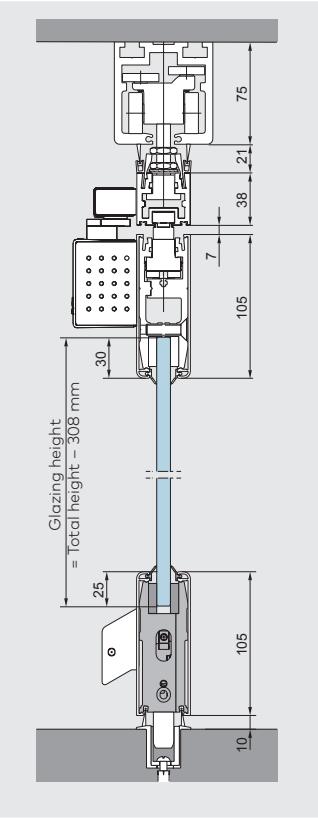


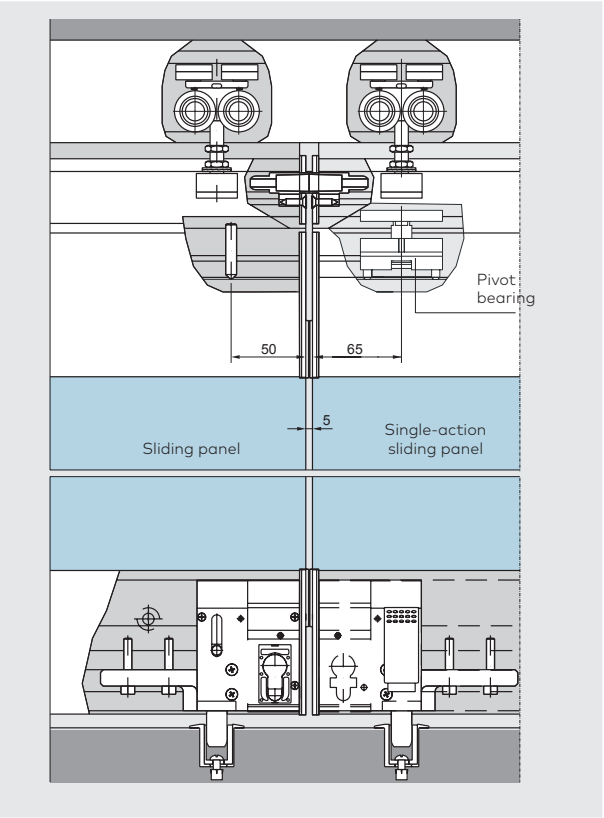
Single-action sliding panel

with dormakaba TS 92 cam-action door closer

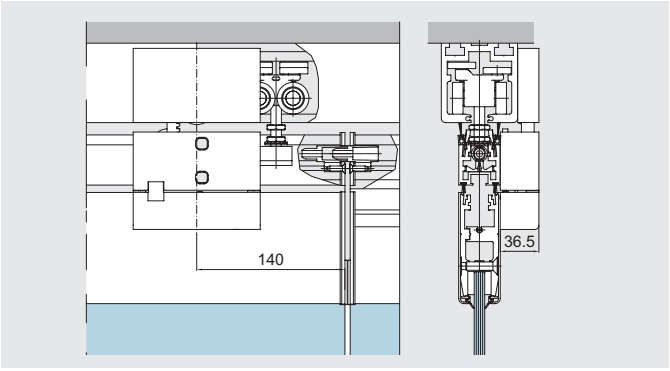


This panel type is installed where doors only need to be opened in one direction, either inward or outward. In both cases, the cam-action door closer is fixed to the internal side of the assembly. If you are considering this panel type, please note our advisories relating to portal systems on page 65.





Article No.	Description
9409000000212	HSW ES COMFORT SINGLE ACTION SLIDING PANEL WITH TS92/93



Status display

Sliding function	locked	locked	open
Door function	open	locked	locked

Data and features: dormakaba TS 92	
Closing strength/size	EN 2–4
Closing speed and latching action independently adjustable at two separate valves	180°–15° 15°–0°
Non-handed	yes
Cushioned stay limit adjustment	80°–120°
Hold-open adjustment	75°–150°
Weight	1.9 kg
Length	281 mm
Overall depth	47 mm
Height	65 mm

Standard assembly

top: Pivot bearing, TS 92 with slide channel, one locking device.

bottom: Face-mounted slide bolt as pivot (released for sliding function), deadlock.

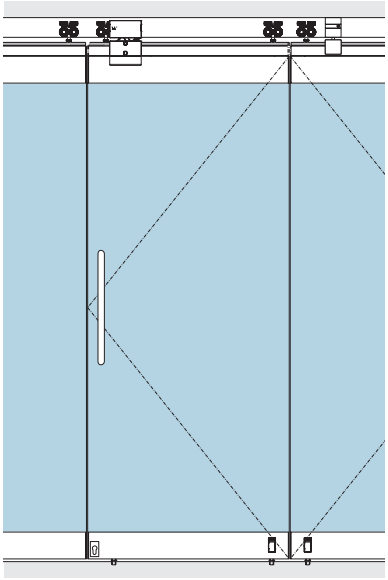
Optional equipment

top: Additional locking device (upper locking unit) to secure the panel in the area of a reshuffle bypass or for more stability in closed position (illustration see 26).

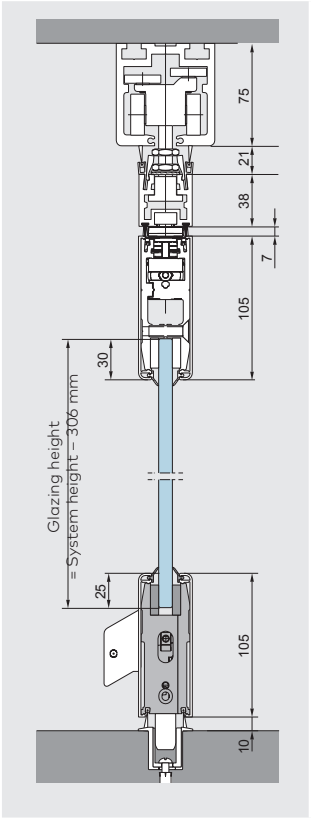
bottom: Second face mounted slide bolt instead of deadlock.

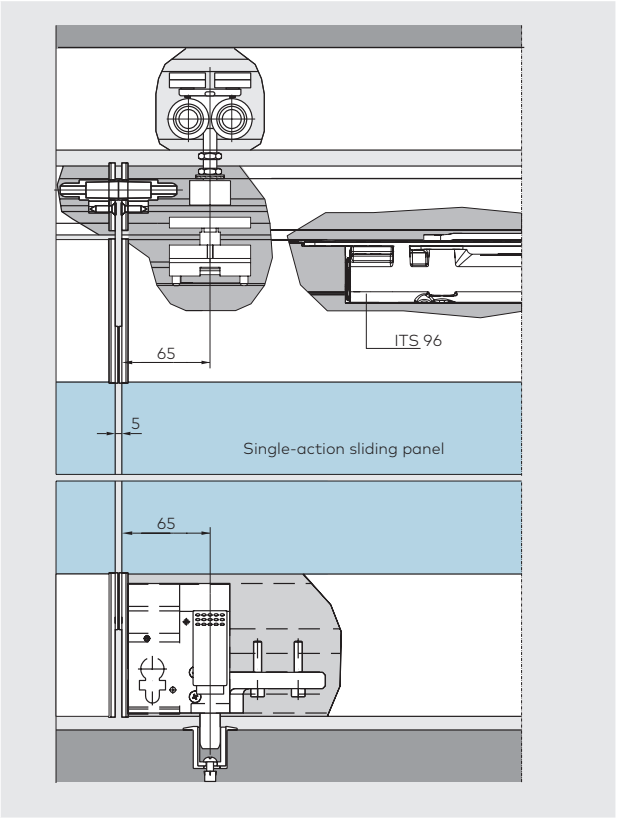
Single-action sliding panel

with integrated door closer dormakaba ITS 96, 2–4



This panel variant is used where the door element is required to only open in one direction, either inward or outward. If you are considering this panel type, please note our advisories relating to portal systems on page 65.





Standard assembly

top: Pivot bearing, ITS 96 with slide channel, one locking device.

bottom: Face-mounted slide bolt as pivot (released for sliding function), deadlock.

Optional equipment

top: Additional locking device (upper locking bolt) to secure the panel in the area of a reshuffle bypass or for more stability in closed position.

bottom: Second face mounted slide bolt instead of deadlock.

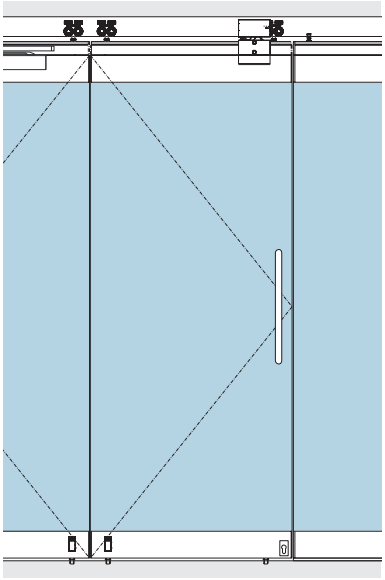
Article No.	Description
9409000000208	HSW ES COMFORT SINGLE ACTION SLIDING PANEL WITH ITS96

Concealed closer information

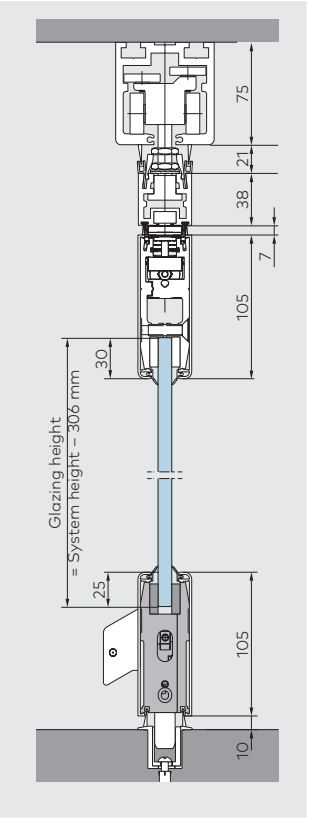
Data and features: ITS 96, Gr. 2–4	
Closing strength/size	EN 2–4
Max. panel width	≤ 1,100 mm
Max. panel weight	≤ 120 kg
Closing strength continuously variable	Adjusting screw
Closing speed continuously variable	by valve
latching speed is adjustable from 15°–0°	by valve
Cushioned stay limit mechanically variable	yes
Max. opening angle	ca. 120°
Hold-open variable	yes (door stop necessary)
Weight	1.3 kg
Length	277 mm
Overall depth	32 mm
Height	42 mm
Door closer tested according to EN 1154	yes

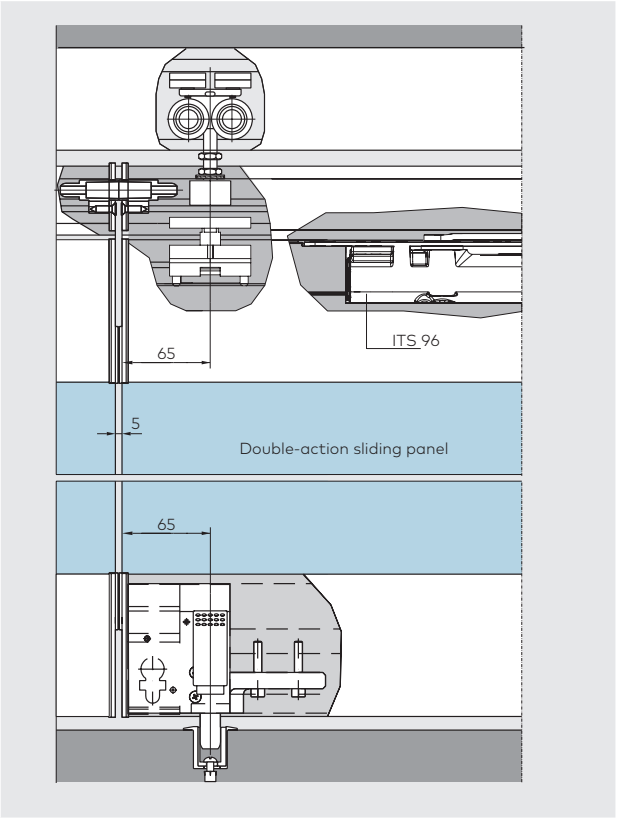
Double-action sliding panel

with integrated door closer dormakaba ITS 96, 2–4.

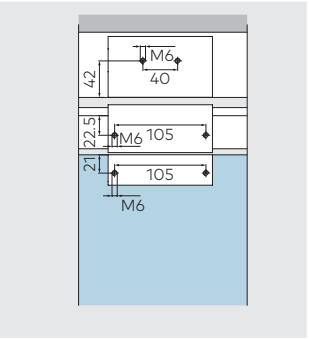


Being virtually invisible, its presence has no effect on the overall appearance of the partition. In its standard form, ITS 96 is provided with a 90° hold-open. If you are considering this panel type, please note our advisories relating to portal systems on page 65.

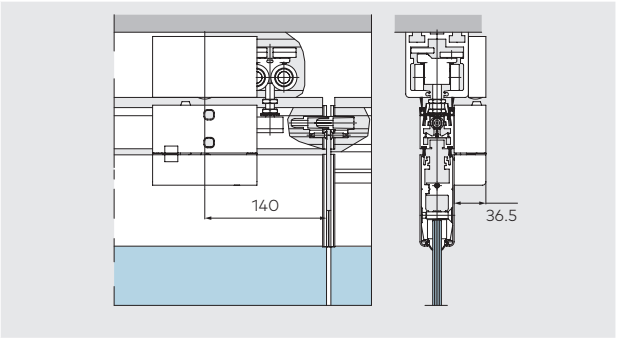




Hole of pattern upper locking unit



Upper locking unit



Standard assembly

top: Pivot bearing, ITS 96 with slide channel, one locking device

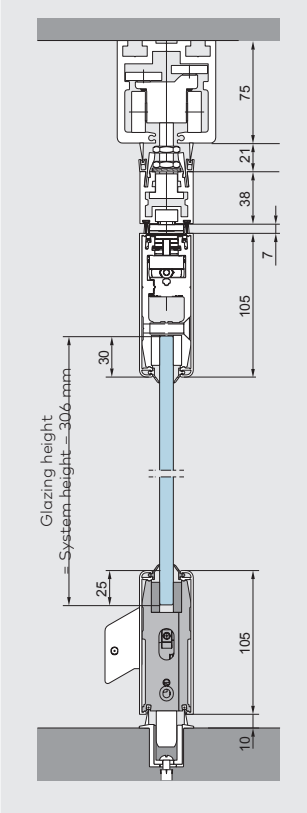
bottom: Face-mounted slide bolt as pivot (released for sliding function), deadlock

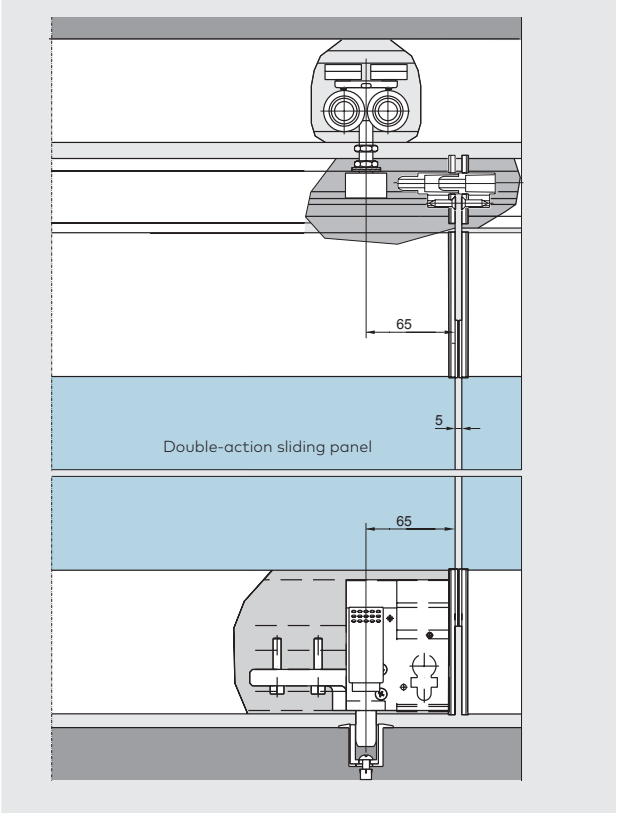
Optional equipment

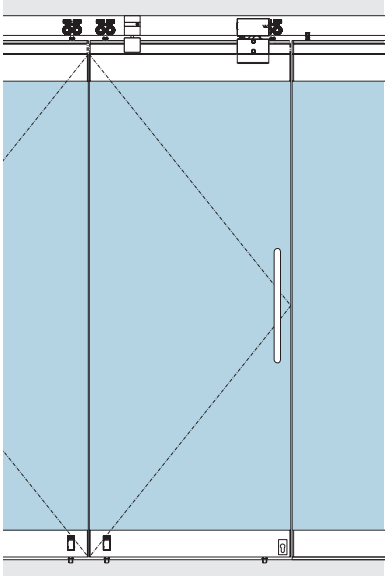
top: Additional locking device (upper locking unit) to secure the panel in the area of a reshuffle bypass or for more stability in closed position.

bottom: Second face mounted slide bolt instead of deadlock

Article No.	Description
9409000000209	HSW ES COMFORT DOUBLE ACTION SLIDING PANEL WITH ITS96

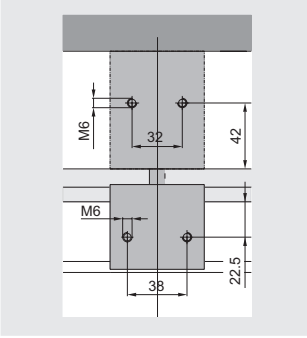




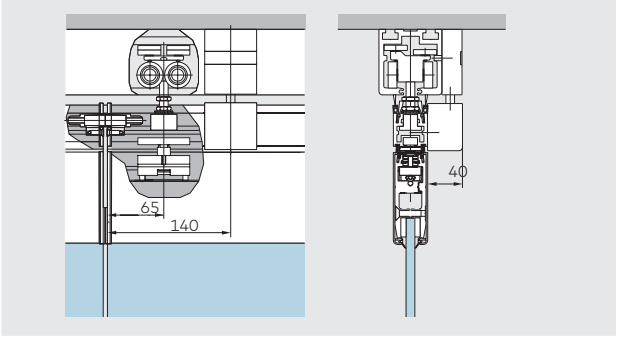


Additional upper lock
The additional upper locking bolt is used for single-action or double-action sliding panels as an optional addition to the upper locking unit at the other end of the door. In some cases it is recommended for additional stabilization of the carrier profile.

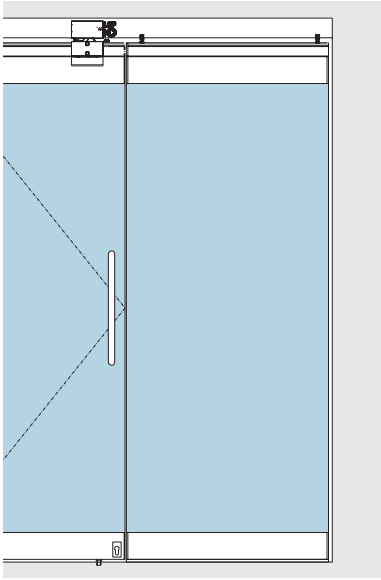
Hole of pattern additional upper lock

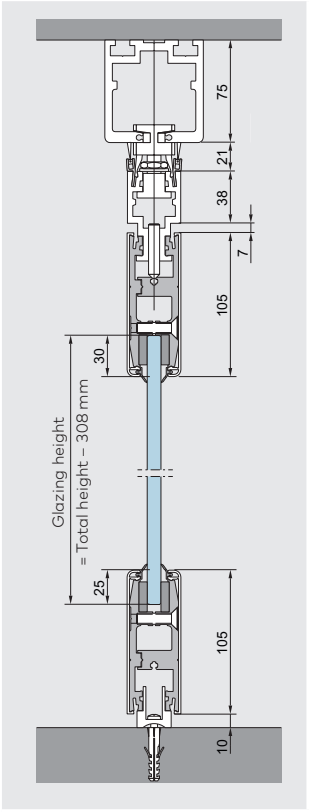


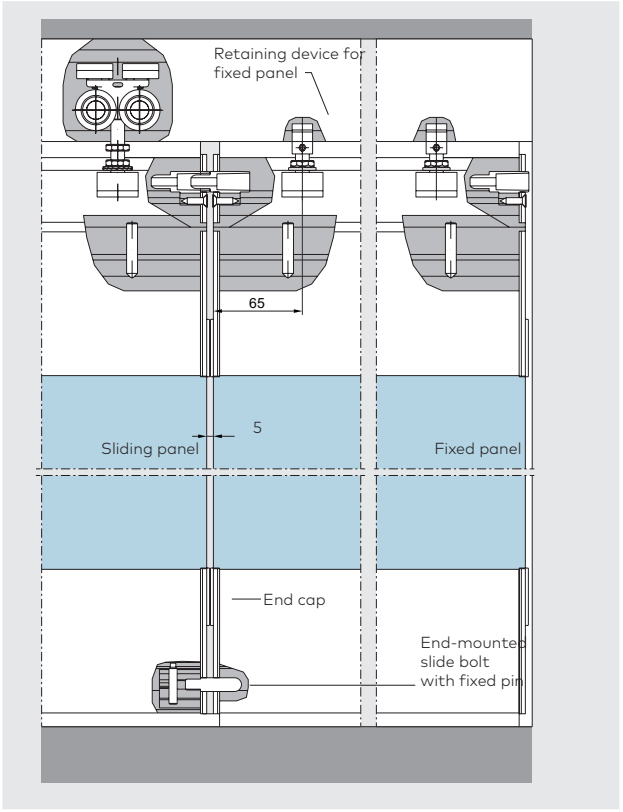
Additional upper lock

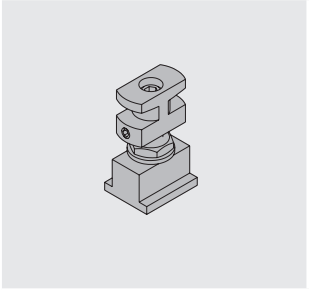


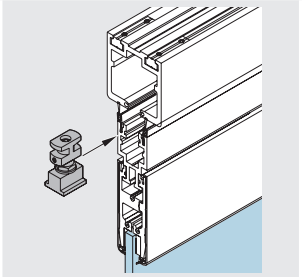
Fixed panel

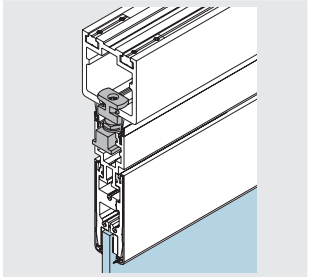


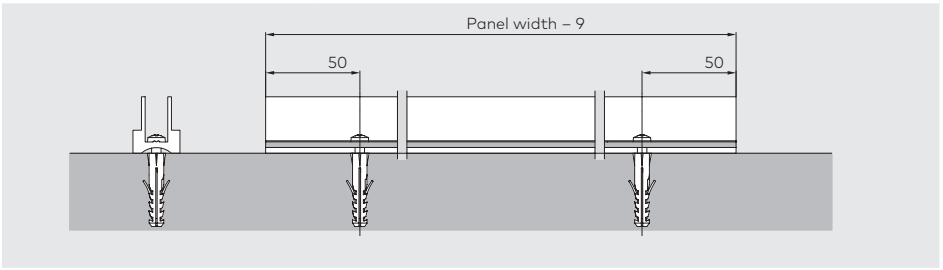












Non-moving side panel, independent of the rest of the system. The fixed side panels are of the same basic design as the sliding panels and continue the appearance of the movable part of the frontage without any optical break. If required, the retaining devices at the top can be replaced by a carrier system to convert such a panel into a sliding panel.

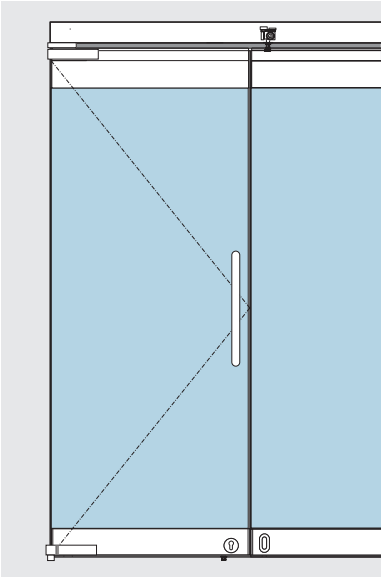
Standard assembly

top: Retaining devices fixed to the track rail.

bottom: Spacer profile fixed to the floor; access for fixed end pin of the adjacent panel.

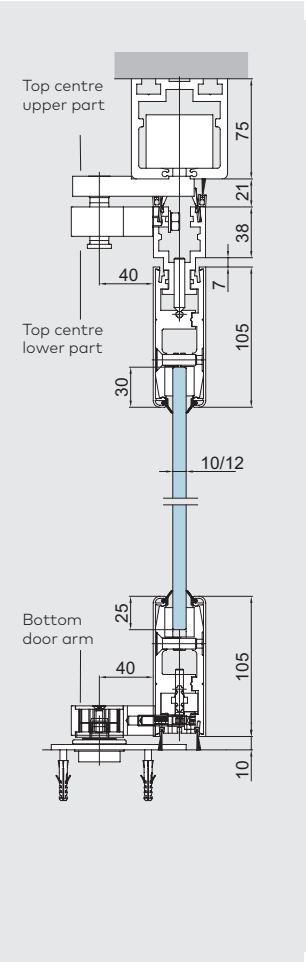
Article No.	Description
9409000000202	HSW ES BASIC FIXED END PANEL
9409000000207	HSW ES COMFORT FIXED END PANEL

Offset hung end panel

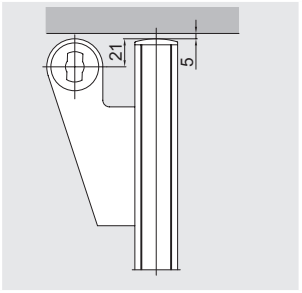


Offset hung end panel
Single action panel, non-sliding, operates independently of the rest of the system.

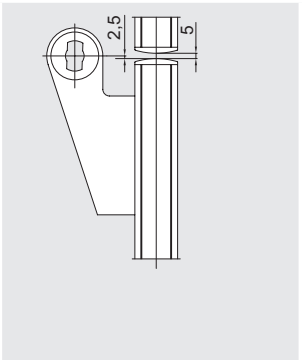
The single action door with offset pivoting arm assembly can be swung around 180°, so leaving the entire operating zone free. A bottom deadlock secures the closed leaf.



Position 90° and 180° opening angle at wall
position 180° opening angle at fixed panel



180° opening angle
Offset hung end panel at fixed panel

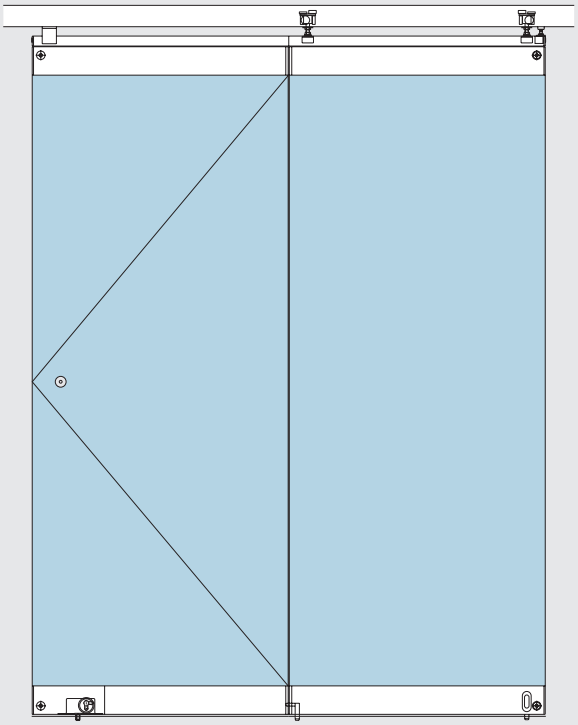


Max. panel weight 100 kg
Max. panel width 1,100mm

Pivoting end panel views as seen from below

Article No.	Description
9409000000204	HSW ES BASIC OFFSET HUNG END PANEL
9409000000211	HSW ES COMFORT OFFSET HUNG PANEL

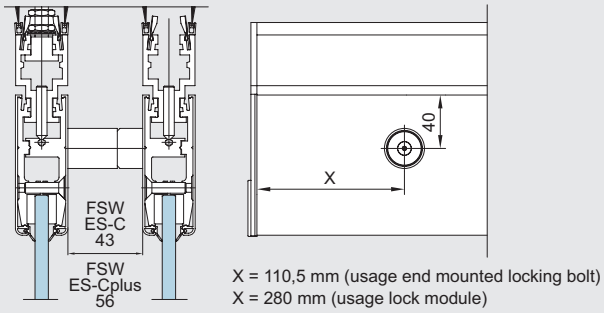
Sliding / folding panel

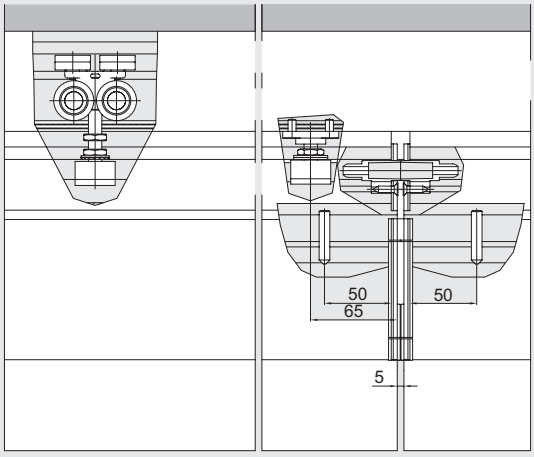


Hinged, with lock and slide bolt at the bottom, latching bolts top and bottom for fixing the final folding panel to the slide panel.

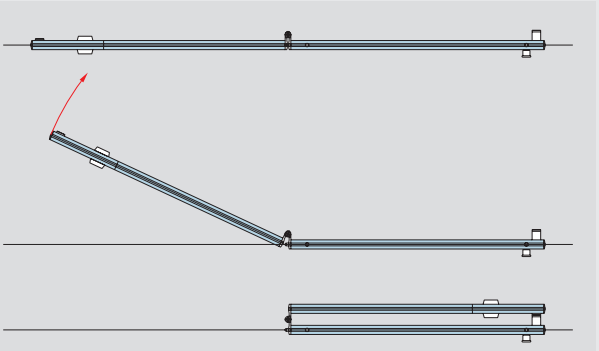
Max. panel sizes and weights
Max. panel width
2 x 1,100 mm
Max. system height
3,000 mm
Max. panel weight
2 x 80 kg

Magnetic door holders top and bottom

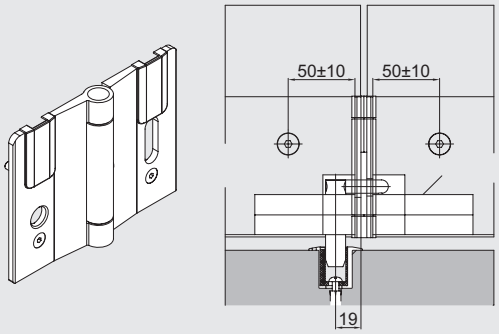




End mounted slide bolt



Panel hinge



Article No.	Description
9409000000203	HSW ES BASIC SLIDING FOLDING PANEL SET
9409000000210	HSW ES COMFORT SLIDING FOLDING PANEL SET

FSW EASY Safe – Types and functions

FSW toughened glass folding walls featuring door rails top and bottom and a roller carrier at the end of each second panel.

FSW folding sliding walls are suitable for linear configurations. With an FSW EASY Safe assembly, you can have either two or four panels (a basic panel and 1 or 3 folding panels) linked together. Where two counter-running (bi-parting) assemblies are installed, it is possible to create frontages with up to eight FSW panels. As the panels are visually compatible with the HSW EASY Safe pivoting/sliding panels, and both systems use the same track design, shop/store frontages or similar transparent partition systems can be made up of these two different types, with the FSW assembly at the free end or supplemented by a single- or double-action HSW end panel (types 4+5). FSW systems can be designed for either opening direction.

Example: Design with 2 x 2 panels (type 1c), bi-parting

01
Track rail

02
Upper locking bolt

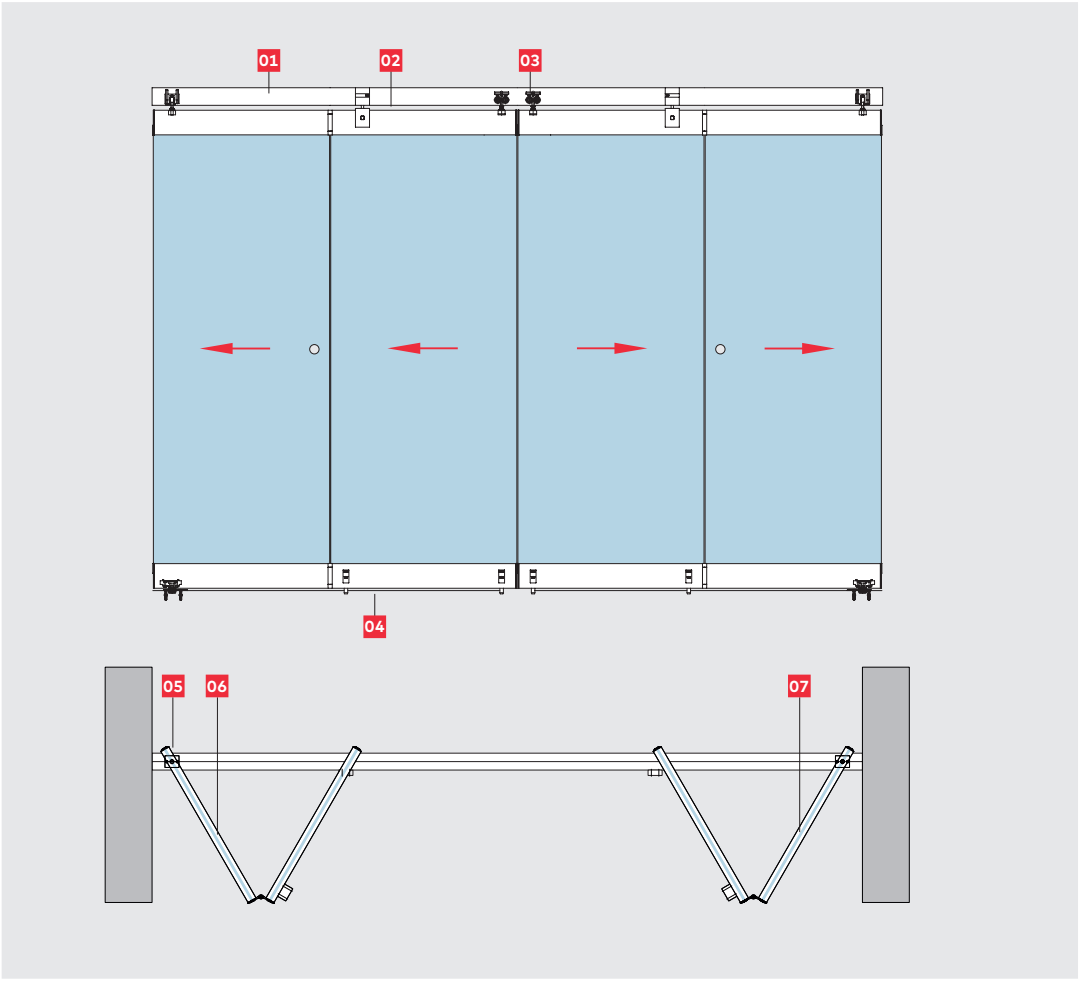
03
Roller carrier

04
Face mounted slide bolt

05
Upper pivot bearing of the basic panel

06
Basic panel

07
Folding panel

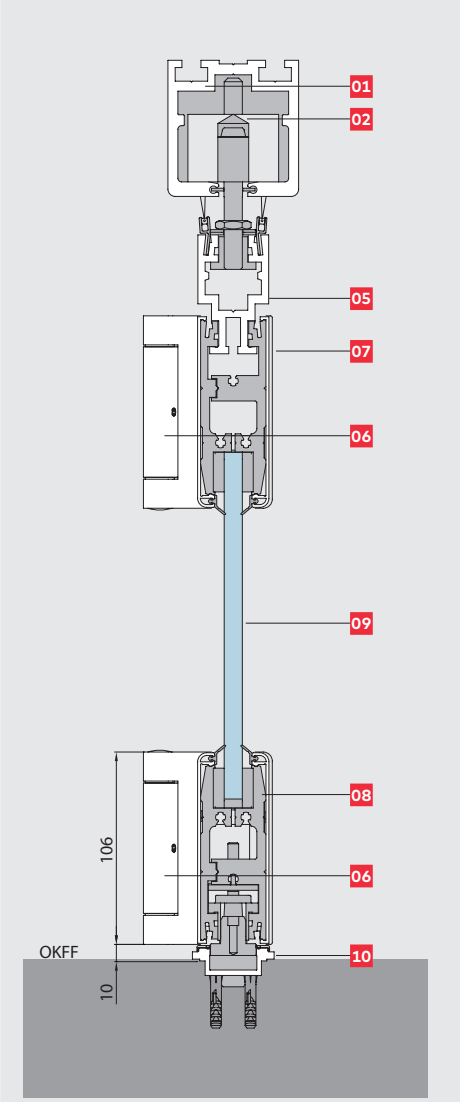


Max. panel sizes and weights	**Basic panel** with top pivot and floor pivot	**Folding panel** with roller carrier and lock bolts top and bottom	**Folding panel** with roller carrier and lock bolts top and bottom	**Basic panel** with roller carrier and lock bolts top and bottom
Max. assembly height	3000 mm	3000 mm	3000 mm	3000 mm
Max. panel width	1100 mm	1100 mm	1100 mm	1100 mm
Max. panel weight	80 kg	80 kg	80 kg	80 kg

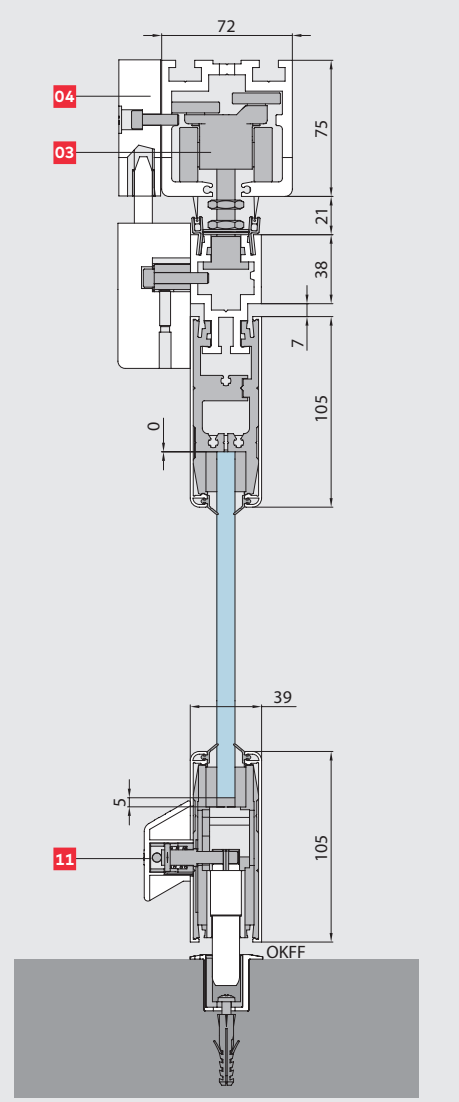
The standard thicknesses are 10/12 mm toughened safety glass (TSG).
Other thicknesses and glazing with laminated safety glass (LSG) available on request.

System components

Basic panel



Folding panel



The FSW EASY Safe assembly consists of the following basic components:

01
Track rail (fixed to the substructure)

02
Upper pivot bearing

03
Roller carrier

04
Upper locking bolt

05
Carrier profile

Design without a carrier profile also available – see drawing below

06
Folding hinge

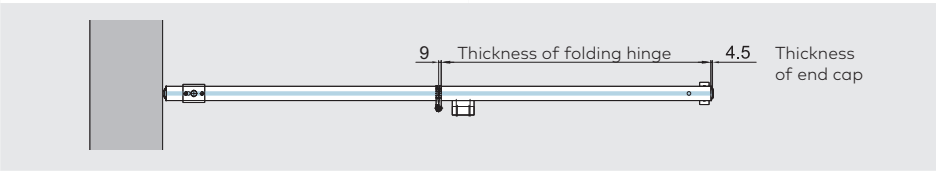
07
Top door rail (consisting of basic profile and covers with lip seal)

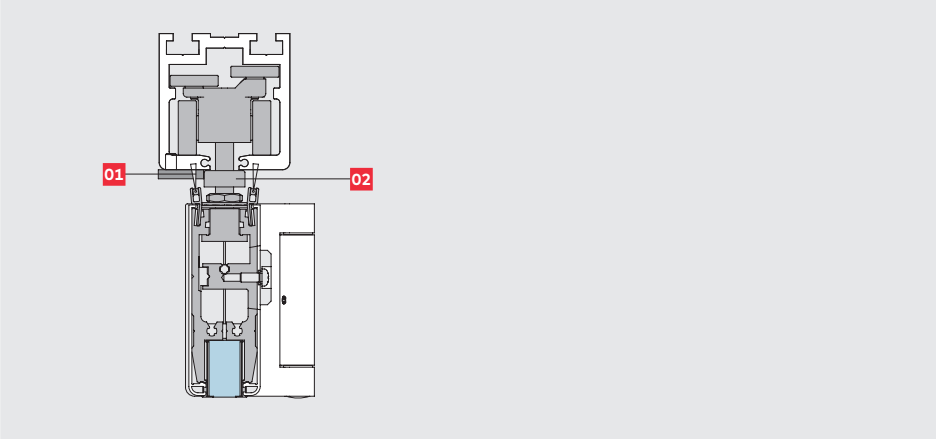
08
Bottom door rail (consisting of basic profile and covers with lip seal)

09
Toughened safety glass, or LSG of TSG (when using LSG we recommend the Clamp&Glue technology)

10
Floor pivot bearing

11
Face mounted slide bolt



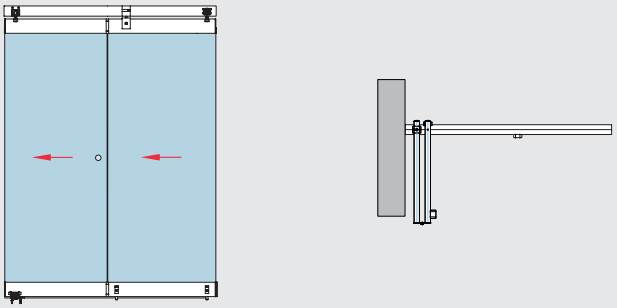


01
Contact plate

02
Roller carrier with stop device

Layout variants

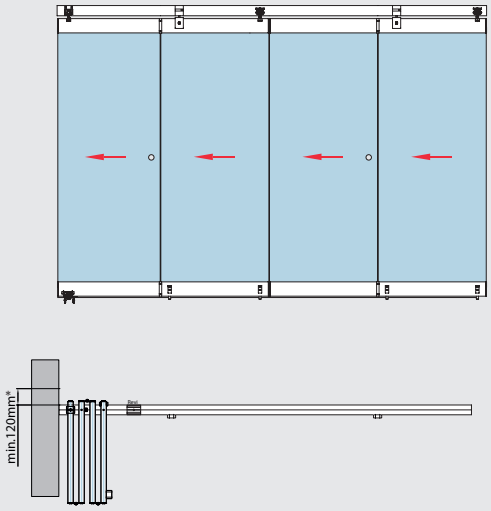
Type 1



Classification	Product description
1a	2 panels left, as illustrated
1b	2 panels right, invers
1c	4 panels (2 panels left and 2 panels right), bi-parting

Article No.	Description
9409000000213	FSW ES BASIC 2 PANEL SET
9409000000219	FSW ES COMFORT 2 PANEL SET

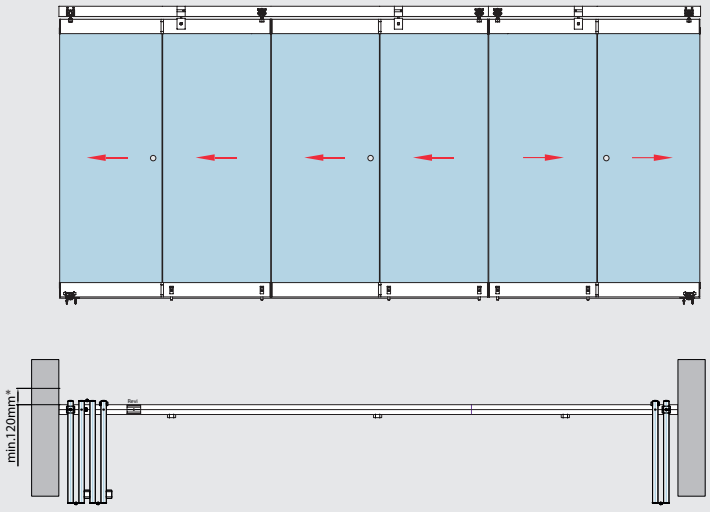
Type 2



Classification	Product description
2a	4 panels left, as illustrated
2b	4 panels right, invers
2c	8 panels (4 panels left and 4 panels right), bi-parting

Article No.	Description
9409000000214	FSW ES BASIC 4 PANEL SET
9409000000220	FSW ES COMFORT 4 PANEL SET

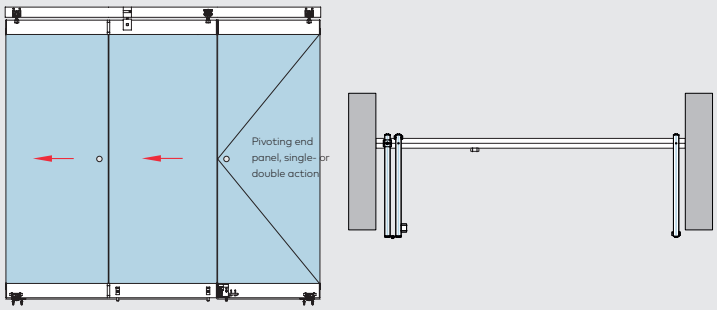
Type 3

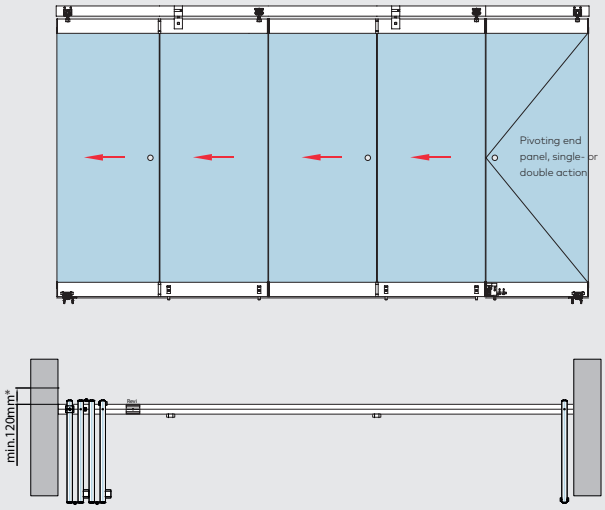


Classification	Product description
3a	6 panels, as illustrated (4 panels left and 2 panels right)
3b	6 panels, invers (2 panels left and 4 panels right)
3c	8 panels (4 panels left and 4 panels right)

Article No.	Description
9409000000219	FSW ES COMFORT 2 PANEL SET
9409000000220	FSW ES COMFORT 4 PANEL SET

* Minimum structural clearance (e.g. balustrade, railings etc.)

Type 4	Classification	Product description
	**4a**	2 panels left and 1 pivoting end panel, single- or double action, right (as illustrated)
	4b	2 panels right and 1 single- action or double-action end panel left (invers)

Type 5	Classification	Product description
	**5a**	4 panels left and 1 pivoting end panel, single- or double action, right (as illustrated)
	5b	4 panels right and 1 pivoting end panel, single- or double action, left (invers)

* Minimum structural clearance (e.g. balustrade, railings etc.)

FSW EASY Safe C – Types and functions

Toughened glass folding partitions with door rails top and bottom roller carrier at panel centre

The FSW EASY Safe C is adaptable to large spans. An assembly comprises a basic panel, up to 6 folding centre panels and a folding pivoting panel which, when the system is closed, can be used for access (alternatively, a non-attached single or double action end panel can be used). The number of panels therefore ranges between 3 and 8. As the roller carriers are centrally arranged on the centre panels, the basic panel must be designed as a half-width unit (plus pivot offset of 65 mm). The pivoting access panel can be of either basic panel or centre panel width. The slightly offset hinges mean that the panels can be folded into particularly compact stacks, with high stability also ensured. Available as standard for glass thicknesses of 10 or 12 mm. Other glass thicknesses and models with laminated safety glass also available on request. Please indicate your requirements when ordering!

Example: Partition type C2 (symmetrical with narrow pivoting access panel)

01
Pivot bearing top and bottom

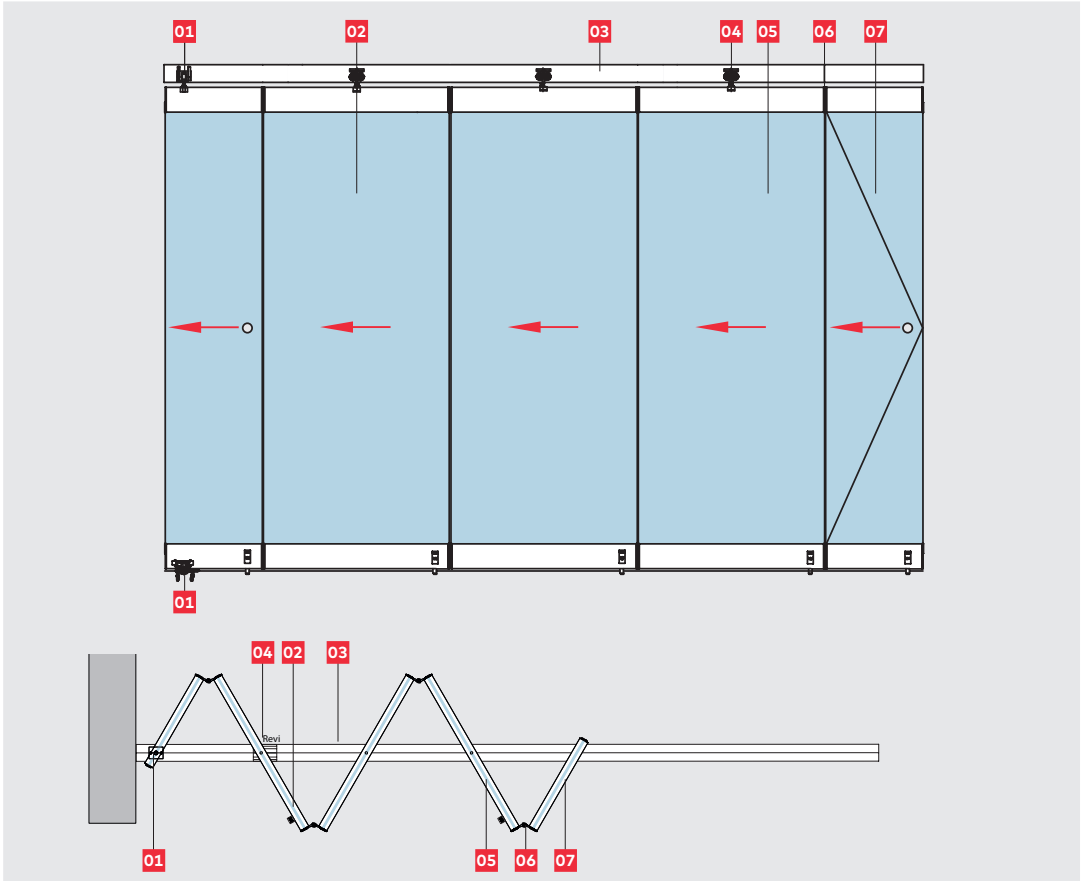
02
Basic panel

03
Track rail

04
Roller carrier

05 + 07
Flap panel unit

06
Folding hinge

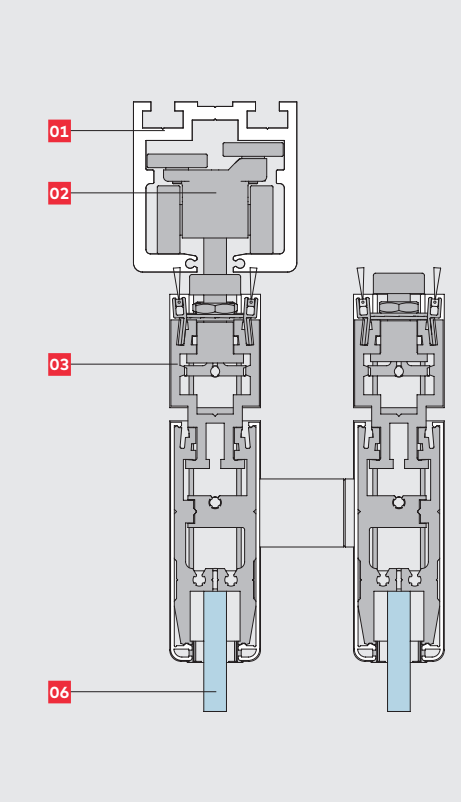


Max. panel sizes and weights	**Basic panel** with top pivot and floor pivot	**Centre panel** with roller carrier and lock bolts top and bottom	**Centre panel** with roller carrier and lock bolts top and bottom	**Flap panel unit**
Max. assembly height	3000 mm	3000 mm	3000 mm	3000 mm
Max. panel width	½ panel width + 65mm	1100 mm	1100 mm	1100 mm
Max. panel weight	80 kg	80 kg	80 kg	80 kg

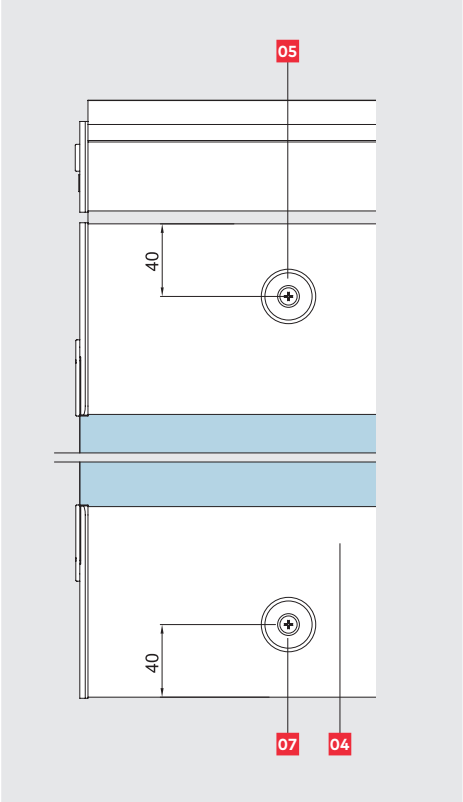
The standard thicknesses are 10/12 mm toughened safety glass (TSG).
Other thicknesses and glazing with laminated safety glass (LSG) available on request.

System components

Folding panel with bolt



Magnetic door holders top and bottom



The FSW EASY Safe C system consists of the following basic components:

01
Track rail (fixed to the substructure)

02
Roller carrier

03
Carrier profile
Top door rail also available in a design without the carrier profile – see drawing below.

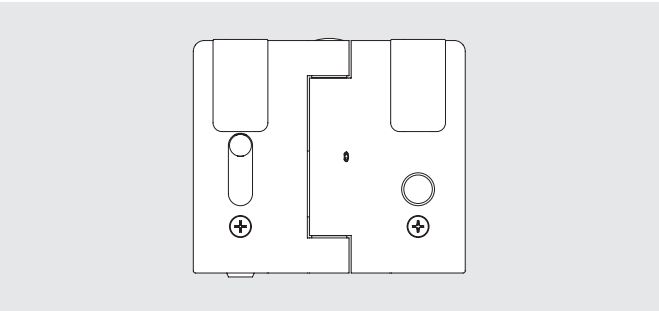
04
Bottom door rail consisting of basic profile and covers with lip seal.

05
Magnetic holder top

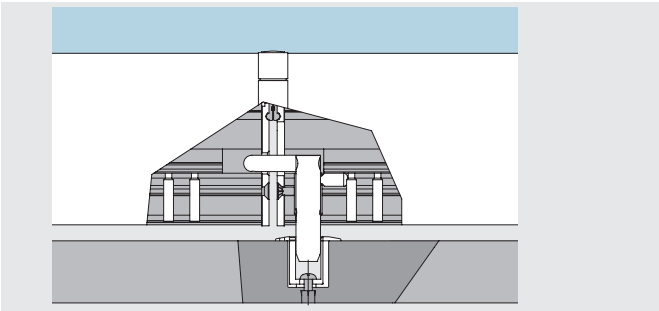
06
Toughened safety glass, or LSG of TSG (when using LSG we recommend the Clamp&Glue technology)

07
Magnetic holder bottom

Bottom hinge



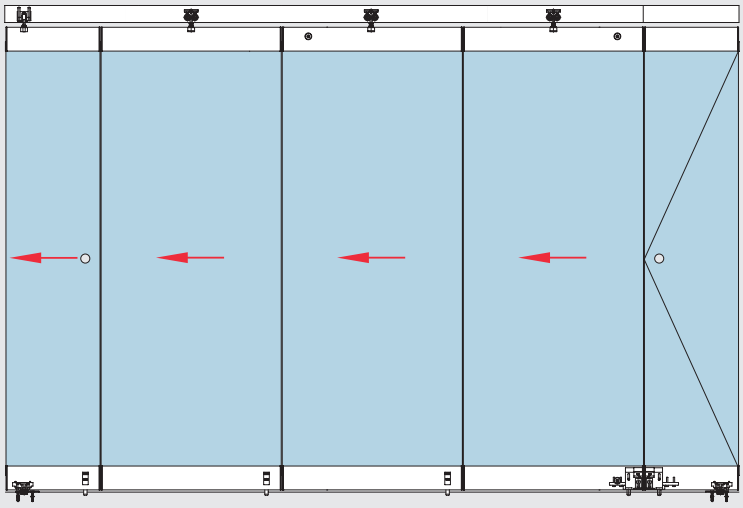
End mounted slide bolt at the bottom between both panels of the flap panel unit

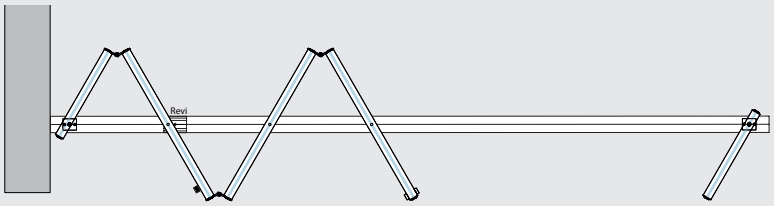


Article No.	Description
9409000000215	FSW ES BASIC C/C+ PANEL
9409000000216	FSW ES BASIC C/C+ CENTRE PANEL
9409000000217	FSW ES BASIC C/C+ FLAP PANEL SET
9409000000218	FSW ES BASIC C/C+ SIMPLE END PANEL
9409000000221	FSW ES COMFORT C/C+ PANEL
9409000000222	FSW ES COMFORT C/C+ CENTRE PANEL
9409000000223	FSW ES COMFORT C/C+ FLAP PANEL SET
9409000000224	FSW ES COMFORT C/C+ SIMPLE END PANEL

Layout variants

Type C1

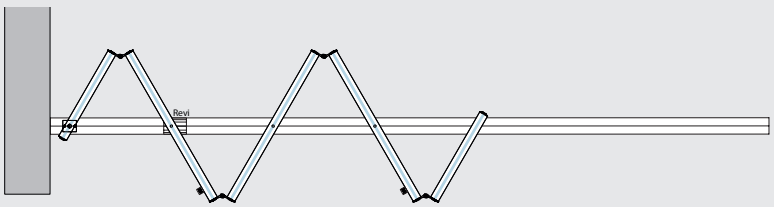




Product description

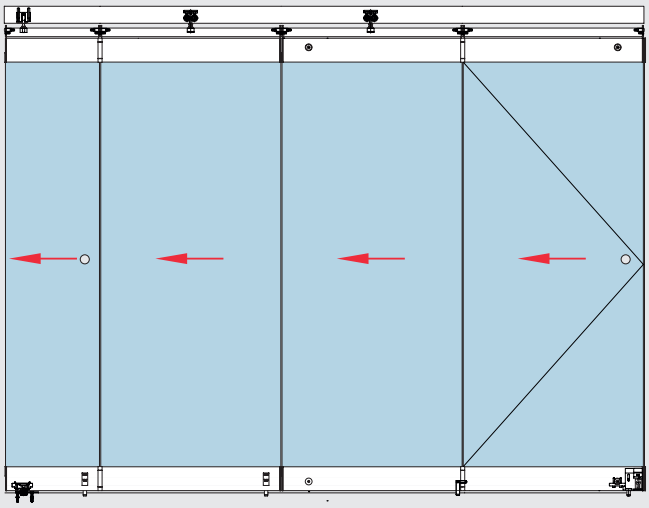
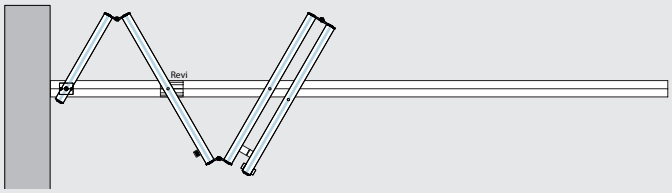
- 1 pivoting end panel, single-action, as access (here in narrow design for reasons of symmetry)
- 1-6 centre panels
- 1 basic panel (narrow)

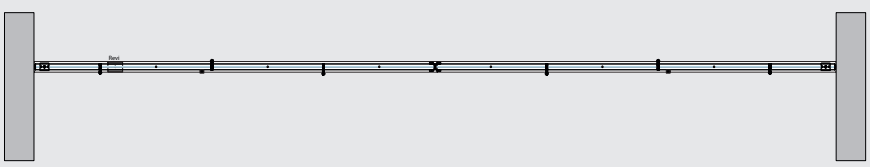
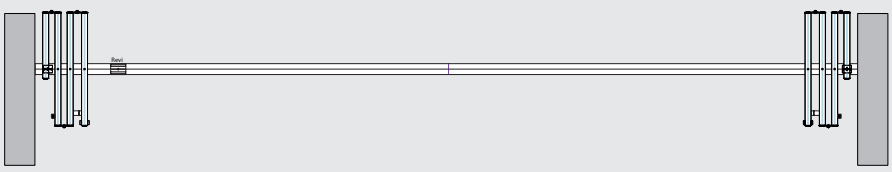
Type C2



Product description

- 1 pivoting access panel (here in narrow design for reasons of symmetry)
- 1-6 centre panels
- 1 basic panel (narrow)

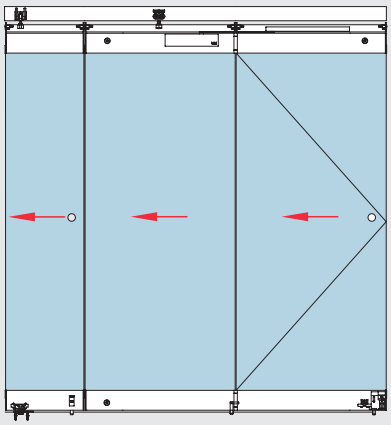
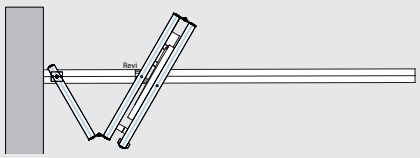
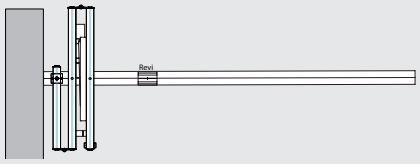
Type C3	Product description
	• 1 basic panel (narrow) • 1-5 centre panels • 1 dual panel assembly
	
	

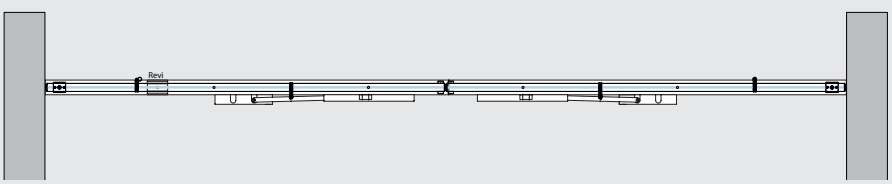
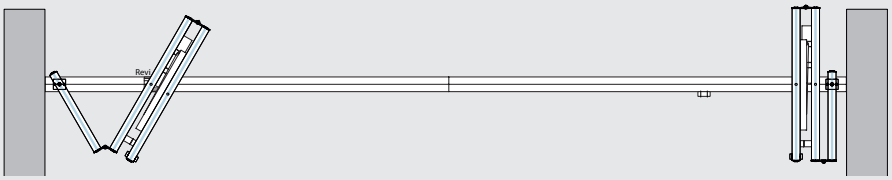
Type C3, dual assembly (bi-parting)	Product description
	**Left:** • 1 basic panel (narrow) • 1-5 centre panels • 1 dual panel assembly
	**Right:** • 1 basic panel (narrow) • 1-5 centre panels • 1 dual panel assembly

FSW EASY Safe Cplus – Types and functions

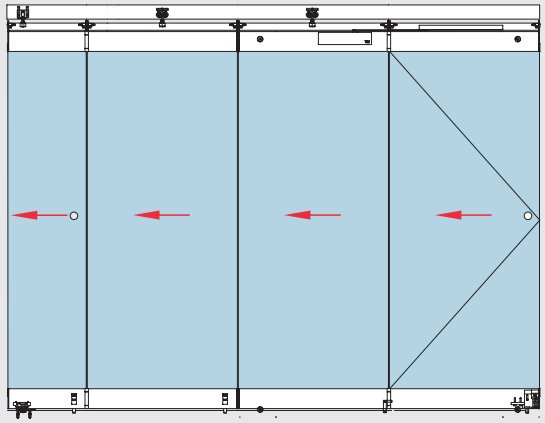
Access with convenience – the plus you get with the FSW EASY Safe Cplus

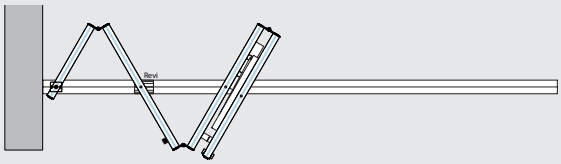
Based on the design of the FSW EASY Safe Cplus, the model variant FSW EASY Safe Cplus offers the possibility of including a flap panel as a fully fledged access door when the system is otherwise closed – with all the automatic closing convenience which the TS 93 cam-action door closer can offer. The special bottom lock bolt and the top clamp-fitted stop serve to stabilize the first panel of the flap panel unit in this configuration. The top angle stop ensures the correct positioning of the closed flap panel unit. The folding hinges connect both panels of the flap panel unit and offer a larger pivot off-set in order to create space for the door closer and pull handles. All the other folding panels are equipped with standard hinges and roller carriers.

Type Cp 1	Product description
	• 1 basic panel (narrow) • 1 dual panel assembly with TS93 cam-action door closer
	
	

Type Cp1 dual assembly (bi-parting)	Product description
	**Left:** • 1 basic panel (narrow) • 1 dual panel assembly with TS93 cam-action door closer
	**Right:** • 1 basic panel (narrow) • 1 dual panel assembly with TS93 cam-action door closer

Type Cp 2



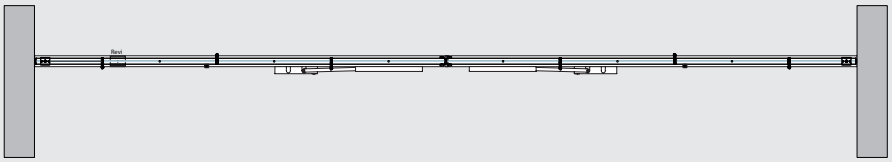


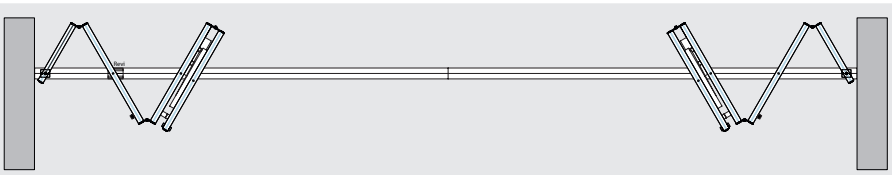
Product description

- 1 basic panel (narrow)
- 1 – 5 centre panels
- 1 dual panel assembly
  with TS93 cam-action door closer

easy open
dormakaba

Type Cp2, dual assembly (bi-parting)





Product description

Left:
- 1 basic panel (narrow)
- 1 – 5 centre panels
- 1 dual panel assembly
  with TS93 cam-action door closer

Right:
- 1 basic panel (narrow)
- 1 – 5 centre panels
- 1 dual panel assembly
  with TS93 cam-action door closer

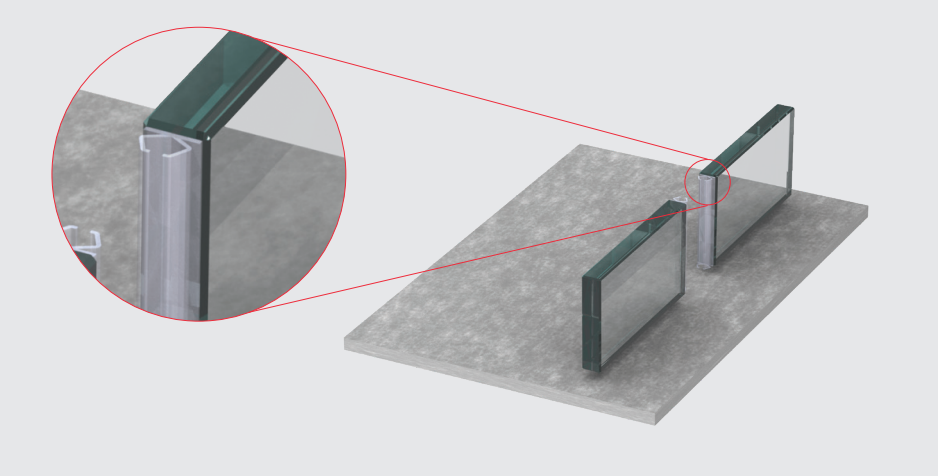
TS 93 technical data and features

Spring strength/Door closer size	EN 2 – 5
Adjustable closing force	Adjustable screw
Adjustable closing speed	Adjustable valve
Non-handed	Yes
Adjustable latching action	Adjustable valve
Adjustable backcheck	80° – 120°
Adjustable hold-open	75° – 150°
Weight	3.5 kg
Length	275 mm
Installation depth	53 mm
Height	60 mm

Accessories

Vertical seals – overview

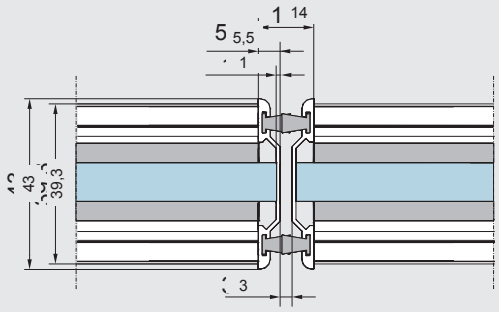
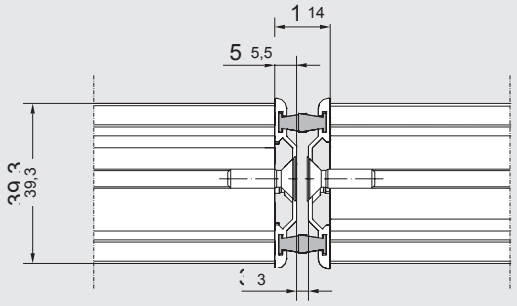
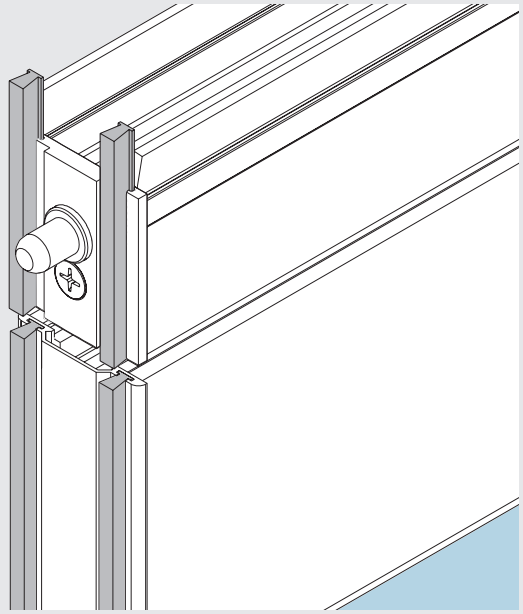
Kilargo edge seals are an easy way to cut drafts and sound. Easy to apply to the system once set up.



Article No.	Description	Kilargo Part
9470000007950	Glass Edge Seal 2500MM	IS7400FG-2500
9470000007952	Glass Edge Seal 3500MM	IS7400FG-3500
9470000007994	Glass Edge Seal Fitting Tool	IS7400-FT

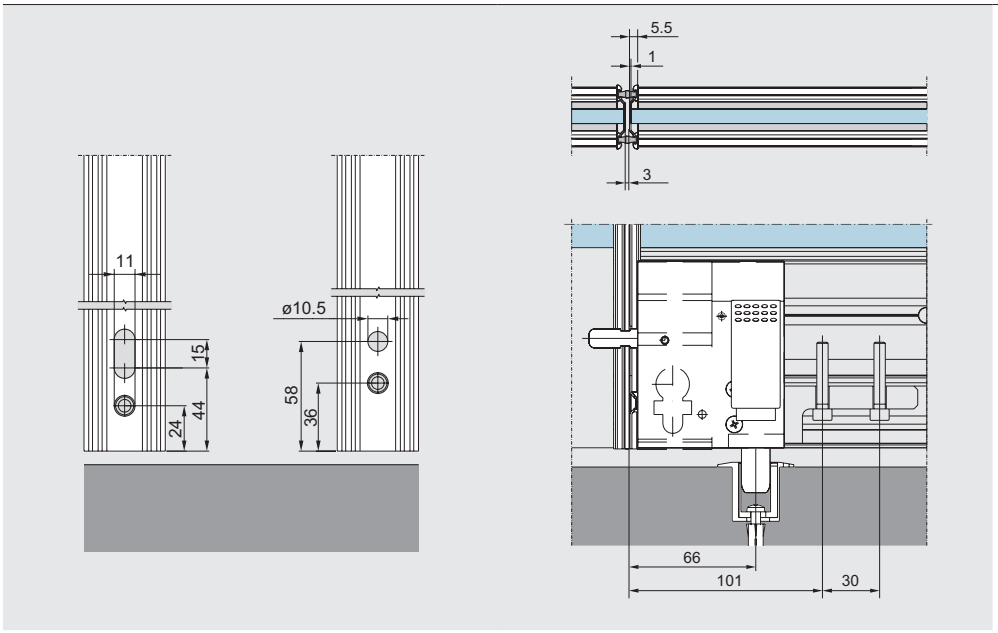
Vertical sealing profiles with brushes

The aluminium sealing profiles are fixed to the full height of the panels, replacing the end caps at the top and bottom door rails. They are individually tailored to the requirements of the bottom door rails, so they are already prepared for the locking devices such as end caps, end pins when delivered by dormakaba. At the top, a degree of extra length is provided to enable precise sealing profile adaptation to the exact panel height on site once the system has been vertically aligned. The double brush seals interlock with those at the adjacent panel and continue in line with the double brush seals at the top and bottom door rails. This ensures excellent draft proofing.

	Product description
	**Vertical sealing profile**
 	**Vertical sealing profile**

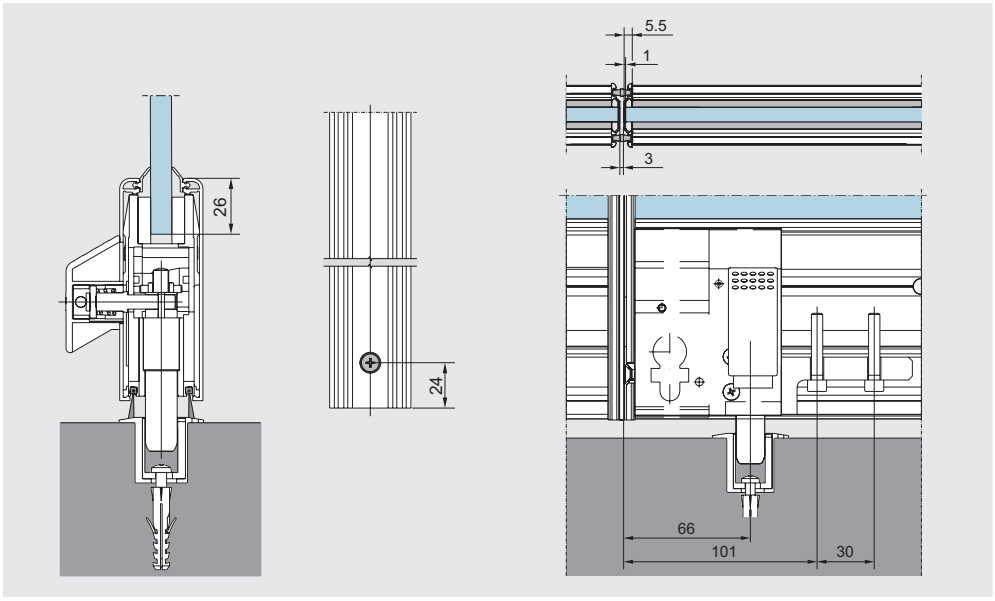
Vertical sealing profiles – general preparation

Product description



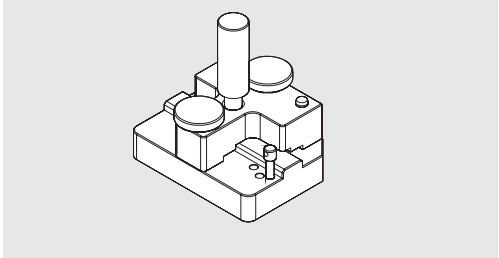
Profile machining
for end-mounted and face-mounted slide bolts performed by dormakaba

Preparation and mounting of vertical sealing profile for end-mounted slide bolt



Preparation and mounting of vertical sealing profile for face-mounted slide bolt

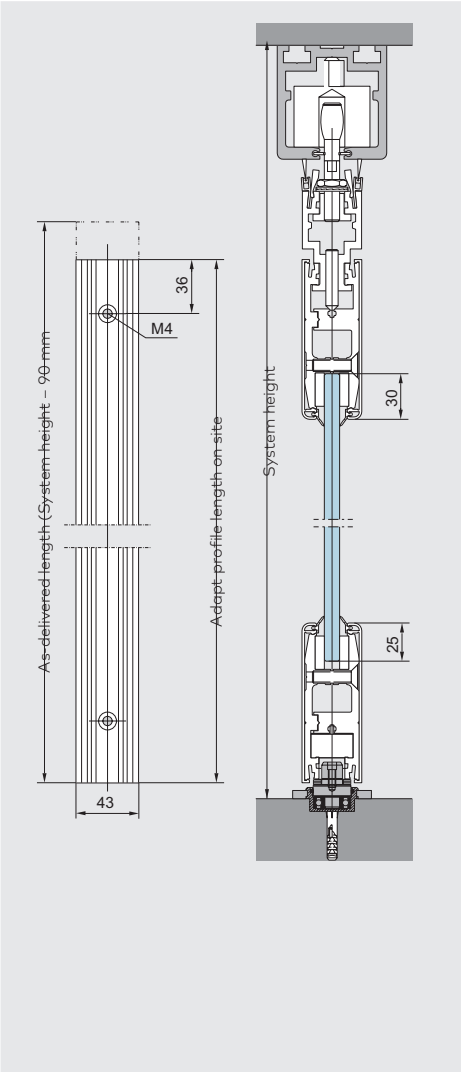
Product description

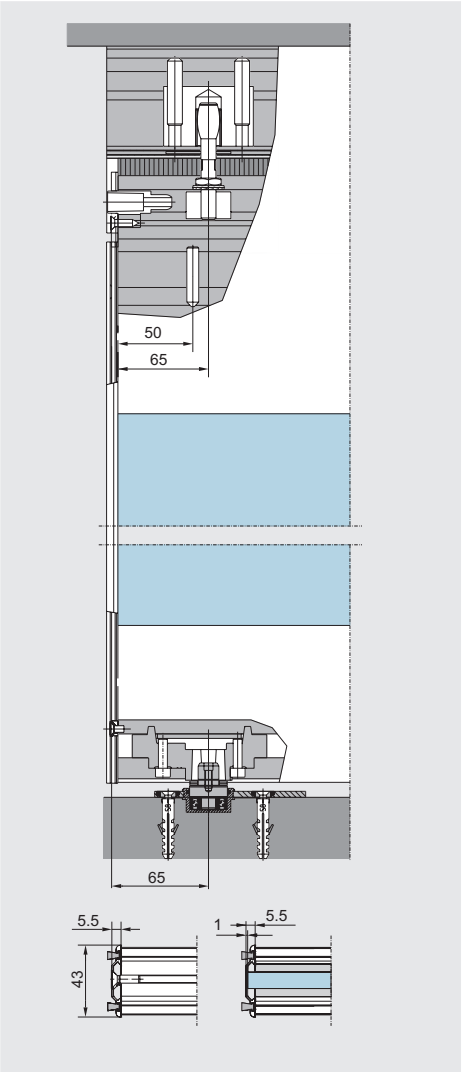


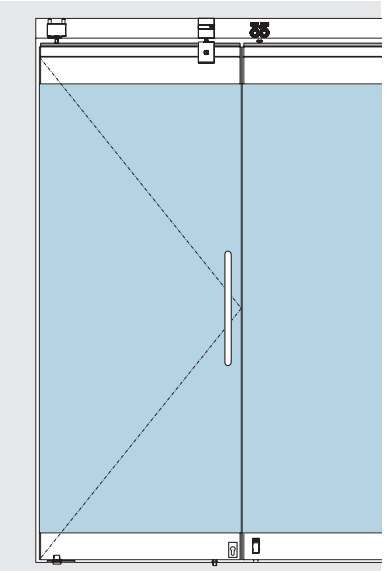
Tool for preparing the top of the vertical sealing profiles on site

Article No.	Description
84007000099	HSWES TOOL FOR VERTICAL GASKET

Vertical sealing profiles – panel types







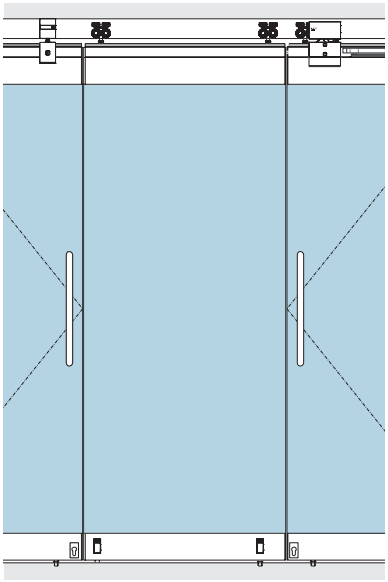
Single-End-/Double-Action Panels

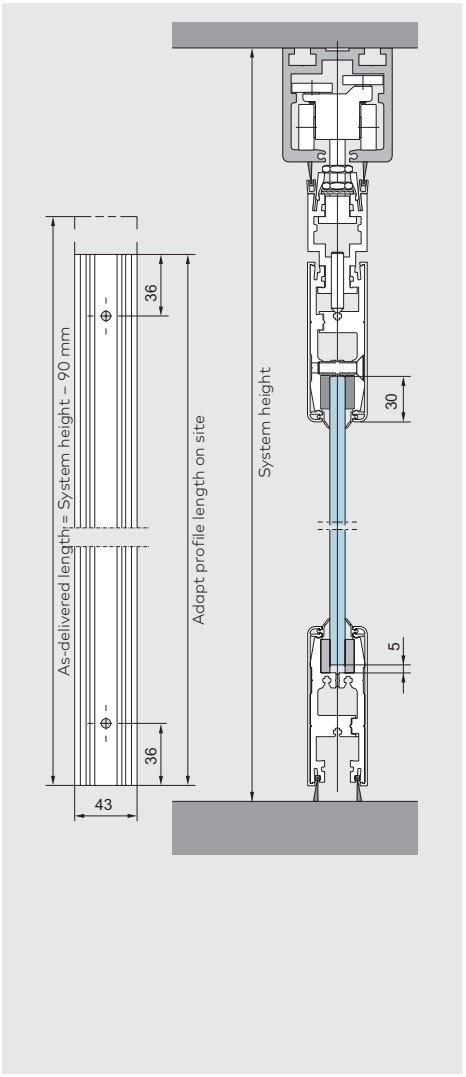
As-delivered condition of the vertical sealing profiles:
Cut lengths supplied from factory
= System height – 90 mm

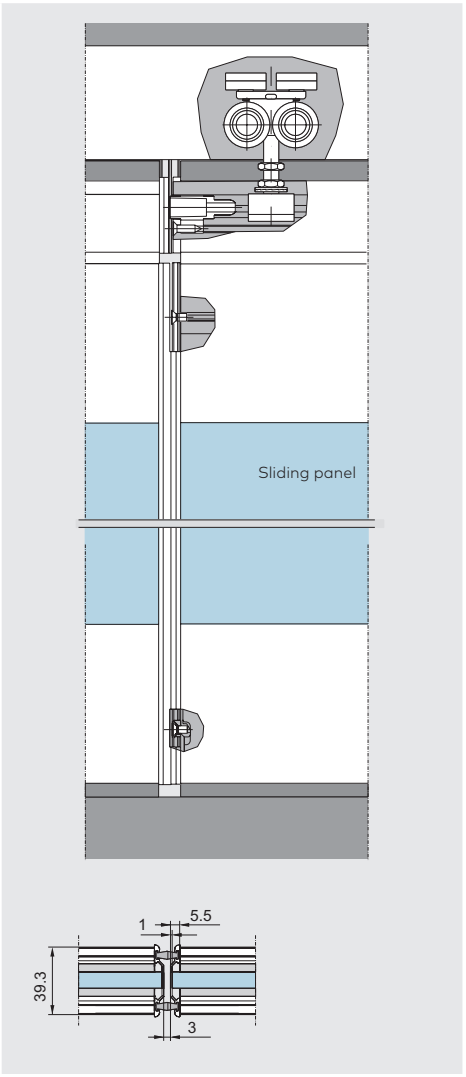
Holes and recesses are pre-machined in the profile for the bottom door rail only. Any further machining work required for connection to the top door rail has to be performed on site.

Installation instructions
When fitting the top and bottom door rails please ensure that the protrusion of the glass width on either side of a door rail is even. In case the panels incorporate a carrier profile a proper section of the double brush sealing profile is fixed to the carrier profile by a fixing cartridge. Prior to machining the sealing profile at the top for the exact length from the bottom to the top door rail, first hang the panels from the track rail and align. After the installation the vertical seal profiles need to be fixed with permanent elastic glue.

Vertical sealing profiles – panel types





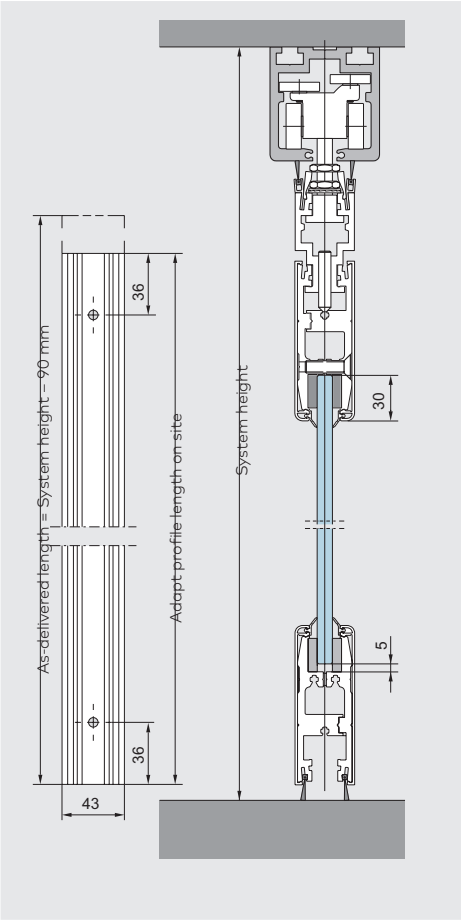


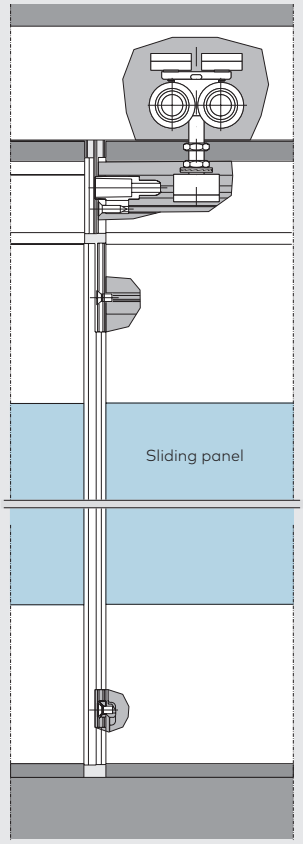
Sliding panels

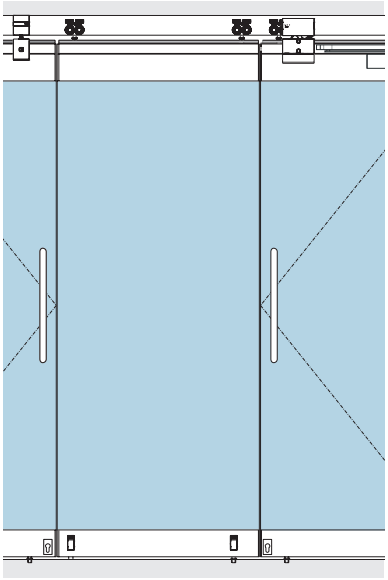
As-delivered condition of the vertical sealing profiles:
Cut lengths supplied from factory
= System height – 90 mm

Holes and recesses are pre-machined in the profile for the bottom door rail only. Any further machining work required for connection to the top door rail has to be performed on site.

Installation instructions
When fitting the top and bottom door rails please ensure that the protrusion of the glass width on either side of a door rail is even. In case the panels incorporate a carrier profile a proper section of the double brush sealing profile is fixed to the carrier profile by a fixing cartridge. Prior to machining the sealing profile at the top for the exact length from the bottom to the top door rail, first hang the panels from the track rail and align.







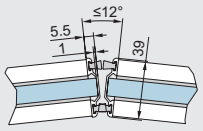
Sliding panels in segmented configurations

As-delivered condition of the vertical sealing profiles:
Cut lengths supplied from factory
= System height – 90 mm.

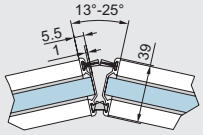
Holes and recesses are pre-machined in the profile for the bottom door rail only. Any further machining work required for connection to the top door rail has to be performed on site.

Installation instructions
When fitting the top and bottom door rails please ensure that the protrusion of the glass width on either side of a door rail is even. In case the panels incorporate a carrier profile a proper section of the double brush sealing profile is fixed to the carrier profile by a fixing cartridge. Prior to machining the sealing profile at the top for the exact length from the bottom to the top door rail, first hang the panels from the track rail and align.

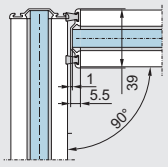
Sealing profiles with the standard short type brushes in both brush channels.



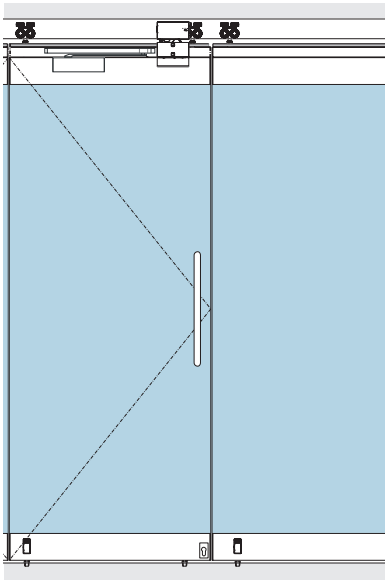
Sealing profiles with short type brushes in the inner brush channels and long type brushes in the outer brush channels.



Sealing profile without brushes at the panel's free edge; sealing profile with short type brushes at the 90° adjoining panel.



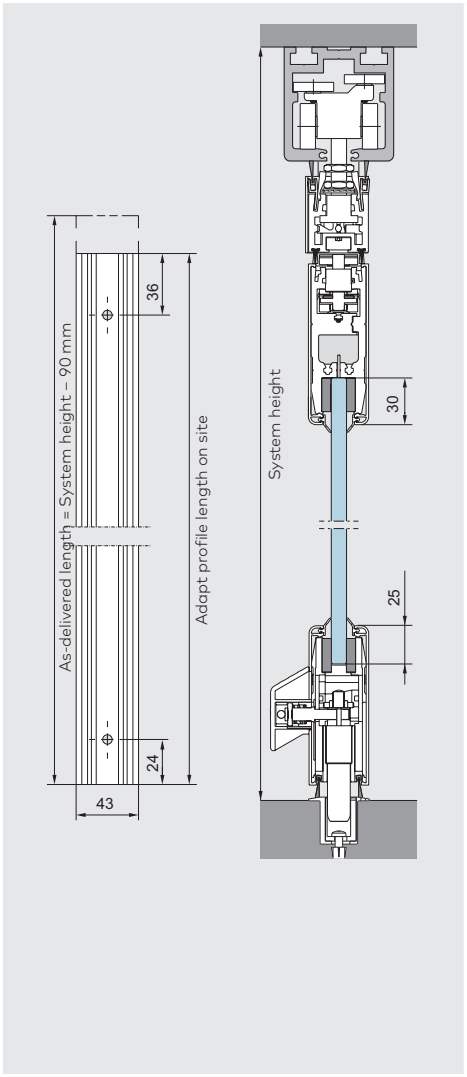
Vertical sealing profiles - panel types

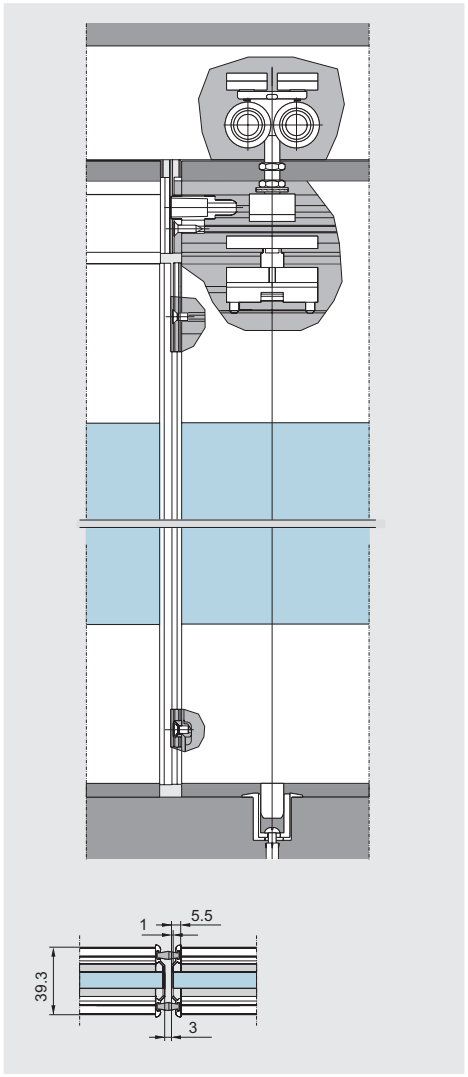


Single-action sliding panels (with TS 92 or ITS 96)/double-action sliding panels (with ITS 96)

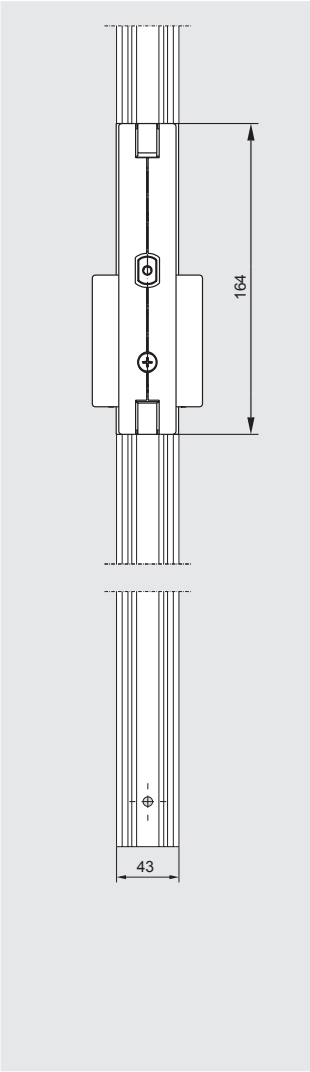
As-delivered condition of the vertical sealing profiles:
Cut lengths supplied from factory
= System height – 90 mm.

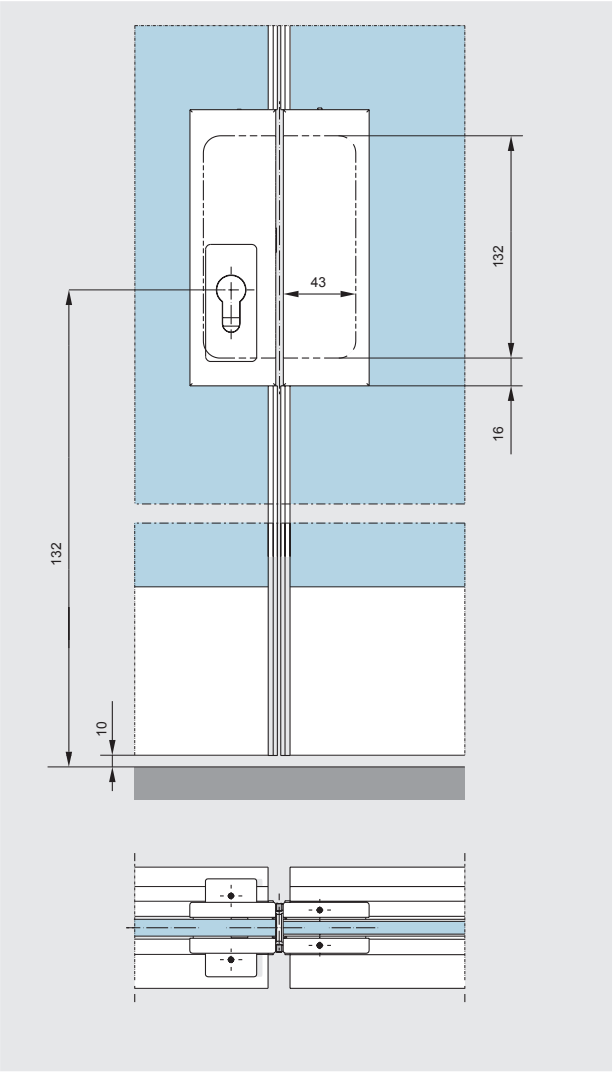
Holes and recesses are pre-machined in the profile for the bottom door rail only. Any further machining work required for connection to the top door rail has to be performed on site.

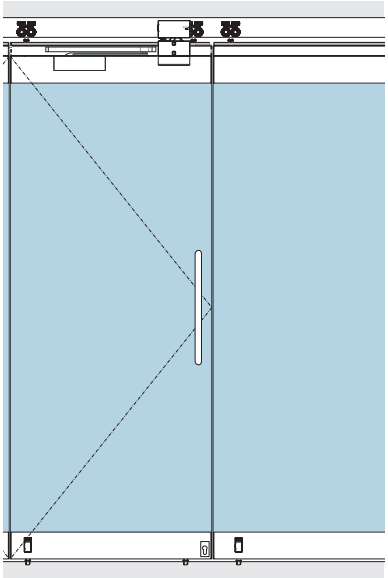




Installation instructions
When fitting the top and bottom door rails please ensure that the protrusion of the glass width on either side of a door rail is even. In case the panels incorporate a carrier profile a proper section of the double brush sealing profile is fixed to the carrier profile by a fixing cartridge. Prior to machining the sealing profile at the top for the exact length from the bottom to the top door rail, first hang the panels from the track rail and align.







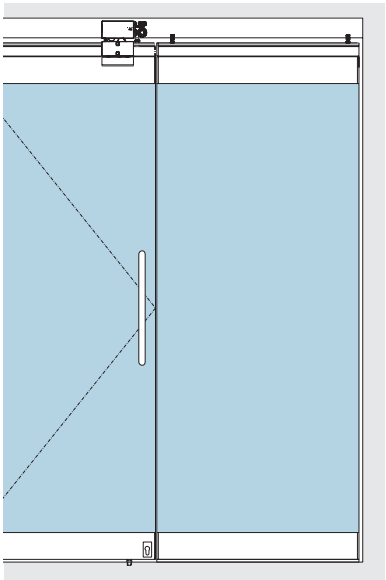
Single-action sliding panels (with TS 92 or ITS 96)/double-action sliding panels (with ITS 96) with UNIVERSAL centre lock and UNIVERSAL strike box

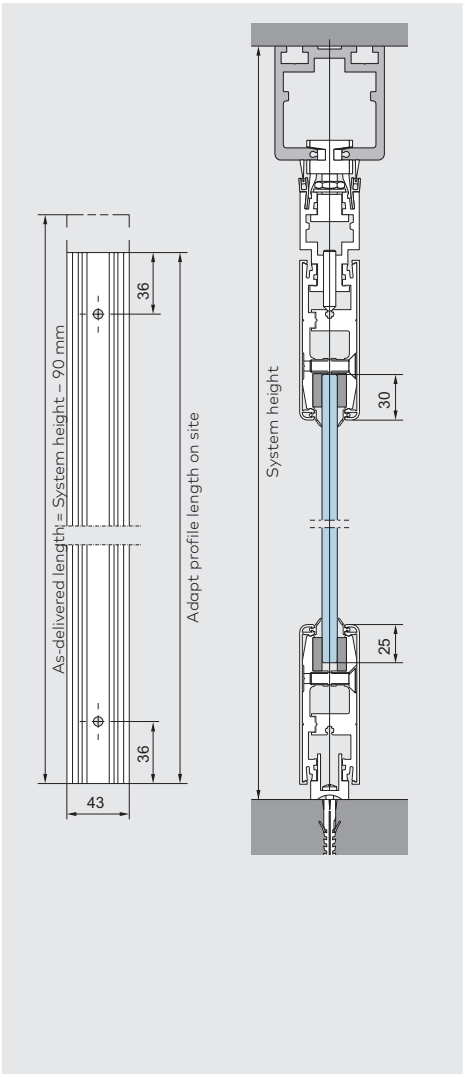
As-delivered condition of the vertical sealing profiles:
Cut lengths supplied from factory
= System height – 90 mm

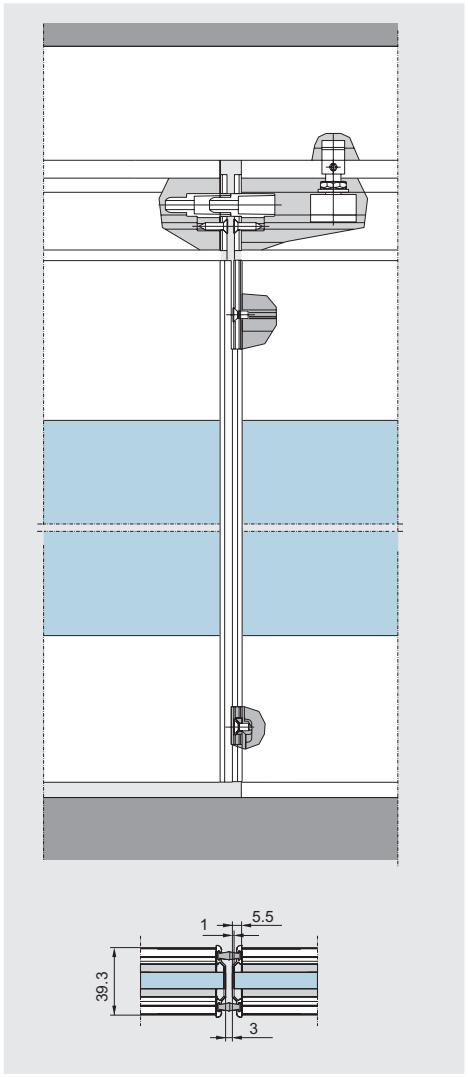
Holes and recesses are pre-machined in the profile for the bottom door rail only. Any further machining work required for connection to the top door rail has to be performed on site.

Installation instructions
When fitting the top and bottom door rails please ensure that the protrusion of the glass width on either side of a door rail is even. In case the panels incorporate a carrier profile a proper section of the double brush sealing profile is fixed to the carrier profile by a fixing cartridge. Prior to machining the sealing profile at the top for the exact length from the bottom to the top door rail, first hang the panels from the track rail and align.

Vertical sealing profiles – panel types







Fixed panels

As-delivered condition of the vertical sealing profiles:
Cut lengths supplied from factory
= System height – 90 mm.

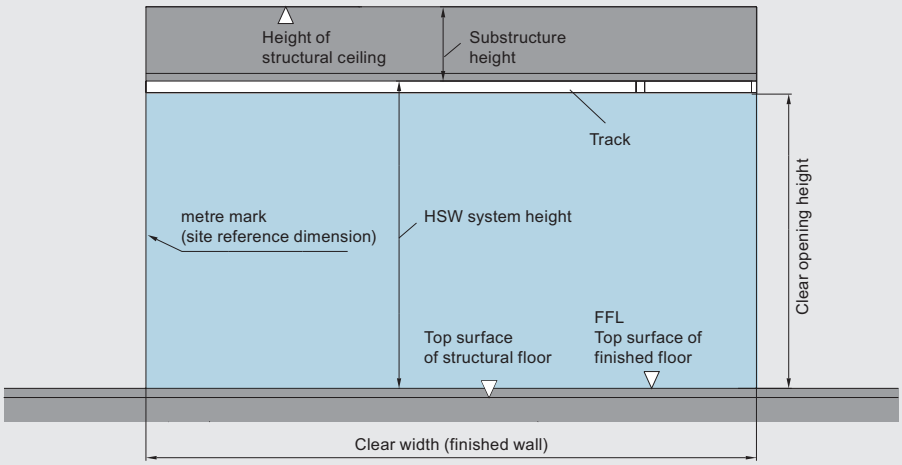
Holes and recesses are pre-machined in the profile for the bottom door rail only. Any further machining work required for connection to the top door rail has to be performed on site.

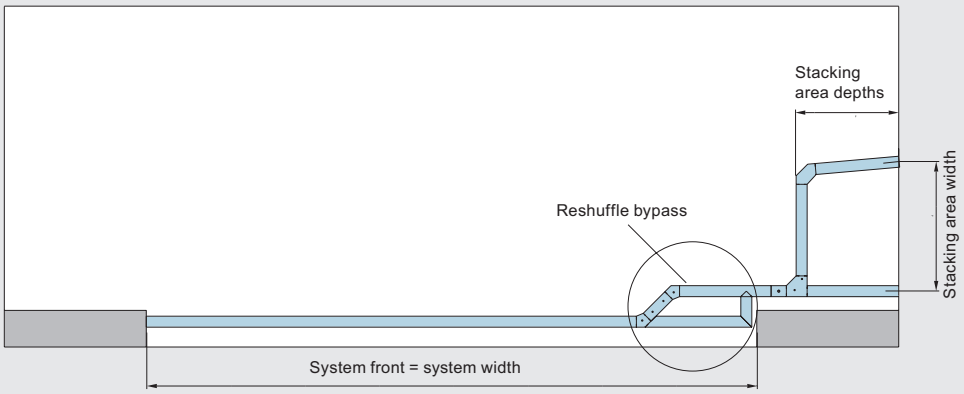
Installation instructions
When fitting the top and bottom door rails please ensure that the protrusion of the glass width on either side of a door rail is even. In case the panels incorporate a carrier profile a proper section of the double brush sealing profile is fixed to the carrier profile by a fixing cartridge. Prior to machining the sealing profile at the top for the exact length from the bottom to the top door rail, first hang the panels from the track rail and align.

General Information

Measuring up

Important site measurements





Notes on portal systems

Maintenance recommendation for high-frequency HSW systems

Horizontal sliding walls with glass panels have been developed in order to provide retail outlets with generous and enticing frontages – entrances that offer easy accessibility and an inviting appearance for customers. When the frontages are closed, they can double up as expansive shop windows.

In cases where double-action sliding panels are used for main entrances as a portal system (i.e. in shopping malls or as similar operated HSW systems) they are submitted to very high daily traffic volumes and usage frequency rates.

The door closers and pivot bearings used by dormakaba have been successfully tested in accordance with the requirements of EN 1154. EN 1154 specifies 500,000 test cycles for manually operated closing devices.

High-frequency portal systems such as the above can reach this number of cycles after just a few months. Consequently, dormakaba recommends that such units be regularly maintained. The higher the usage levels, the more frequently the equipment should be serviced by either the installation firm or a similarly specialised fitter.

In addition to any door closer that may be fitted, a suitable opening limiter (to be provided on site) will also be required as protection for single-action and double-action sliding panels. In the case particularly of public and highly frequented entrance systems, door closers are unsuitable as opening limiters as any excess pressure applied to doors will lead to high stress forces being applied at the sweep maximum.

Finishes

Deviations in colour due to production procedures cannot be totally excluded.

HSW systems with satin stainless steel surface finishes contain different component materials. In the case of FSW (folding sliding walls) systems, for example, the folding hinges are always of aluminium, while the standard surface finish for brush profiles and end covers is black anodised. These various components can also optionally be anodised or powder coated so that they resemble the ordered surface finish.

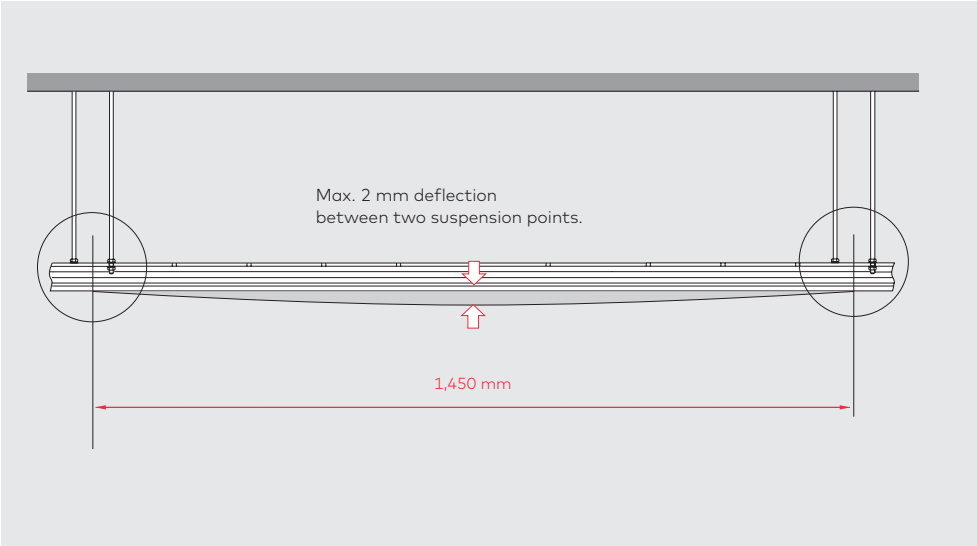
The standard surface of upper locking units and upper locking bolts is a powder-coated to match F150, SAA.

Typical manufacturing flow marks appear when anodising the milled area of the track rail modules.
We recommend powder coating for HSW stacking bays.

Finishes						
Colour code	**Colour name**		**Hinge colour**	**End cap colour**	**Brush profile colour**	**Top lock colour**
F100	MILL		Silver	black	black	Silver
F150	SAA	Silver anodised aluminium	Silver	black	black	Silver
F700	SSS	Satin Stainless Steel	Silver	black	black	Silver
F399	SF1	Standard	colour as requested	colour as requested	colour as requested	Paint matched to requested colour
F399P	SF2	Premium powder coat	colour as requested	colour as requested	colour as requested	Paint matched to requested colour
F199	SF3	Special Anodised	colour as requested	colour as requested	colour as requested	Paint matched to requested colour

Planning details

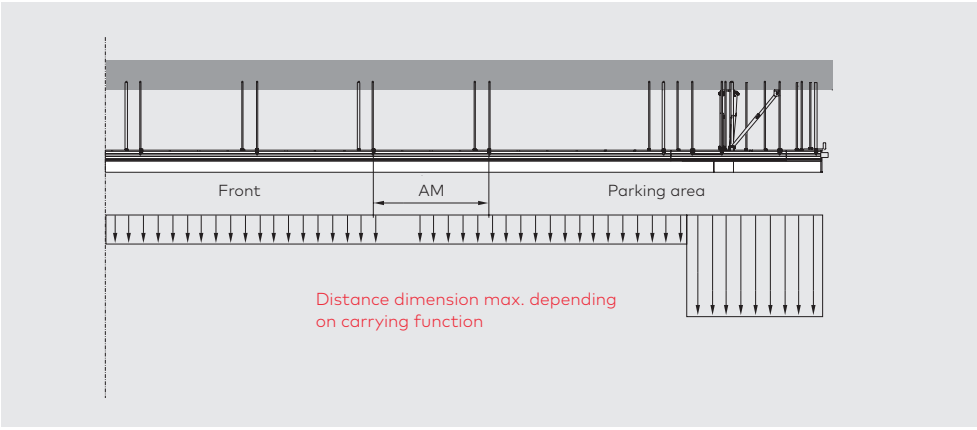
Calculating the suspension intervals



With a maximum load (panel weight) of 150 kg/m and a permitted deflection of the substructure with track rail of 2 mm, the interval between two suspension points must be no greater than 1,450 mm. The table below shows other values for different loads.

In order to prevent system sway, every second suspension point must be reinforced by a strut. The sub-structure profile ends (travel path and stacking area) should ideally be directly connected to the masonry or to existing structural members.

Illustrative example of load values



F	AM
60 kg/m	2,000 mm
75 kg/m	1,900 mm
105 kg/m	1,700 mm
135 kg/m	1,600 mm
150 kg/m	1,400 mm

F = Force
AM = Distance dimension

Force example:
The distance dimension of 108.98 kg/m = 1,700 mm

HSW EASY Safe characteristic values
Formula for calculating the:
Glazing height
= system height – 309 mm
= panel height – 193 mm
Glazing weight
Glass 10 mm = 25.00 kg/m²
Glass 12 mm = 30.00 kg/m²
Door rail weight
Aluminium = 12.00 kg/m
Brass = 14.50 kg/m
Stainl. steel = 13.25 kg/m

Example system
HSW EASY Safe system in stainless steel
System height 3.5 m
Glazing thickness 12 mm

Calculation
Load
= glazing weight x glazing height + door track weight
= 30 kg/m² × (3.5 m – 0.309 m) + 13,25 kg/m
= 30 kg/m² × 3.191 m + 13.25 kg/m
= 108.98 kg/m

Safety-related information

Important safety-related information for the mounting and use of dormakaba glass fittings.
(Follow these instructions in addition to the mounting and operating instructions in order to avoid damage of product and damage to person or property.)
Important: All users have to be informed about relevant points mentioned in these safety-related information and the mounting and operating instructions!

General information

1. dormakaba recommends the use of TSG-H (heat-stored tempered safety glass) according to DIN EN 12150-1.
2. dormakaba glass fittings are not suitable for outdoor installation.
3. dormakaba glass fittings are not suitable for rooms where chemicals (e.g. chlorine) are used, e.g. swimming pools, saunas and brine baths.

4. Sliding panels must not be moved faster than at walking speed and must be stopped by hand before reaching the end position will be.
5. Pivoting panels must not be thrown too hard. If there is a risk of over-turning, this must be prevented by a door stop.

Mounting

1. Only properly qualified and specially trained staff is authorised to mount dormakaba glass fittings.
2. Never use glass with conchoidal fractures and/or damaged edges.
3. Protective clothing (especially gloves and protective goggles) is required during installation.
4. Clean clamping area with fat solvent (standard commercial cleaning agent) before mounting the glass fitting.
5. Never use clamping shoes on structured glass surfaces (except on satined glass) or glass of heavily varying thickness unless with a corresponding levelling layer.
6. Never use clamping shoes on self-cleaning coatings.
7. When adjusting glass elements, always stick to the required clearance for the respective fitting. Adjust clearance so that the glass does not touch hard components such as glass, metal or concrete.
8. Make sure not to use excessive force when installing the glass (avoid local stress resulting from very tight screws).

Maintenance

Check fittings at regular intervals for proper positioning and smooth running and door for correct adjustment. Especially highly-frequented door systems require inspection by properly qualified staff (specialised companies or installation firms). Immediately replace damaged glass elements (no glass flaking and/or conchoidal fractures)!

General care instructions

The surface finishes of the fittings are not maintenance-free and should be cleaned according to their material and design.

- For metallic surfaces (anodised finishes, stainless steel) please use appropriate cleaning agents without abrasive additives only.
- For varnished surfaces please use appropriate solvent-free cleaning agents only.
- Brass surfaces (without surface protection) have to be treated with an appropriate maintenance agent on occasion, to avoid tarnishing.

Note:
The printed colours indicating the surface finishes are not 100 % true, but do provide a useful guide.
Statements made with regard to the nature or use of the products are for the purposes of descriptions.
Assent with regard to the existence of particular properties or particular uses always requires special written agreement.
Pictures may show special designs which are different to the standard scope of delivery.

Subject to change without notice.

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Door Hardware

Entrance Systems

Electronic Access & Data

Interior Glass Systems

Lodging Systems

Mechanical Key Systems

Safe Locks

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