

HSW/FSW

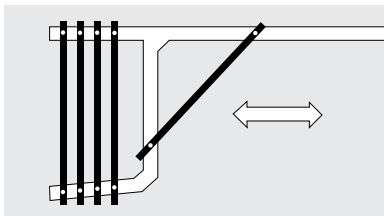
Planning manual for
horizontal sliding walls



DORMA HSW – Transparent versatility

Horizontal sliding walls are used in a wide range of different project types, and for both internal and external applications. 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. Additional utilisation of the DORMA substructure ensures flexible planning in the case of all system variants as well as providing for the simple installation, maximum reliability and outstanding safety of the entire system.

HSW Horizontal Sliding Walls

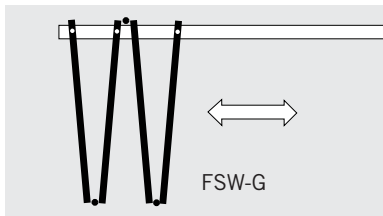


HSW-G
Fully glazed
with door rails

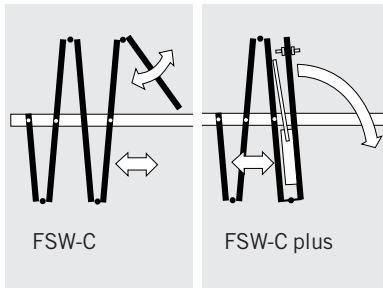
HSW-MR
Panel types and functions

HSW-GP
Single-point fixings
with standard track rail

FSW Folding Sliding Walls



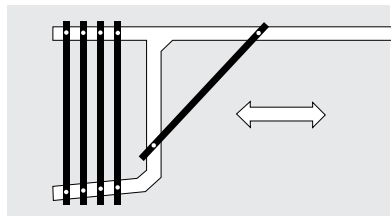
FSW-G
Fully glazed with door rails



FSW-C
Roller carrier position at door rail centre

FSW-C plus
Roller carrier position at door rail centre
plus full-width sliding folding panel


HSW Horizontal Sliding Walls, fully framed




HSW-R
Fully framed for toughened safety glass,
laminated safety glass or double glazing

HSW-ISO
Fully framed with thermal-break frame
profiles

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Sign  discontinued product / -program, available until month/year

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Technical subjects to change without notice.

Stacking systems

Perfect parking every time

Existing structures or unusual layouts often require special solutions, particularly in the design of the stacking area. DORMA 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.

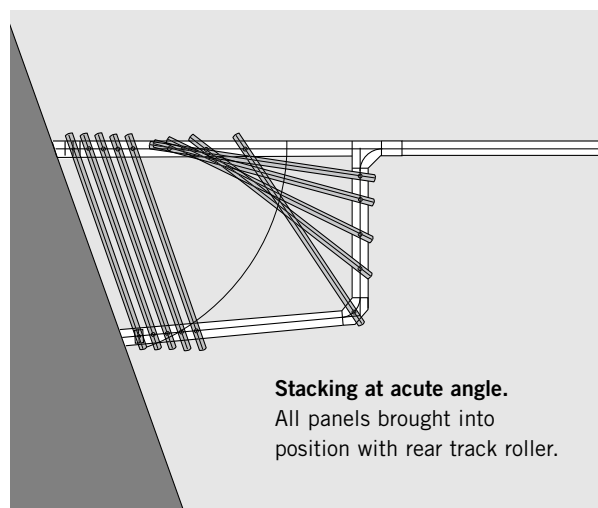
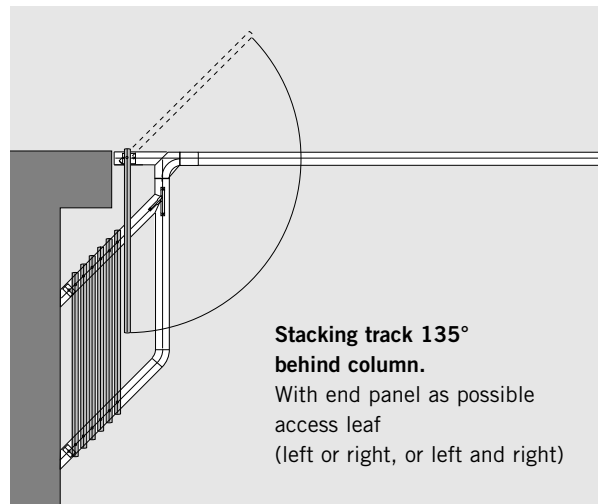
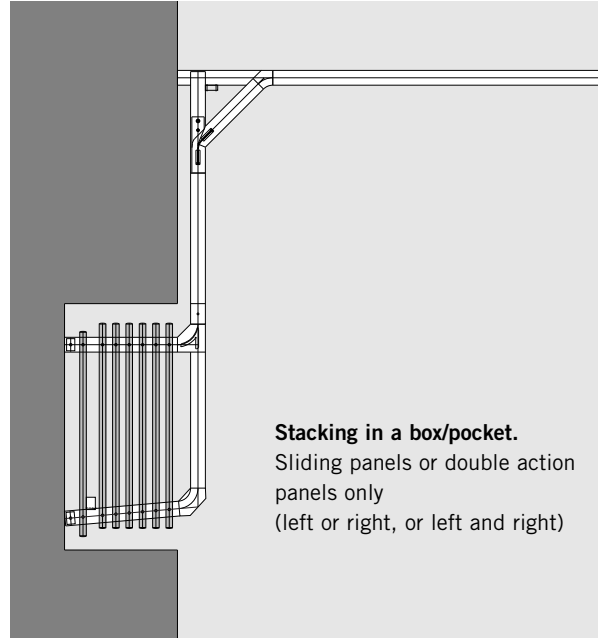
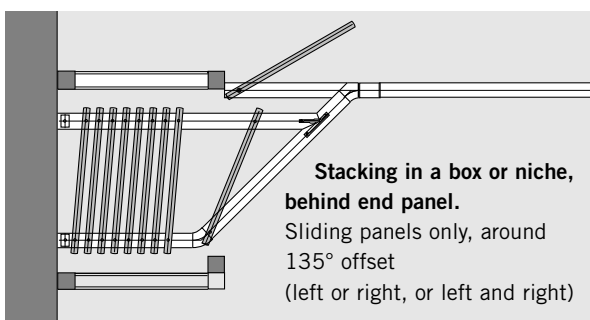
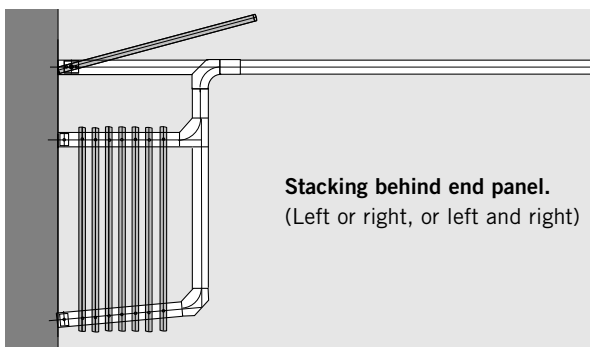
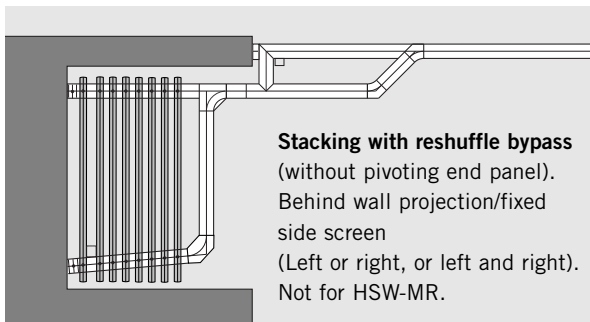
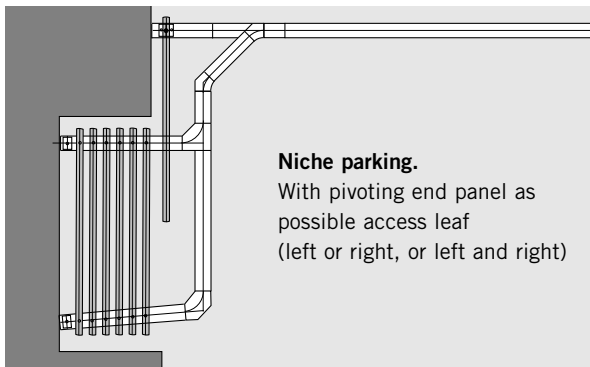
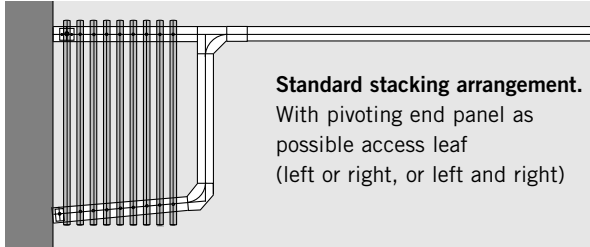
Another possibility is that of parking the system in line but out of the way, whether behind a wall or in a niche (see also pages 5 - 13).

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.

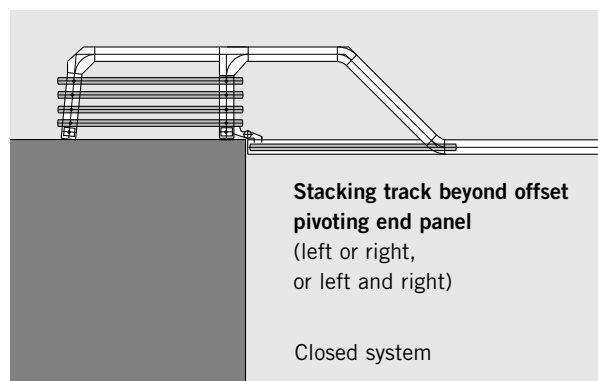
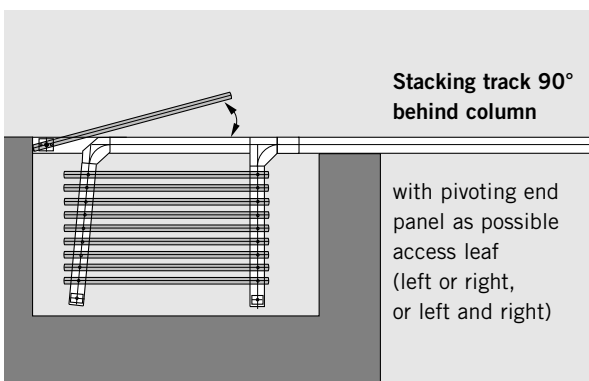
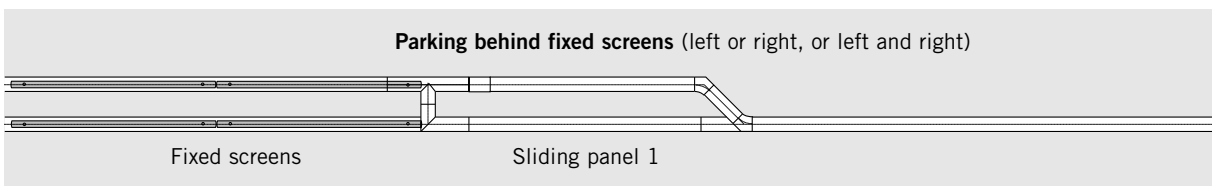
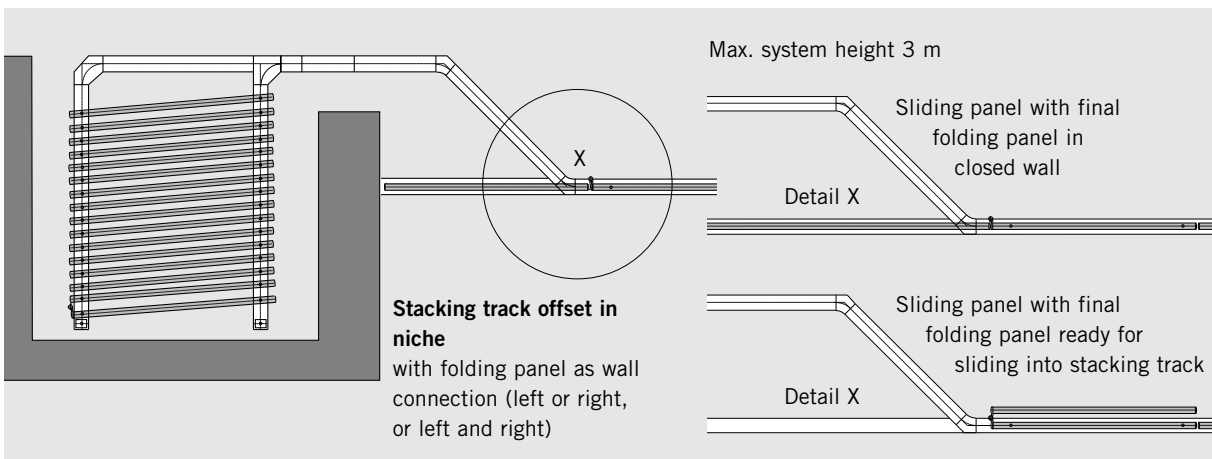
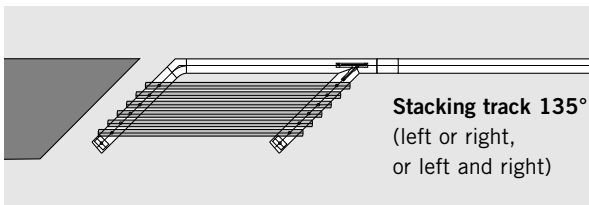
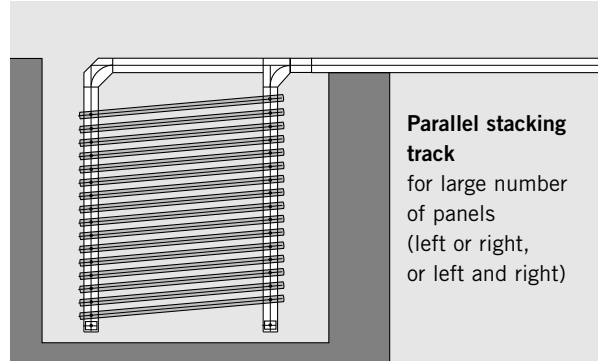
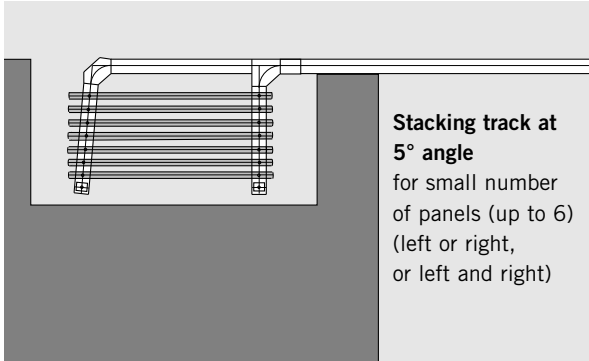
The following pages show some system solutions devised in answer to a wide range of different problems.



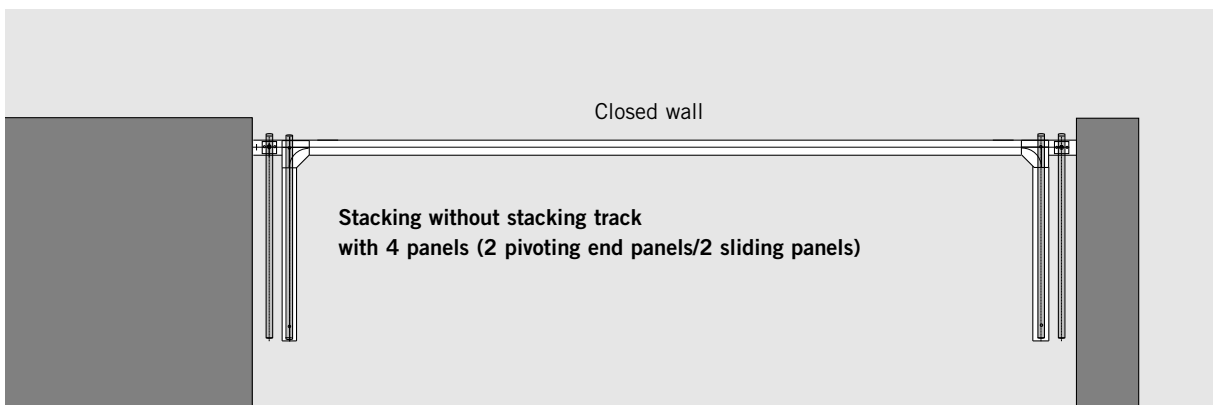
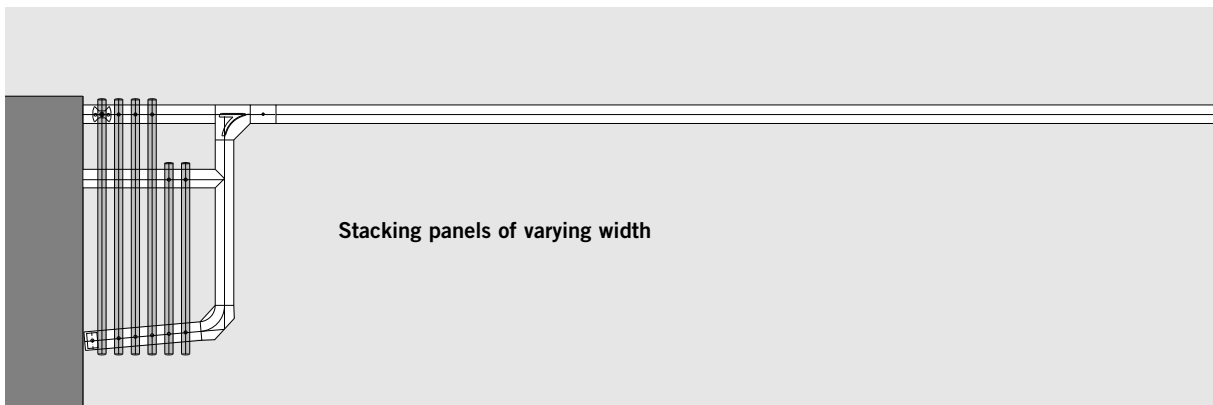
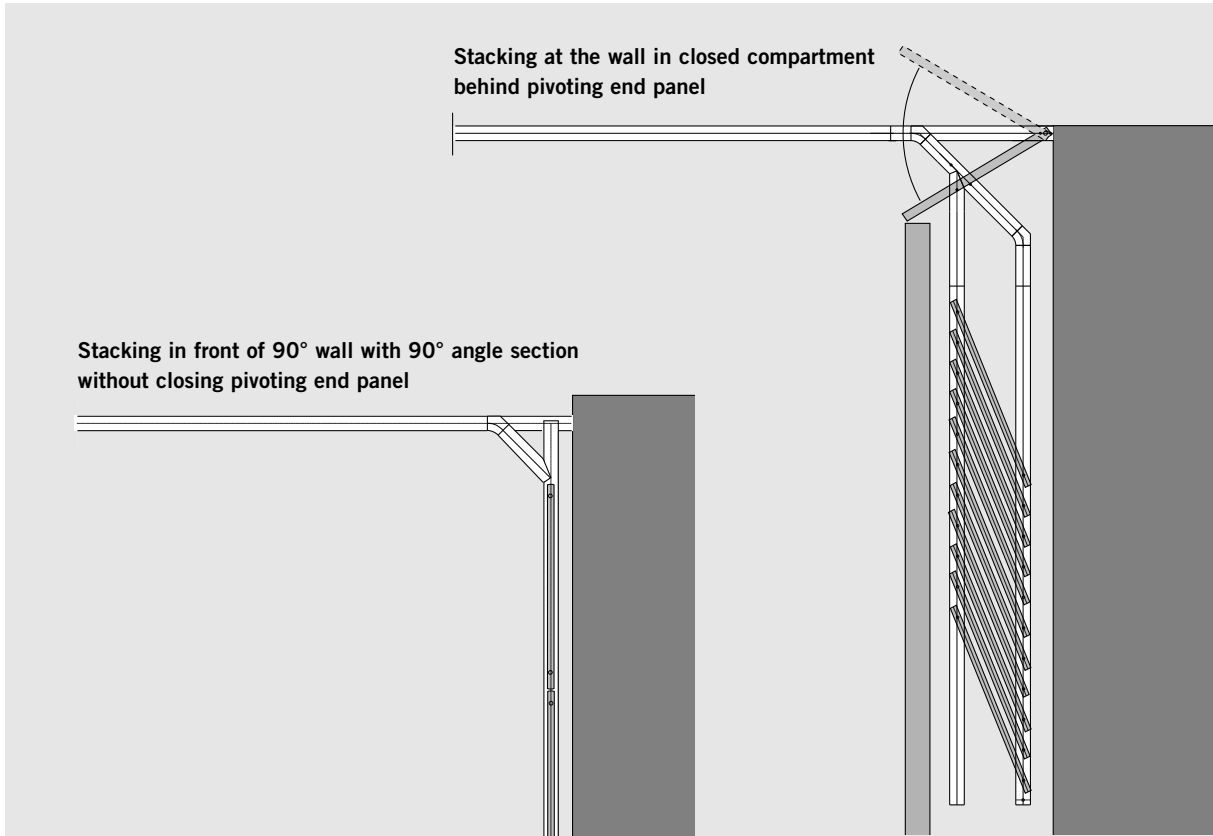
Panels stacked 90° transverse to travel direction



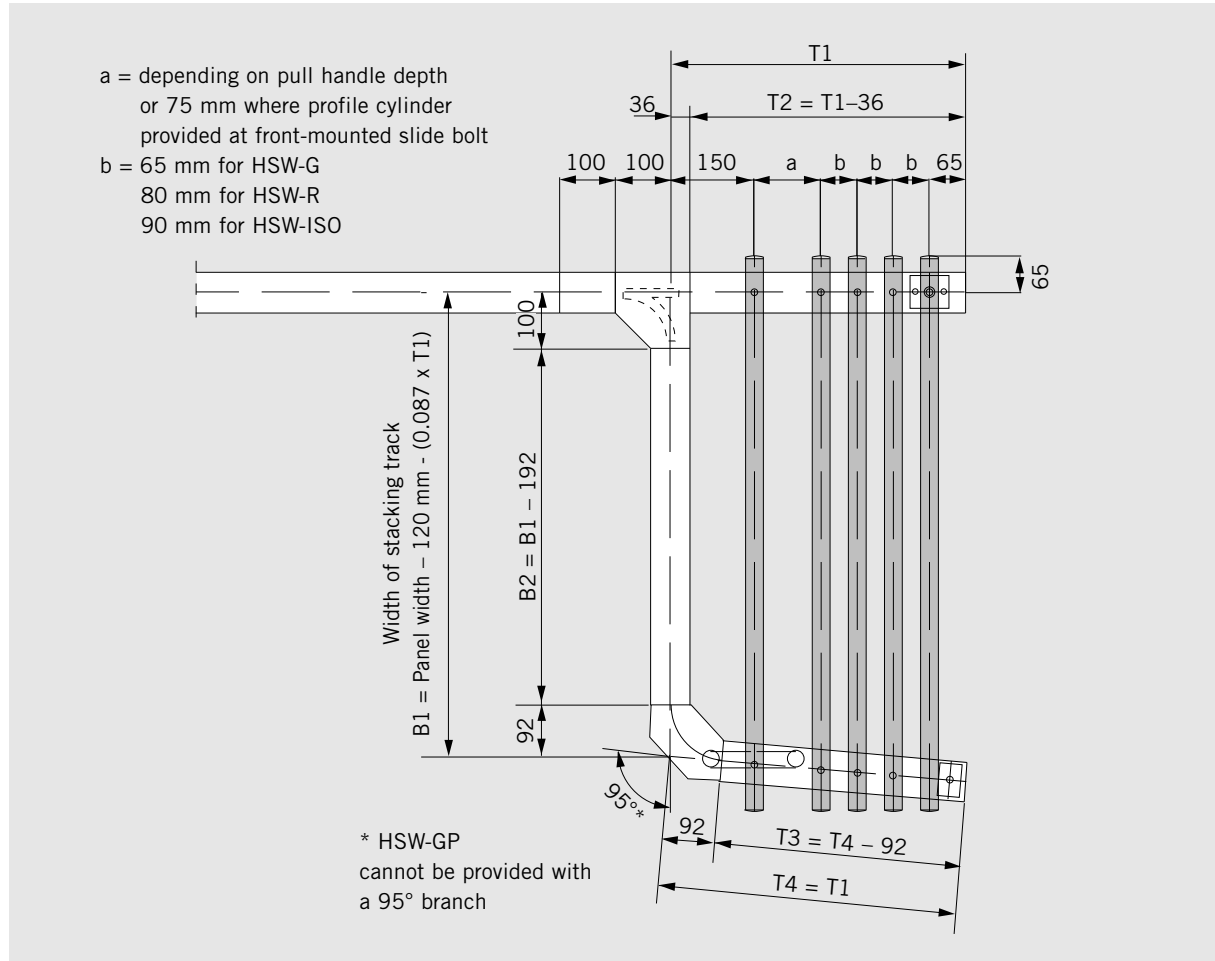
Panels parallel to travel direction



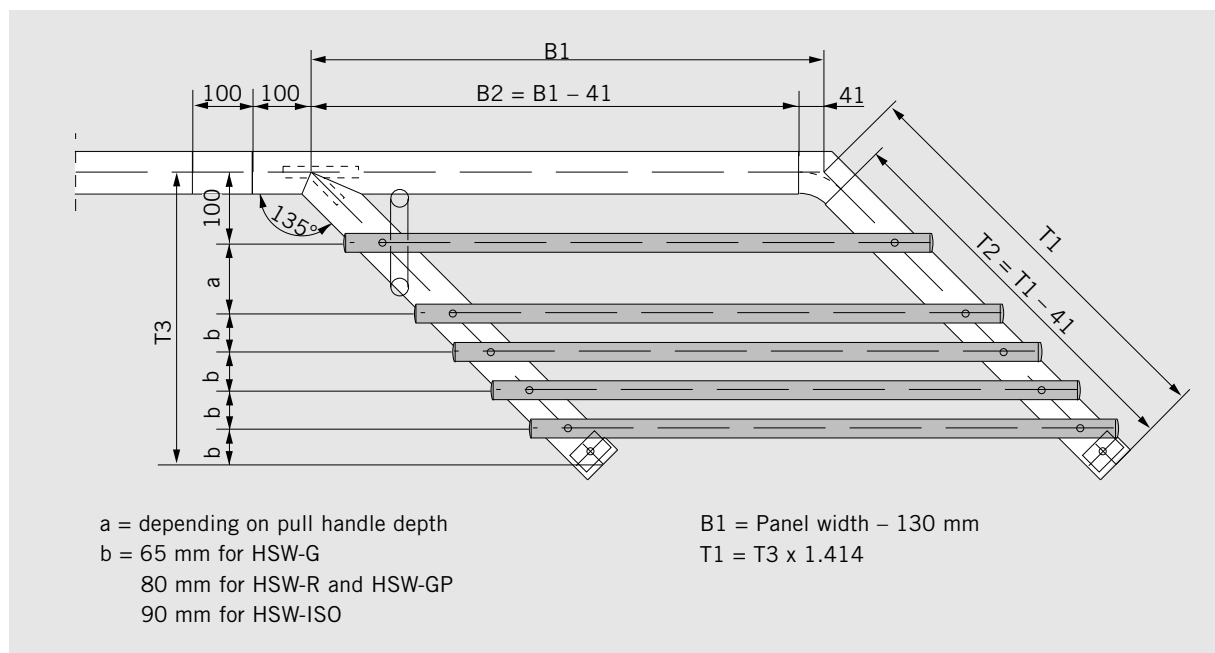
Special stacking arrangements



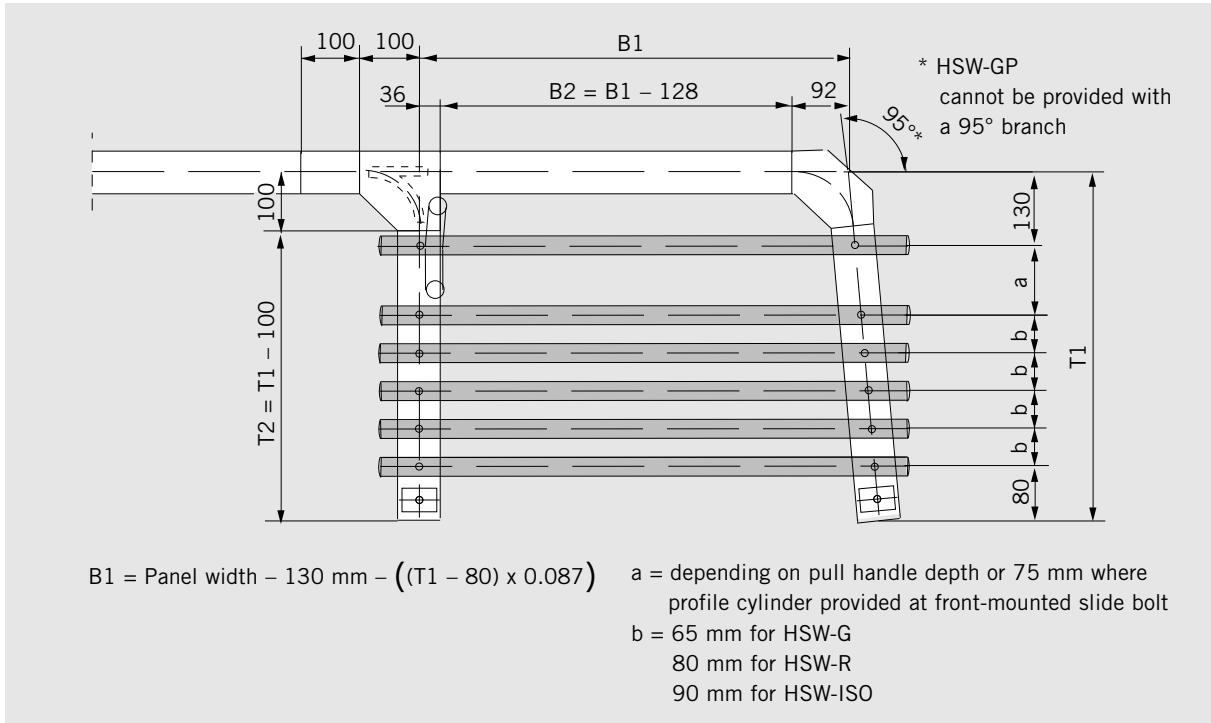
Straight track rail with stacking position transverse to travel direction



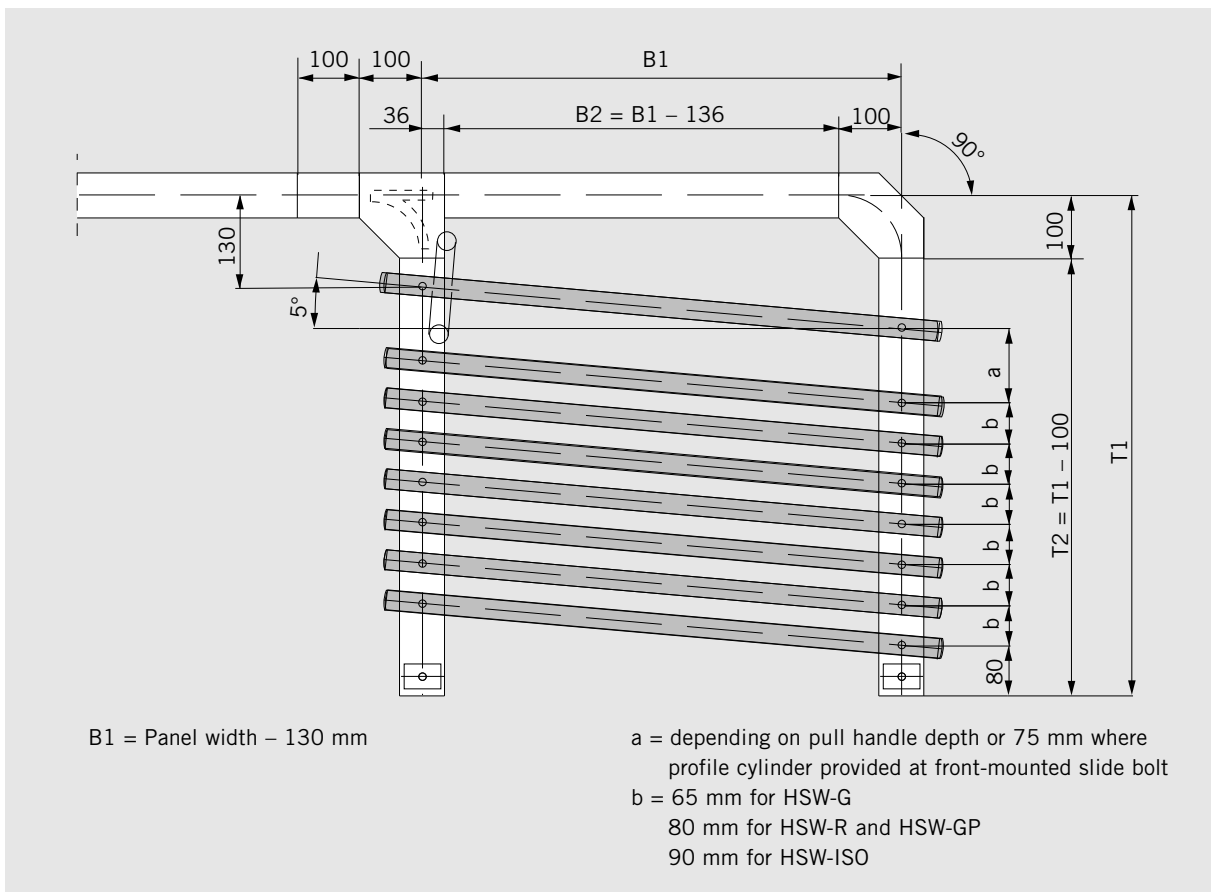
Straight track rail with stacking track parallel to direction of travel (135°)



Straight track rail with stacking position parallel to travel direction (90°) with up to 6 panels



Straight track rail with stacking position parallel to travel direction (90°) with more than 6 panels





Extended application possibilities

Practical system design

DORMA-Glas offers a further stacking variant for fully glazed sliding walls, namely the niche parking system. This has all the advantages inherent in the HSW-G design - such as individual configuration of the sliding frontage without a floor track, or incorporation of a special sliding or stationary panel as a single or double action leaf.

This version is ideal where the stacked panels of the HSW-G may constitute an obstruction or would not be in keeping with the overall appearance of the store. The glass panels are thus parked in line within a niche comprising a double wall or a wall and other parts of the store fixtures and fittings. In this way, they do not disrupt the overall appearance of the interior.

With large systems, the panels can be stowed in parallel on two tracks instead of in a single-track line.

Planning

In the case of systems of angular configuration, the collision curve in the area of the angle has to be taken into account during the planning phase, and this will have varying radii depending on the panel width. The internal dimension of the parking pocket (i.e. the niche) varies depending on the system layout and panel type (see page 12). Together, the total number of panels per track should not exceed an overall weight of 1,000 kg.

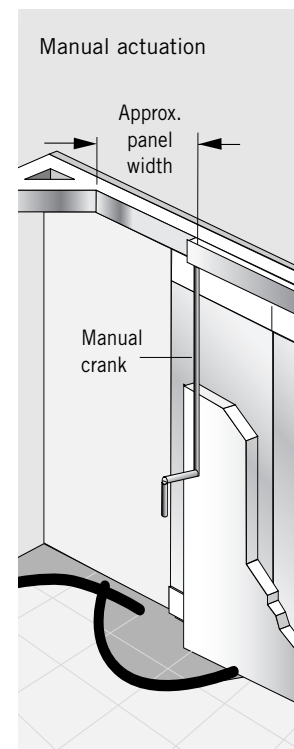
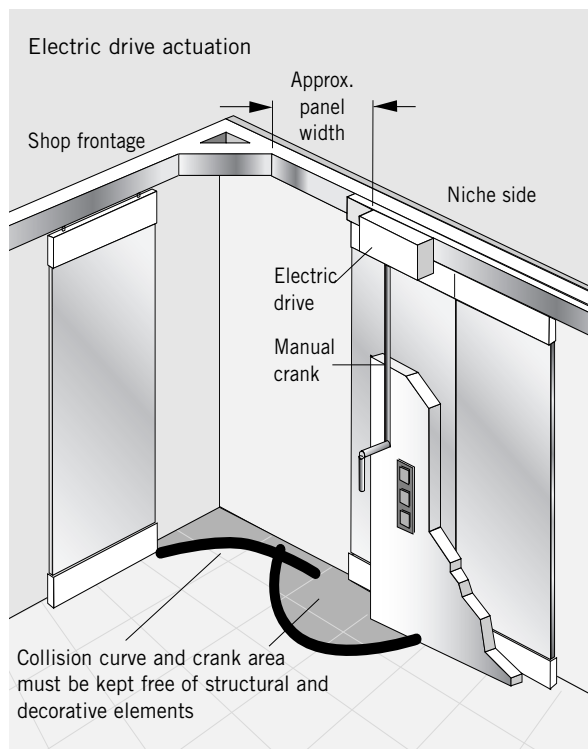
User-friendly

As direct access to the panels parked in the niche is not usually possible, a hand crank is used in order to move the panels back to the entry point. From here they can be pulled out manually, taken to the appropriate position and then secured with their face-mounted floor bolts.

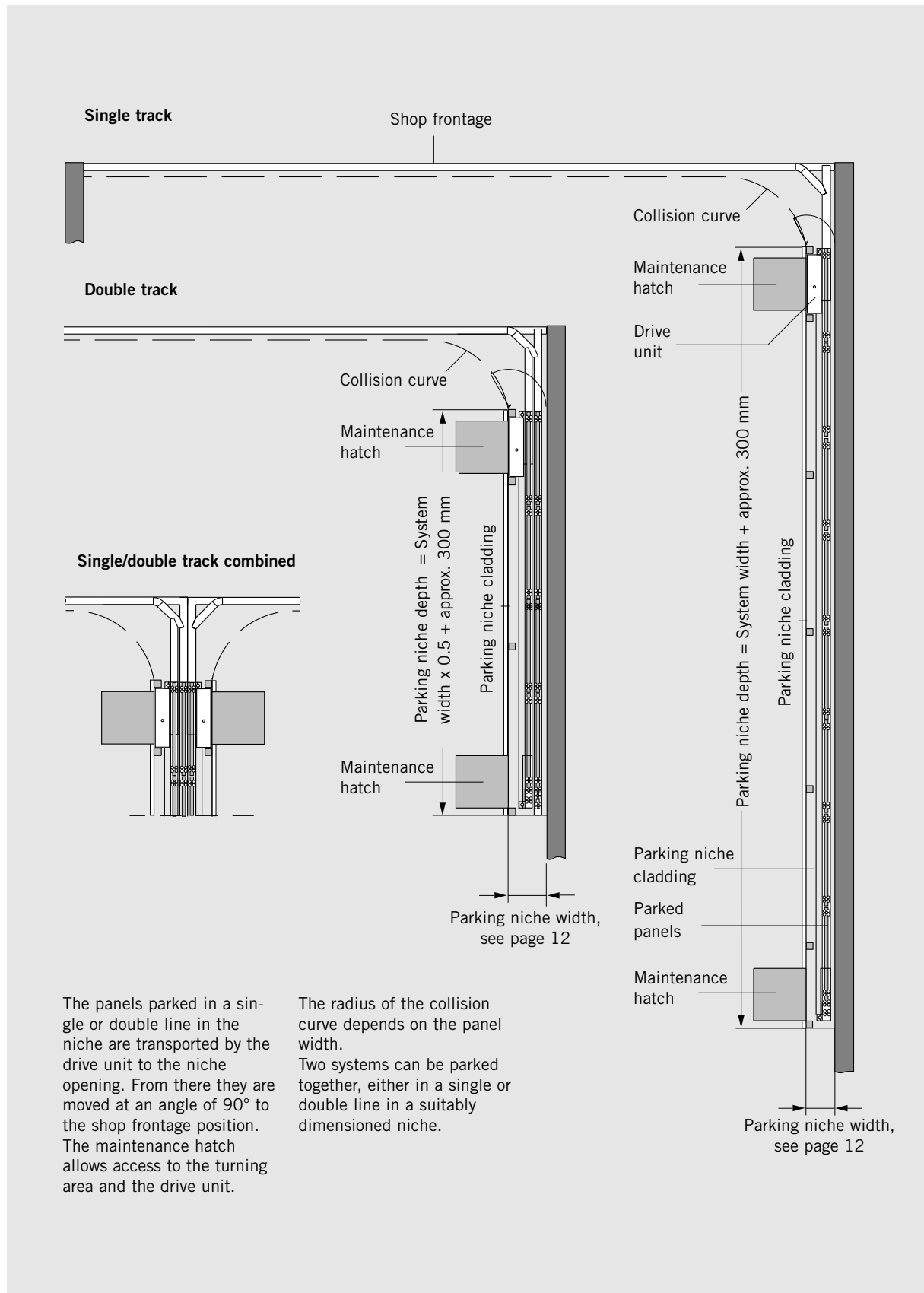
Convenient and safe

For added convenience where the system height exceeds 3,000 mm, an automatic panel removal system is recommended.

The individual panels are brought out to the niche entrance by means of a pushbutton-operated motor, enabling them then to be pulled out and positioned manually. The motor stops as soon as the pushbutton is released.

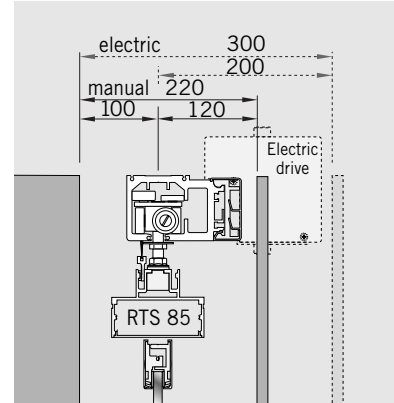
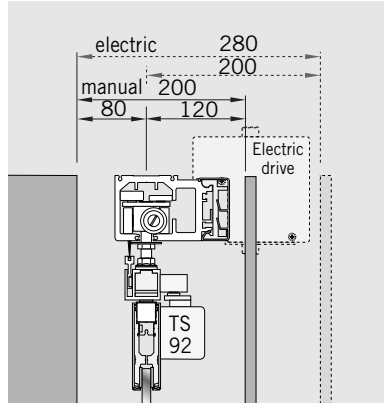
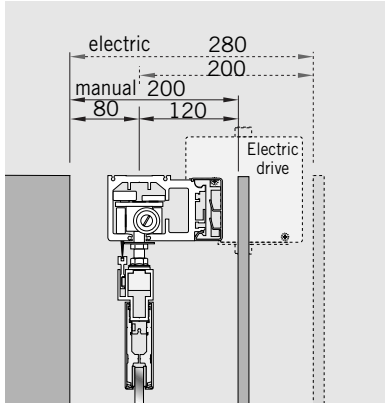


Example configurations



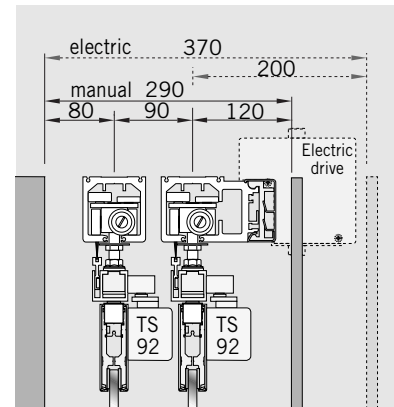
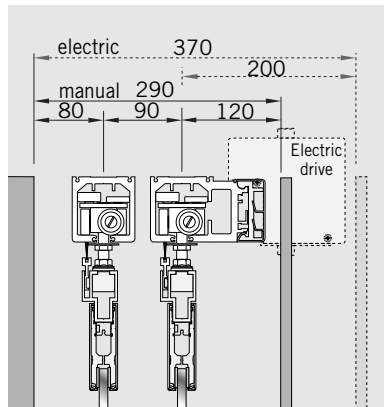


Guide values for parking niche widths (electric or manual actuation)



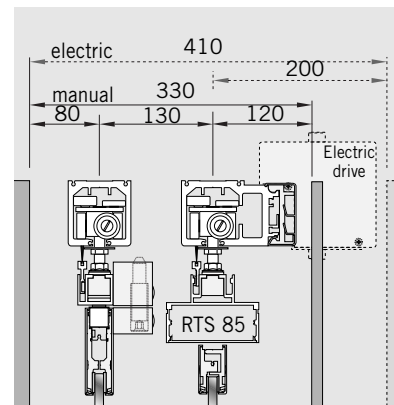
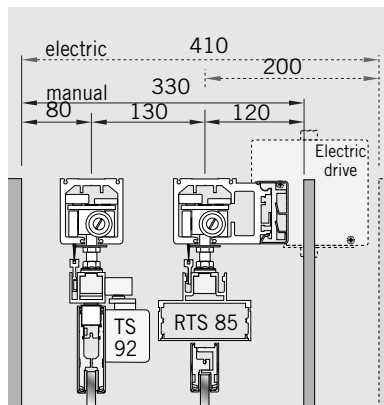
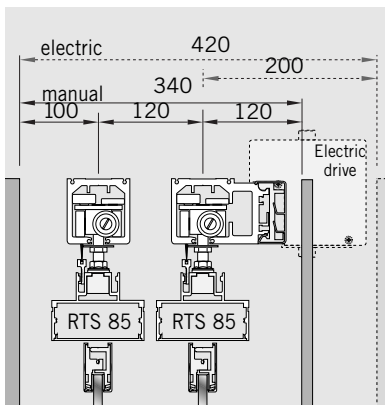
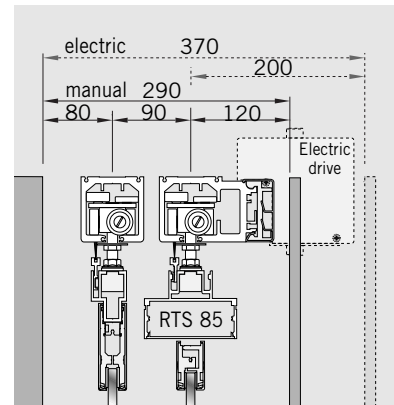
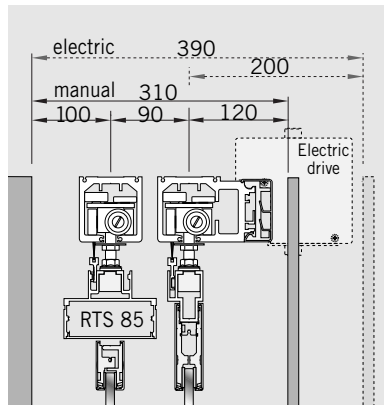
The parking niche width depends on various factors:

- Single or double-line parking
- Type of functional components (door closers, locks)
- Sequence or combination of panels located face to face

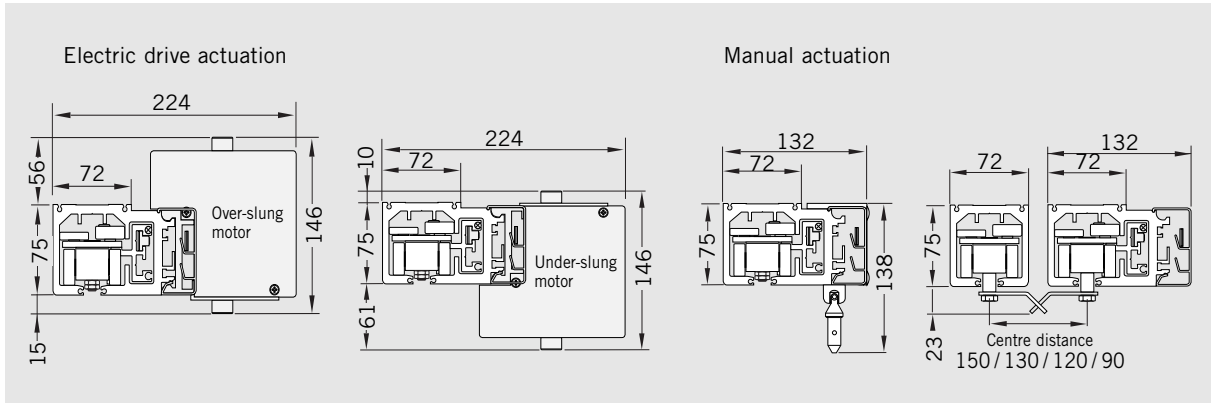


TS 92
= Door closer

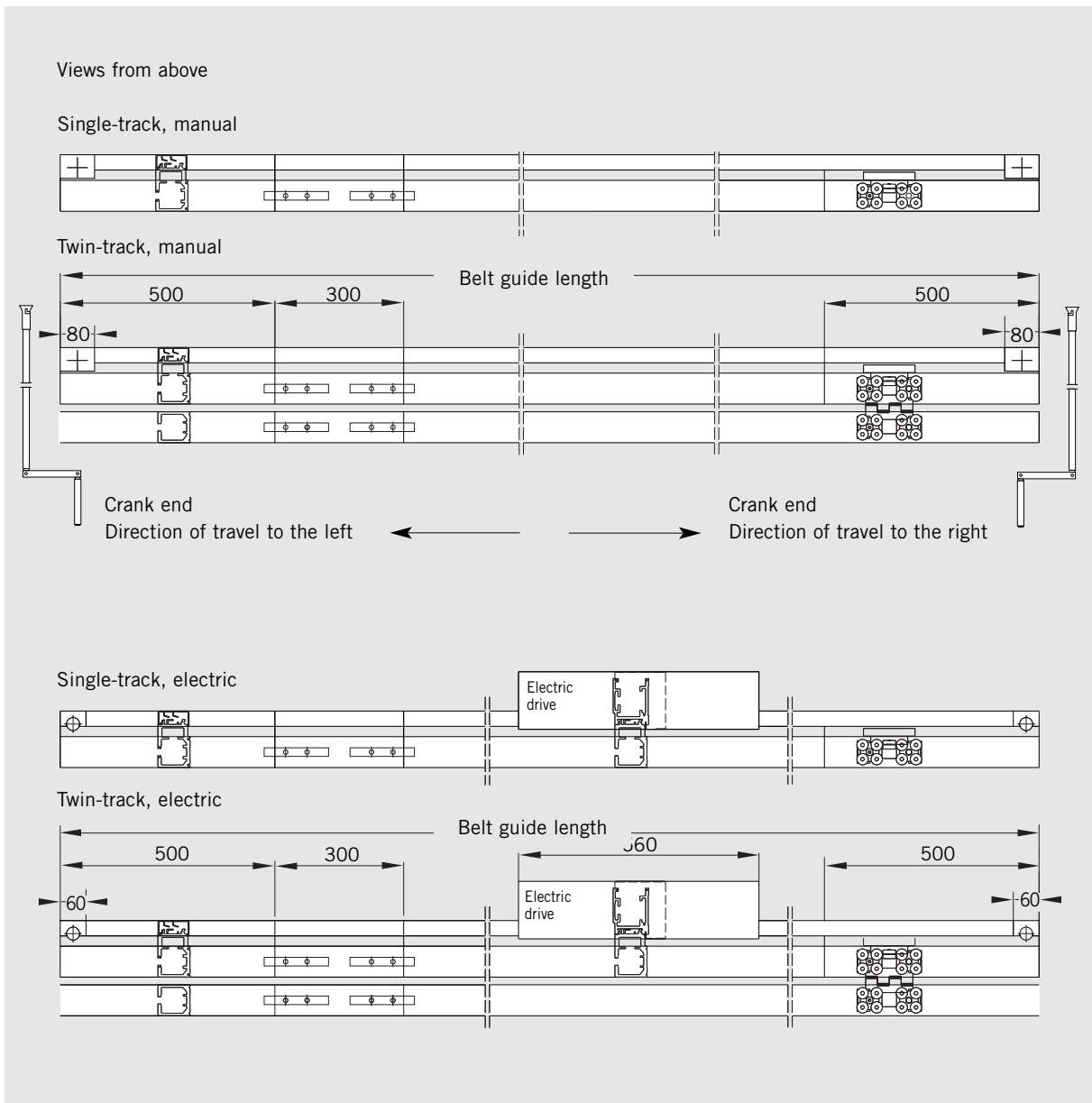
RTS 85
= Transom door closer



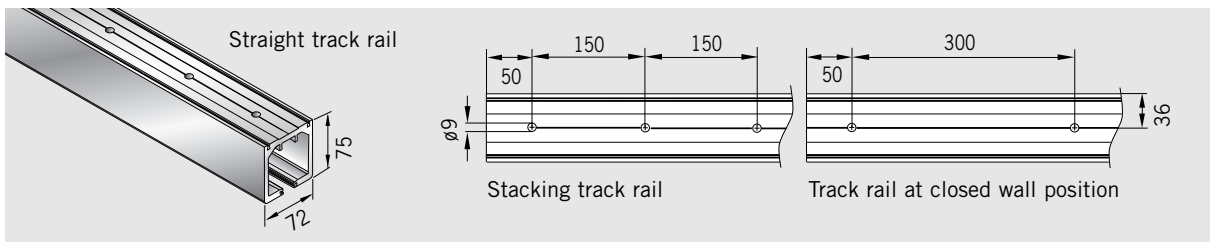
Actuation options



Rail arrangement



Track rails and modules

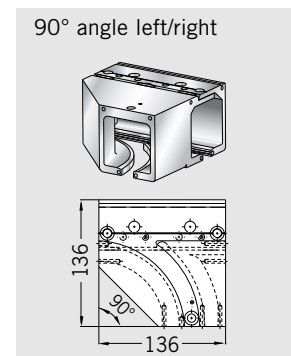
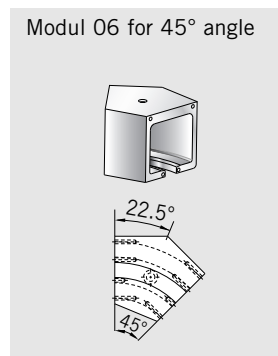
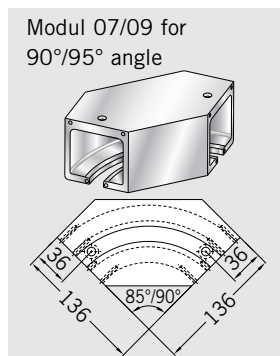
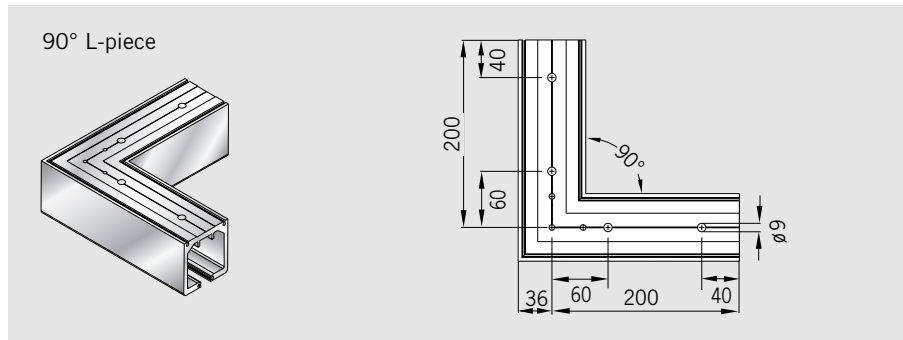
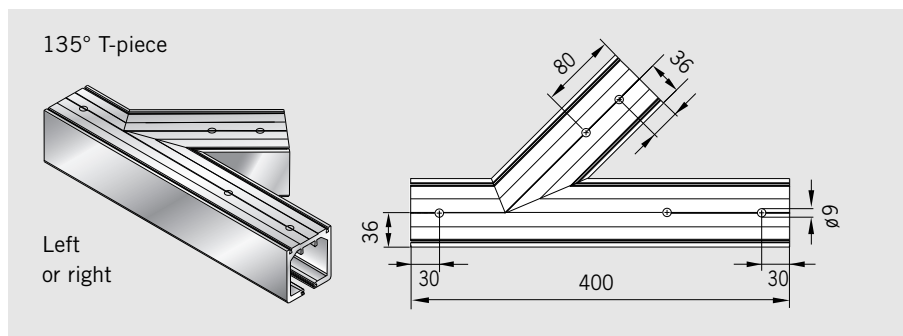
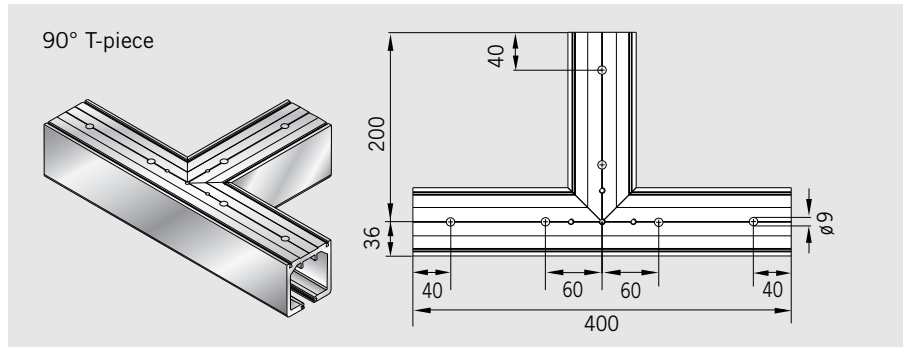


Flexible and stable

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 DORMA HSW systems, a variety of designs can be implemented with ease. Straight, segmented and curved 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. And when combined with the HSW substructure, installation becomes even easier. Flexibility and stability mean that even unusual system configurations can be implemented without problem to give maximum functional reliability.

Straight track rail

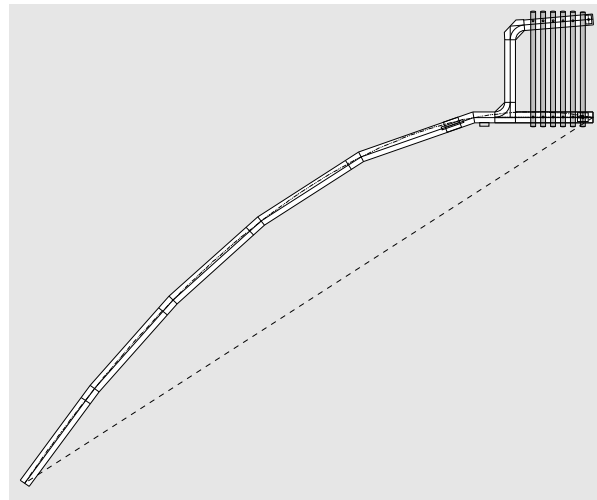
For a straight-line system configuration, a drill hole interval of 300 mm in the track rail is sufficient, while the stacking area requires an interval of 150 mm. Where the track assumes an angle of 161-179°, the track rail is mitred, while at angles between 90 and 160°, a segment is incorporated. The standard modules available are indicated in the adjacent illustrations.



Segmented track rail

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

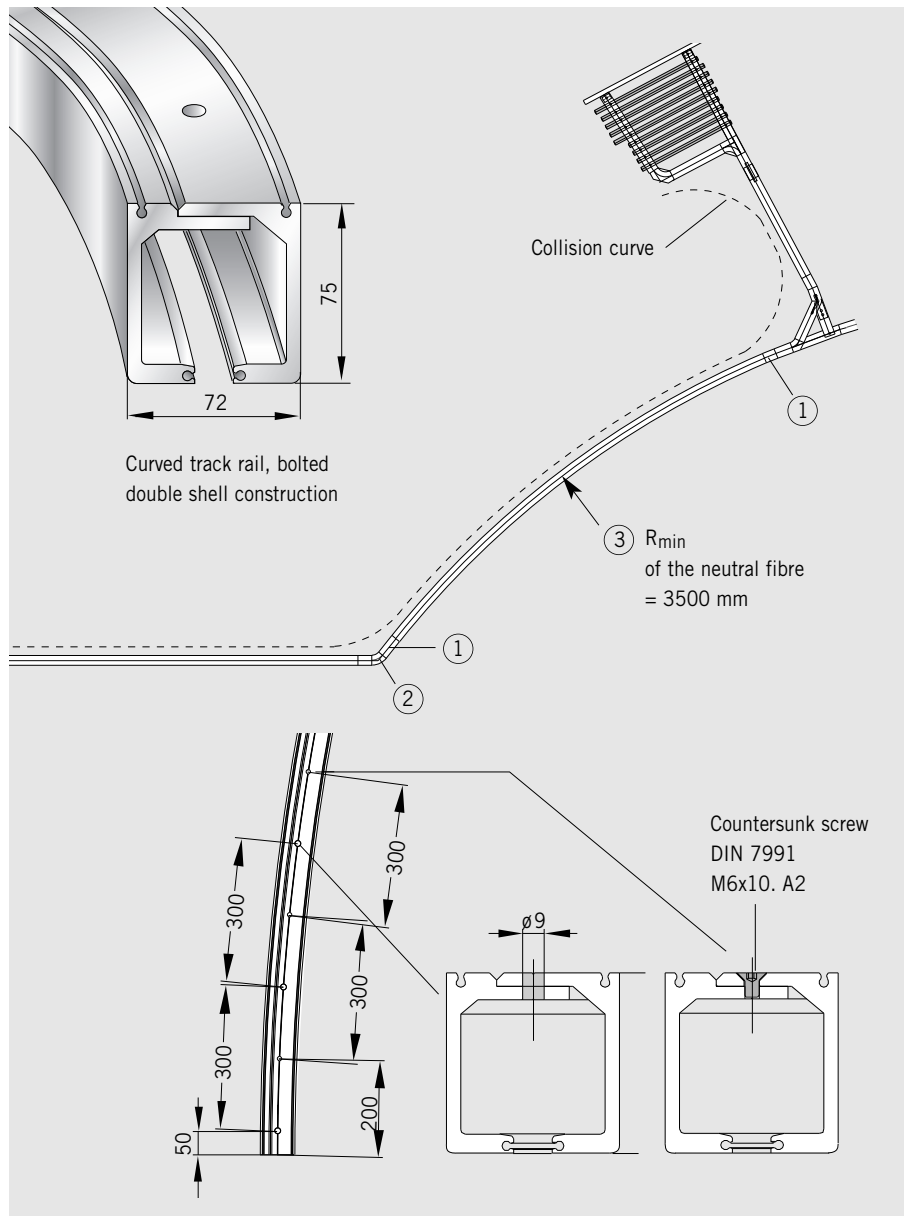
- the panel width and segment chord length must be properly coordinated;
- segment panels are provided at the bottom with locks or face-mounted floor bolts and the end face profile covers are equipped with additional buffers for collision protection;
- it is important to ensure that the opening sweep of single action and double action panels does not give rise to collisions.



Curved track rail

A curved track rail is also available where a curved DORMA HSW system configuration is required. The most important technical prerequisites for this are as follows:

- only non-pivoting sliding panels may be installed in the curved track rail section;
- the track rail must be straight in the parking or stacking area;
- no top locking element can be installed;
- each panel is provided with two face-mounted floor bolts;
- a 100 mm straight track section ① is necessary as the transition from the curved track rail to the straight stacking track rail;
- blends from the curved configuration to a straight line can be implemented using standard modules ②;
- the smallest curve radius is 3,500 mm (smaller radii on application) ③;
- the feasibility of elliptic system configurations must be considered on a case-by-case basis – for this, drawings will be necessary;
- the start and end points of the curve are always provided with a 90° saw cut (radial saw cut).



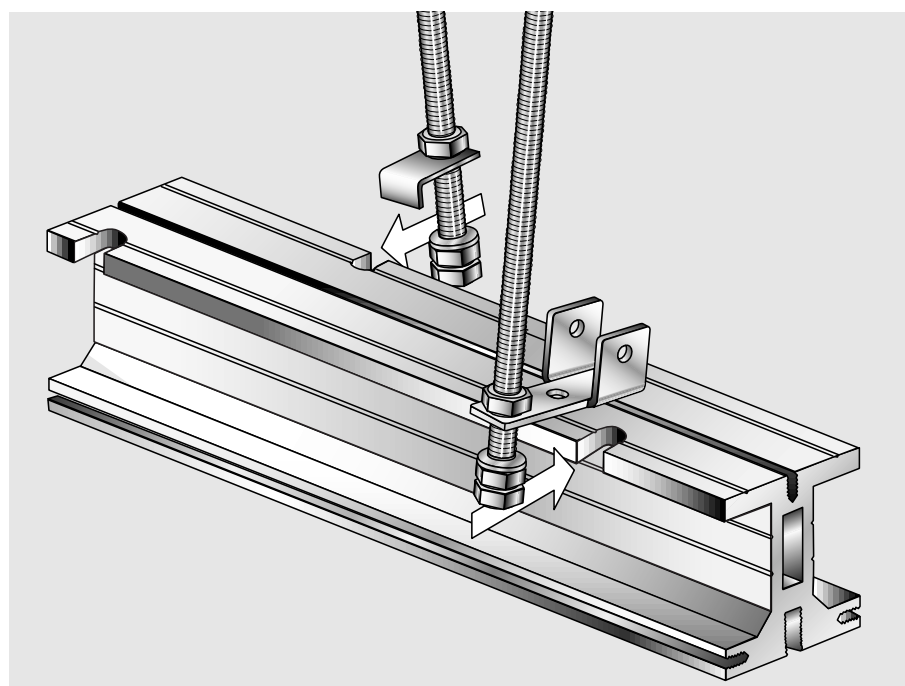
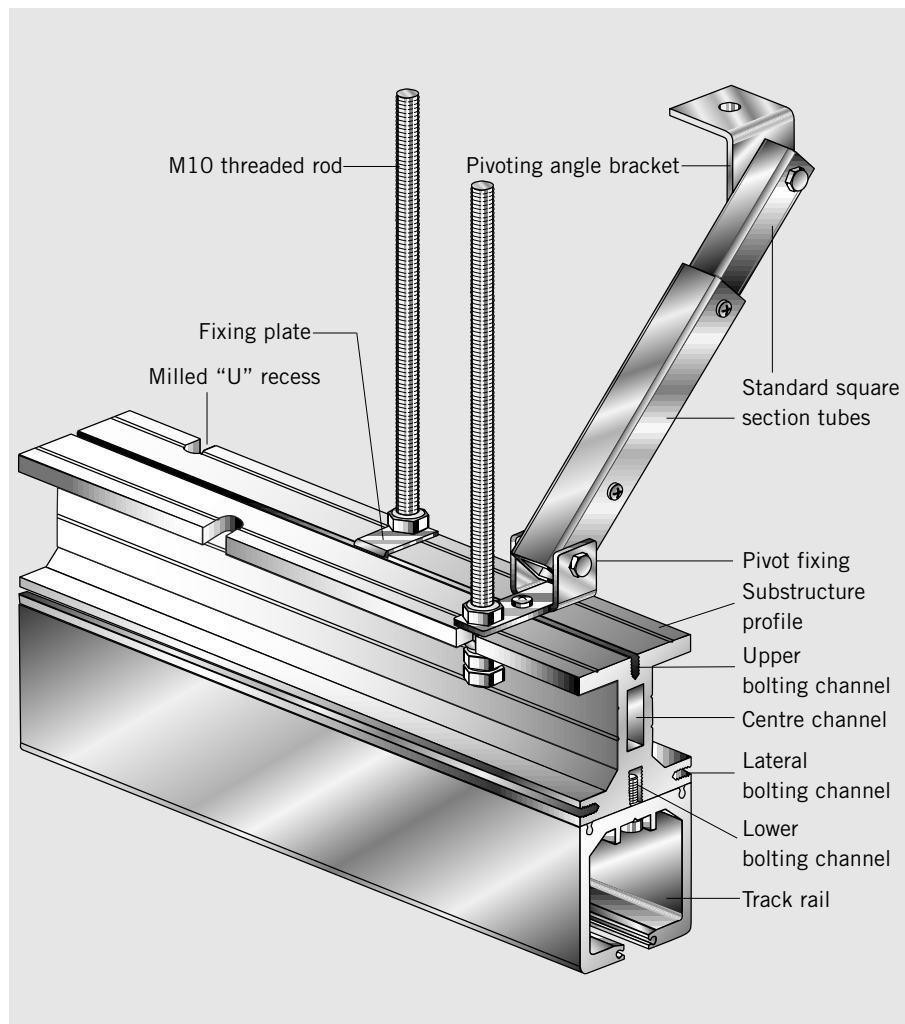
The System

Problems and solutions

Installing a horizontal sliding wall system invariably requires a certain set of structural conditions to be established. The system will need to be precisely aligned vertically - usually subsequent to installation - as well as being exactly configured and securely located. Because DORMA HSW systems do not use floor-level supports and floor tracks, the system requirements and all their technical properties must be taken into account when designing the substructure and its incorporation within the ceiling. This often very costly planning process is normally undertaken by the fabricator as the installation company, and alongside the calculations there are many individual structural and installation procedures involved. The new DORMA substructure system is of modular construction and is designed to significantly reduce on-site installation cost and time. This concept also offers the particular flexibility required to overcome structural constraints, such as the presence of air conditioning shafts or pre-existing electrical systems in the ceiling.

System design

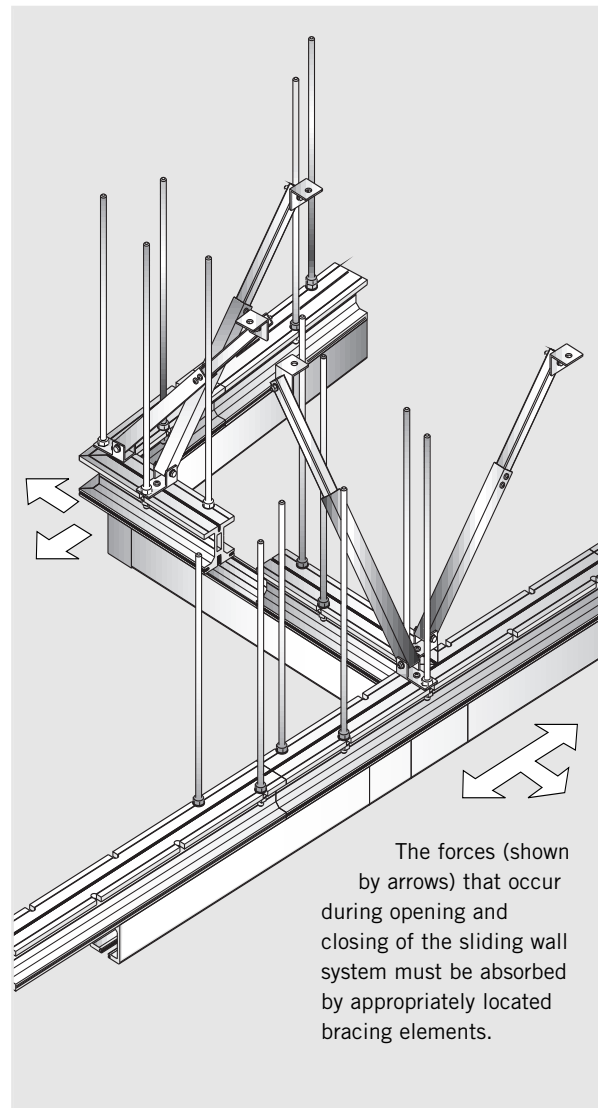
The DORMA substructure consists primarily of the following components: substructure profile with modules for branching to the stacking area, threaded rods for suspension of the profile(s), and standard square section tubes with appropriate fixings and ceiling brackets for bracing and stiffening the construction.



Safety and flexibility

The DORMA substructure has been developed on the basis of extensive practical experience of the requirements involved in this kind of system. Consequently, the profile incorporates features that greatly facilitate installation and ensure that pre-existing structural factors can be accommodated with maximum flexibility. Various bolting channels run the whole length of the profile, allowing bolts to be inserted easily at any location within the system configuration. So there is no need for pre-drilling and thread cutting in order to mount the track rails onto the substructure. Bolted connections can be made directly through the lower bolting channel. The problem of removing drillings and filings from the track rails is thus also a thing of the past. Bolting channels on both sides of the profile can be used e.g. for fixing the brackets needed for attaching the ceiling retention elements. In addition, centering grooves on all main profile surfaces facilitate overhead drilling, e.g. for accessory attachment. Welding brackets designed for bolting onto the profile provide another option, allowing the DORMA system to be utilised for additional customer-specific applications.

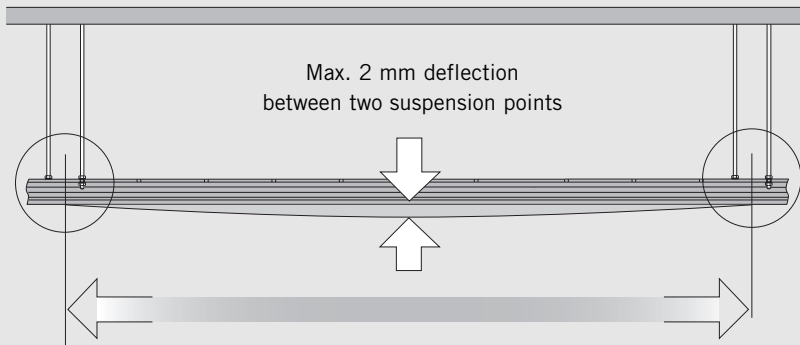
The substructure profile is suspended from threaded rods. These are first placed in the U-recesses using fixing plates that lock into the upper bolting channel. Each pair of threaded rods is regarded as constituting one suspension point. Here again the system remains exceptionally flexible: the staggered U-recesses positioned at intervals of 100 mm enhance the ability of the system to accommodate structural constraints. Depending on the weight of the system and the permitted deflection, it is possible to span a distance of up to 2.10 m between two suspension points. The centre channel can be fitted with two flat aluminium bars to provide additional rigidity in the area of butt joints between profiles. In this case it is possible to dispense with the dual suspension arrangement – with one suspension point either side of the joint – which is otherwise necessary. So existing building installations of all types can be effectively bypassed. Once the substructure has been installed, the HSW system is vertically aligned and fixed directly via the threaded rods. Subsequent adjustments, e.g. after the building has settled into its foundations, can also be carried out by the same means.



The standard square section tubes offer extra safety, especially where the sliding panels deviate from a straight line. Panel sway must be effectively countered by the structural design adopted at such locations. Diagonal struts that counteract the pressure load stabilise the system in the area of the stacked panels. The telescopic square section tubes are connected as additional bracing elements (struts) to the substructure by a pivot fixing. The struts are bolted to the ceiling using the appropriate angle brackets.

The modular design of the DORMA substructure is precisely matched to the modules of the DORMA HSW track rail. The structural elements can be mixed and matched as desired with the result that a small number of component types is sufficient to create a complex, flexible system that conforms fully to all safety requirements. A drawing of the required substructure can be requested from DORMA to supplement the HSW system drawing always supplied with the quotation.

Planning details

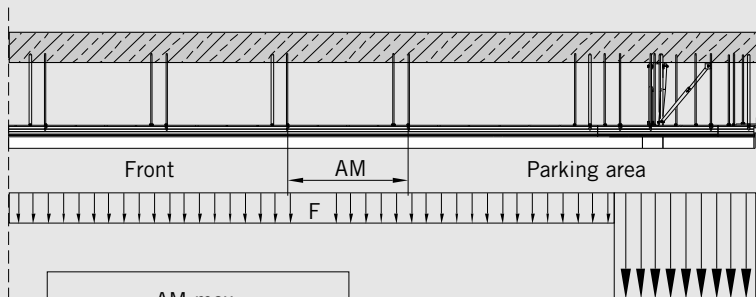


In order to prevent system sway, every second suspension point must be reinforced by a strut. The substructure profile ends (travel path and stacking area) should ideally be directly connected to the masonry or to existing structural members.

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 1.45 m. The table below shows other values for different loads.

Table for the calculation of the max. distance dimension



AM max.	
F	AM
60 kg/m	2050 mm
75 kg/m	1900 mm
90 kg/m	1750 mm
105 kg/m	1750 mm
120 kg/m	1600 mm
135 kg/m	1600 mm
150 kg/m	1450 mm
160 kg/m	1450 mm

F = Force
AM = Distance dimension

Force example:
The distance dimension of 108.98 kg/m = 1710 mm (can be linearly interpolated)

Illustrative example of load values

HSW-G characteristic values

Formula for calculating the:

Glazing height

= system height - 0.309 m
= panel height - 0.193 m

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

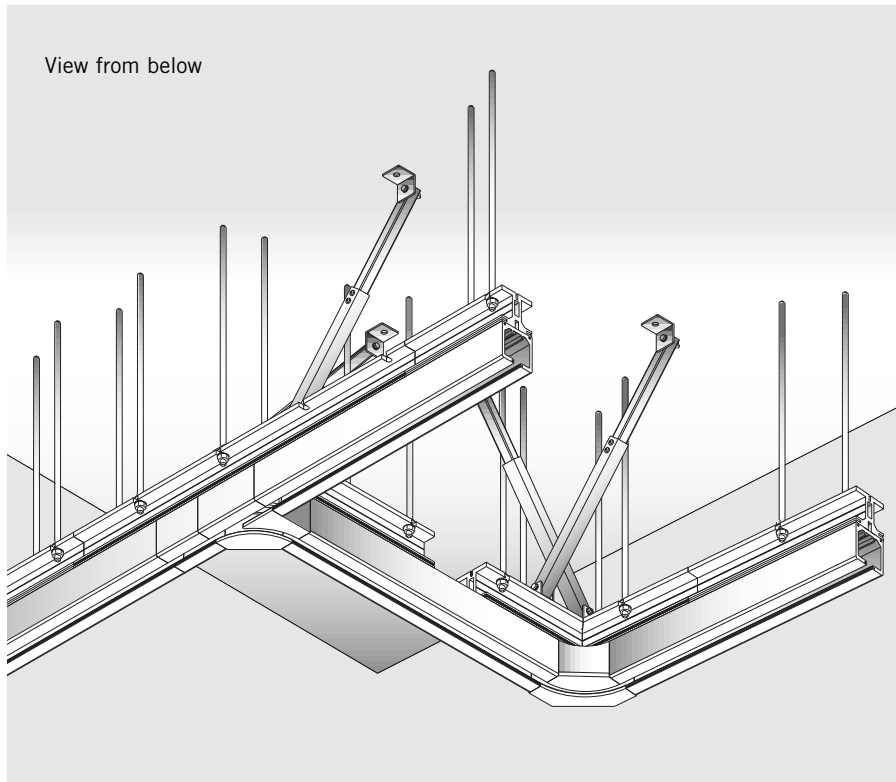
HSW-G system in stainless steel

System height = 3.50 m
Glazing thickness = 12 mm

Calculation

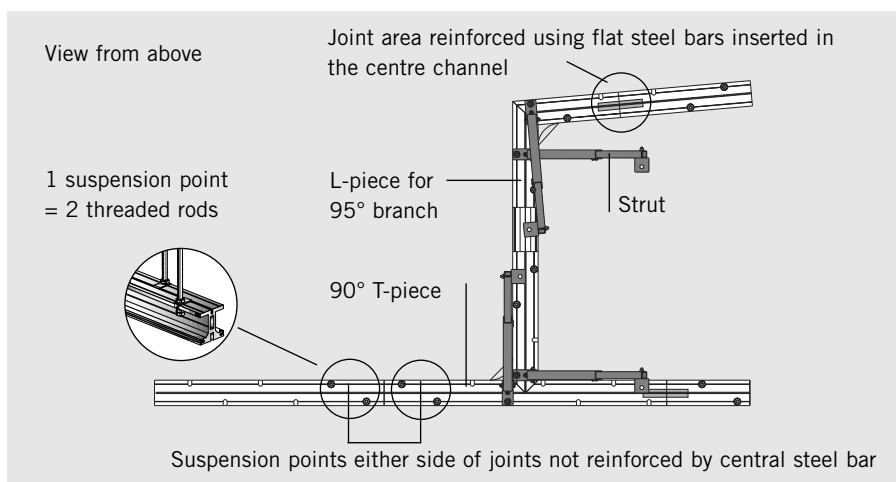
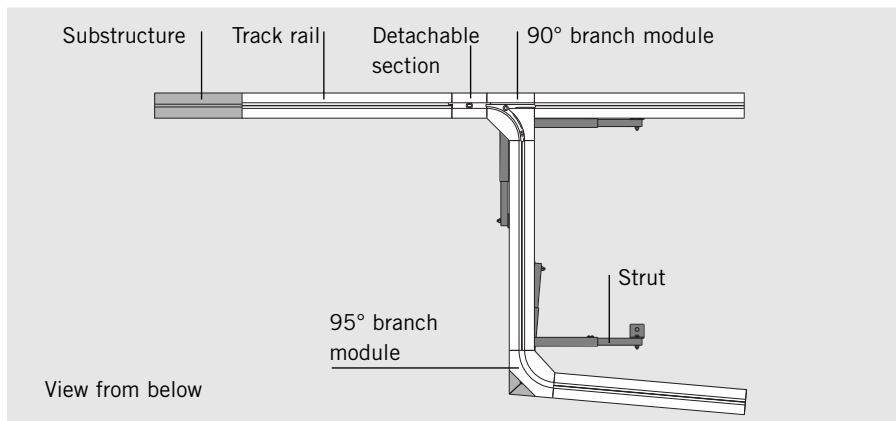
Load
= glazing weight x glazing height + door track weight
= 30 kg/m² x (3.50 m - 0.309 m) + 13.25 kg/m
= 30 kg/m² x 3.191 m + 13.25 kg/m
= **108.98 kg/m**

Stacking area design



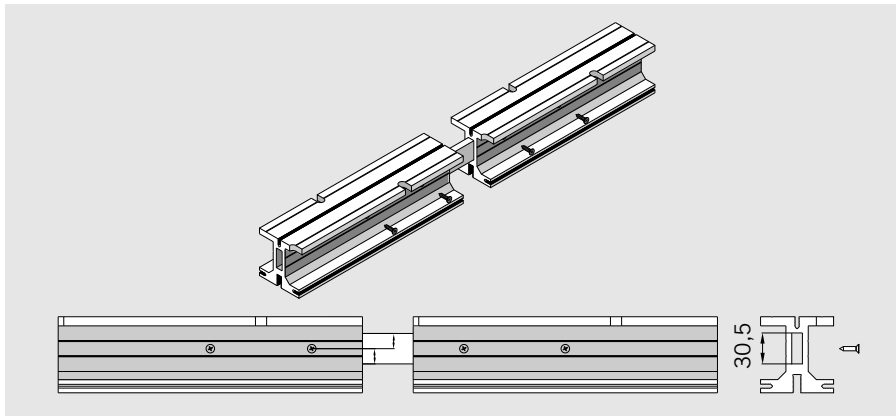
The construction of the stacking area, assembled from substructure and track rail modules, provides a good illustration of how this well-designed system can be utilised. The individual components are coordinated to ensure safe integration. Joints in the substructure are offset to those in the track rails so that individual joints coincide with continuous material in all cases.

Provided that the track rails are adequately bolted to the substructure, gaps of up to 40 cm measured from one suspension point to the next are permitted in the substructure.



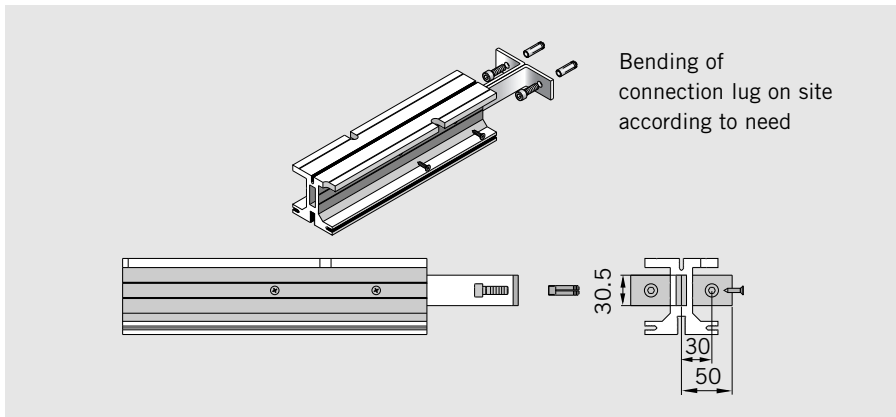
Joints reinforced by central steel bar only require one local suspension point.

Variants of connection/Details

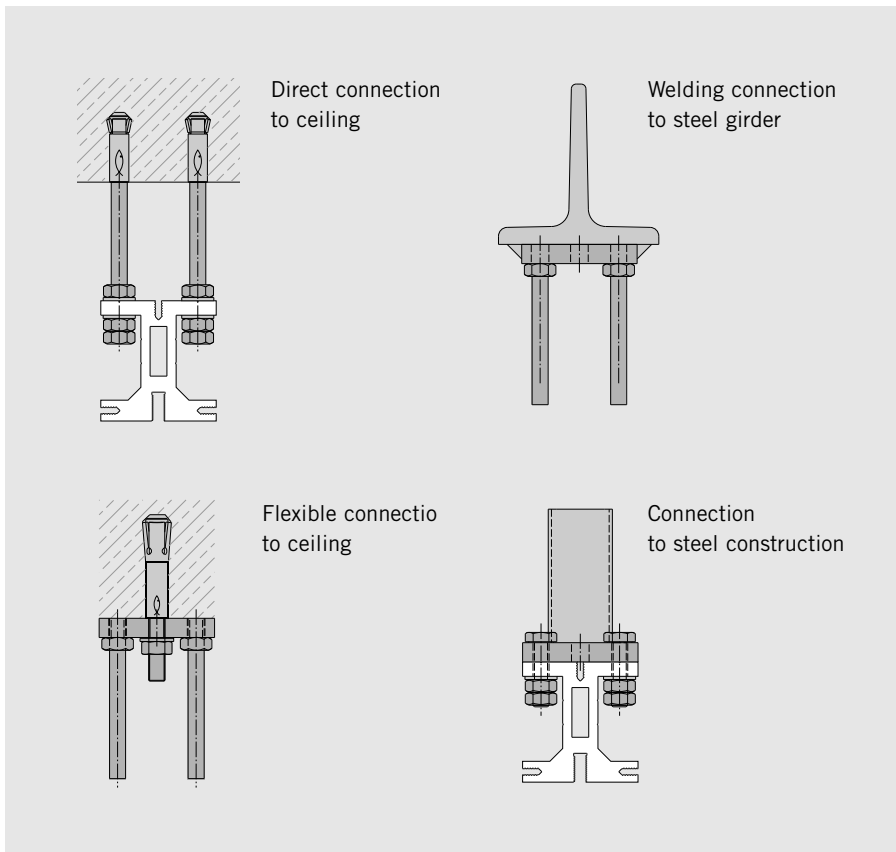


UK-Profile

Profile connection
with connection lug
Art. No. 815.442.001.40

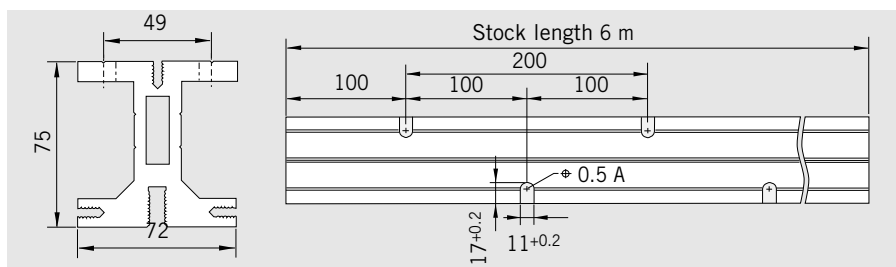
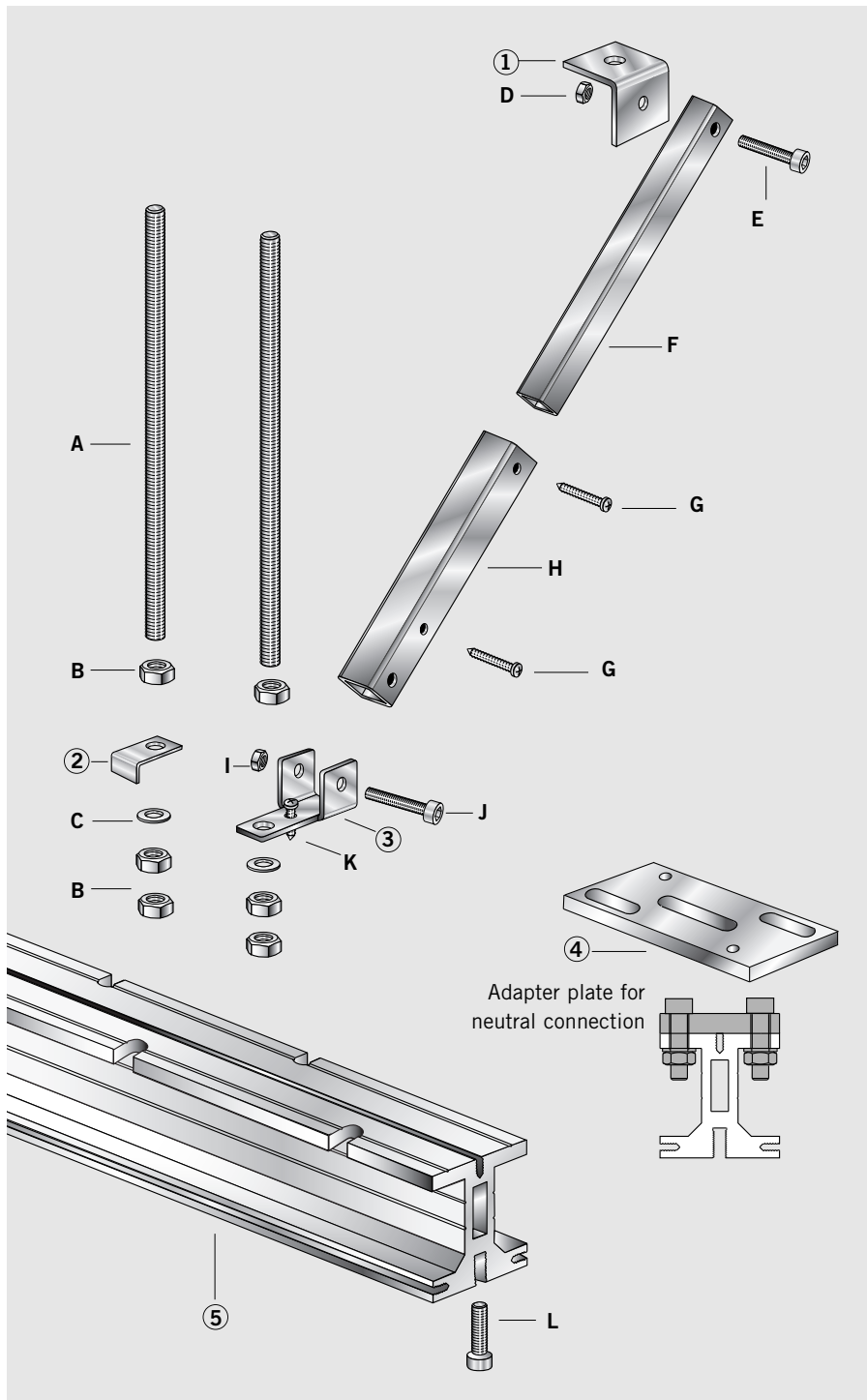


Wall connection with angled
connection lugs
Art. No. 815.442.001.40



Connection opportunities
to existing bearing structure
like ceilings, balks, steel
girder by dint of adapter plate
Art. No. 815.435.001.40

Component parts, accessories



Component parts

- 1** Pivoting angle bracket
Art. No. 815.437.001.40
- 2** Fixing plate
Art. No. 815.434.001.40
- 3** Pivot fixing
Art. No. 815.436.001.40
- 4** Adapter plate
Art. No. 815.435.001.40
- 5** Basic substructure profile,
stock length 6 m
Art. No. 815.658.000.99
Fixed length
Art. No. 815.659.000.99

DIN and standard parts by others or on request
CSN = Company standard no.

A Threaded rod M10 x 1,000
CSN 800.01.470.3.30

B Hex nut DIN 439-2 M10
CSN 800.03.001.3.30

C Washer ISO 7089-10
CSN 800.04.009.3.30

D Hex nut DIN 934-M6
CSN 800.03.005.3.30

E Hex socket screw
DIN 933-M6x35
CSN 800.01.337.3.30

F Telescopic strut top section,
square section tube,
galvanised steel 20x20x2
CSN 800.16.025.4.32

G Drilling screw DIN 7504
ST4 8x16
CSN 800.01.286.3.30

H Telescopic strut bottom
section, square section tube,
galvanised steel 25x25x2
CSN 800.16.026.4.32

I Hex nut DIN 934-M6
CSN 800.03.005.3.30

J Hex socket screw
DIN 933-M6x40
CSN 800.01.319.3.30

K Self-tapping screw
ISO 7049-St4.8 x 13-C-H
CSN 800.01.493.3.30

L Cylinder head screw
for fixing track rail to
substructure profile
DIN 912-M8x25
CSN 800.01.018.3.30

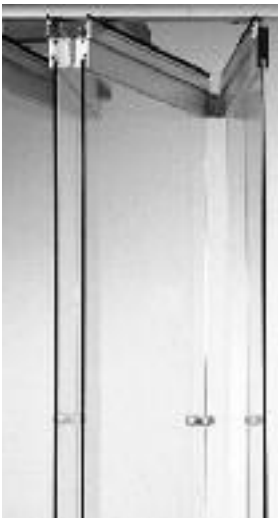
Panel types

In the case of the fully glazed HSW-G / HSW-MR systems, the panels create a continuous, transparent surface without any lateral framing. For a more sophisticated or intricate appearance, single-point fixings (HSW-GP) are also available.



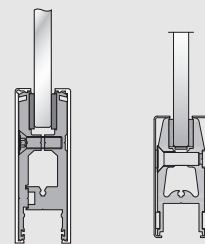
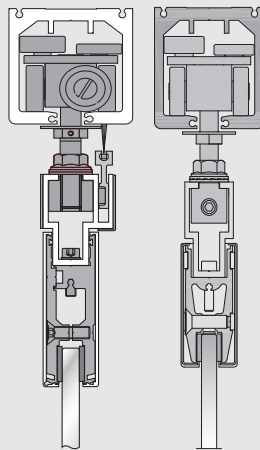
Example of an HSW-G system
Fully glazed with door rails

This folding system with top and bottom glazing rails coordinates perfectly with the HSW-G variant. The FSW-G operates without a separate stacking area, and instead folds together within the main frontage or partition zone.



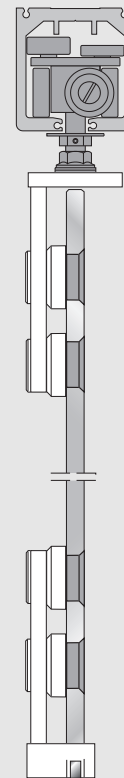
Example of an FSW-G system
Hinge-linked door rails

**HSW-G / HSW-MR /
FSW-G / FSW-C/C plus**
Fully glazed with door rails

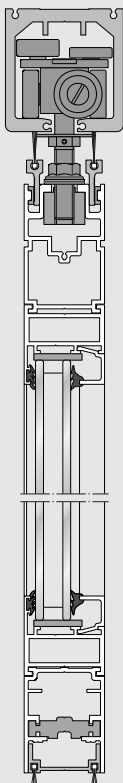


HSW-G / HSW-MR / FSW-G /
FSW-C/C plus

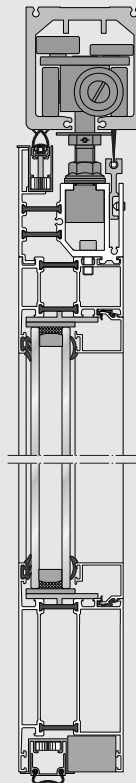
HSW-GP
Fully glazed with
single-point fixings



HSW-R
Fully
framed



HSW-ISO
Fully framed
with double glazing



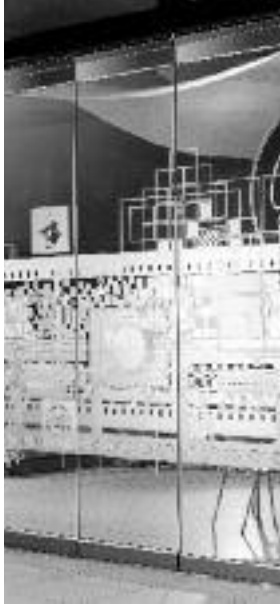
The all-round framing provided on the individual panels of an HSW-R system not only offers high stability but also an excellent barrier to keep out external influences. The panels can be constructed with laminated or toughened safety glass as required.



Example of an HSW-R system
Fully framed
or HSW-ISO
Fully framed with thermal-break frame profiles

HSW-G panel types and functions

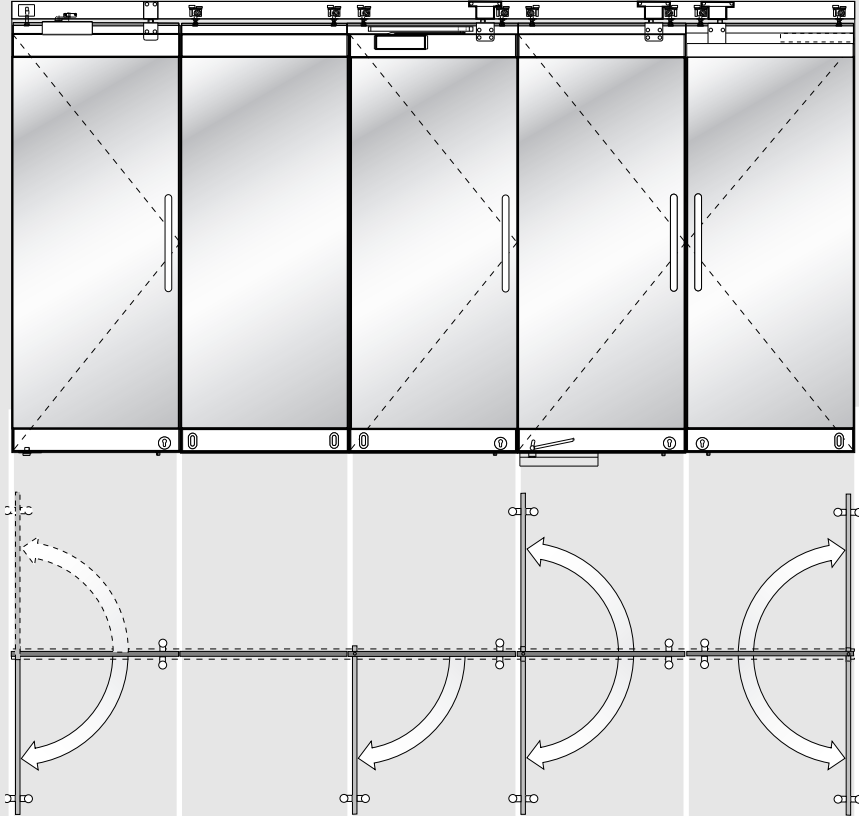
Horizontal sliding walls
Fully glazed with glazing rails
(100 mm) top and bottom



Within an HSW-G system, the individual panels can be designed to perform certain special functions. These range from simple sliding panels to integrated doors with a variety of door closers, or special panels for unusual installation situations. And each system can be assembled to suit individual requirements. The standard glass thickness is 10/12 mm. Further glass thicknesses on request.

Max. panel sizes and weights

Max. system height	4000 mm	4000 mm	3600 mm	3,000 mm	3600 mm
Max. panel width	1250 mm	1250 mm	1250 mm ¹⁾ 1100 mm	950 mm	1250 mm ²⁾ 1100 mm
Max. panel weight	150 kg	150 kg	100 kg	75 kg	100 kg



Single action / double action end panel
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
Fixed when frontage closed.

Single action sliding panel
Single action sliding panel with TS 92 cam-action door closer, operational when frontage closed. Alternatively with ITS 96¹⁾.

Double action sliding panel *
Double action sliding panel with BTS floor spring, operational when frontage closed.

Double action sliding panel *
With RTS transom door closer, operational when frontage closed. Alternatively with ITS 96²⁾.

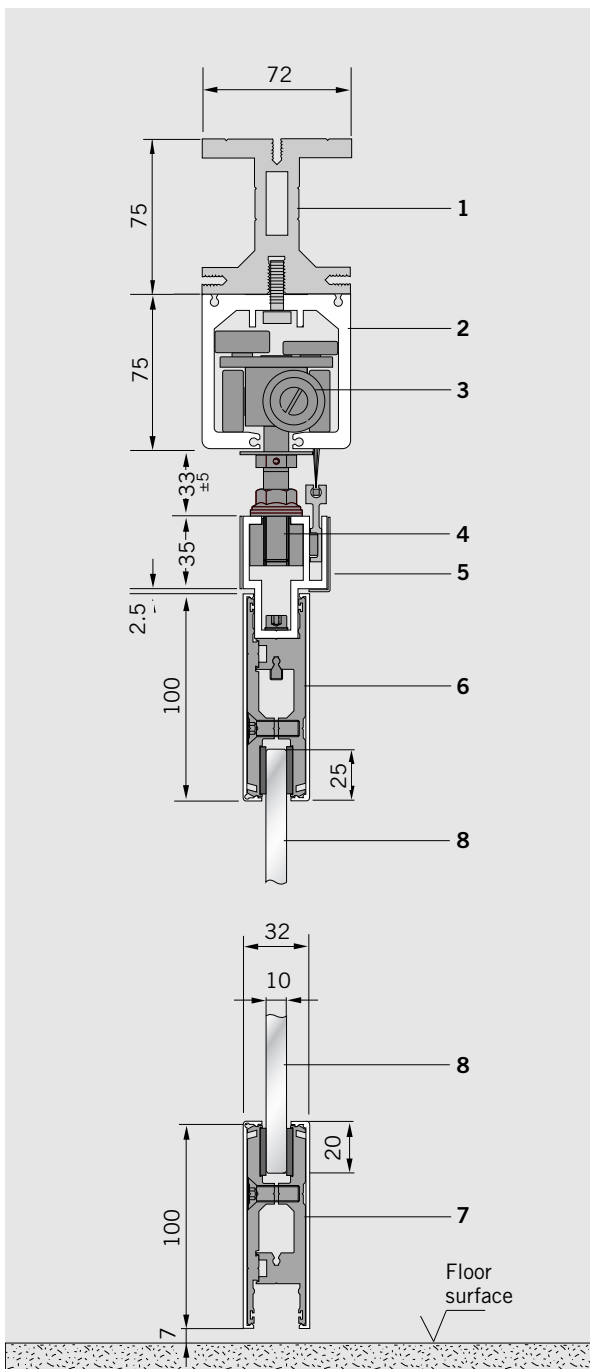
The individual panels can also be of differing widths.
The largest width should not exceed max. 115% of the smallest width.

* For these panel types please consider our notes on portal systems on page 87.

HSW-G system design

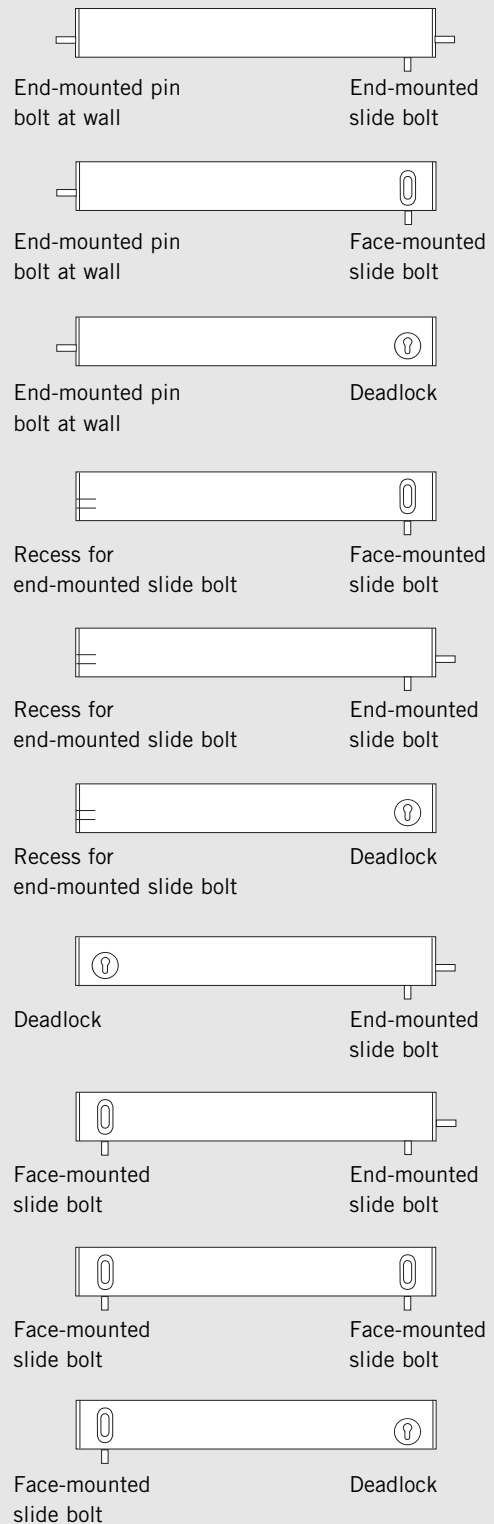
Irrespective of the function of the individual panels, an HSW-G system comprises the following basic components:

- | | |
|--|--|
| <p>1 Installation-efficient DORMA substructure to accommodate track rail mounting requirements (optional)</p> <p>2 Track rail for bolting to the substructure.</p> | <p>3 Carrier</p> <p>4 Suspension assembly and bearing profile for safe and easy sliding of the panels.</p> <p>5 Top door rail and</p> <p>6 bottom door rail, both comprising base profiles with clip-on face and side covers.</p> <p>8 Toughened safety glass or toughened laminated safety glass (by others)</p> |
|--|--|



Bottom door rail designs

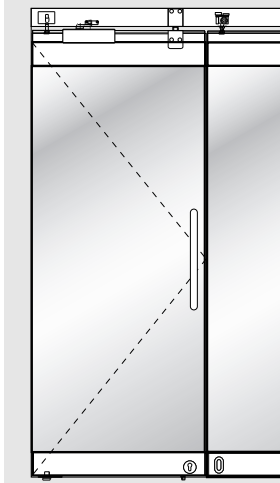
All depicted combinations are also available as mirror arrangements



End panel

Non-moving and always equipped with a bottom deadbolt with the option of a top bolt or side-action dead-lock.

Can be designed as a double action or single action leaf.



Double action end panel

Assembly types:

- 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

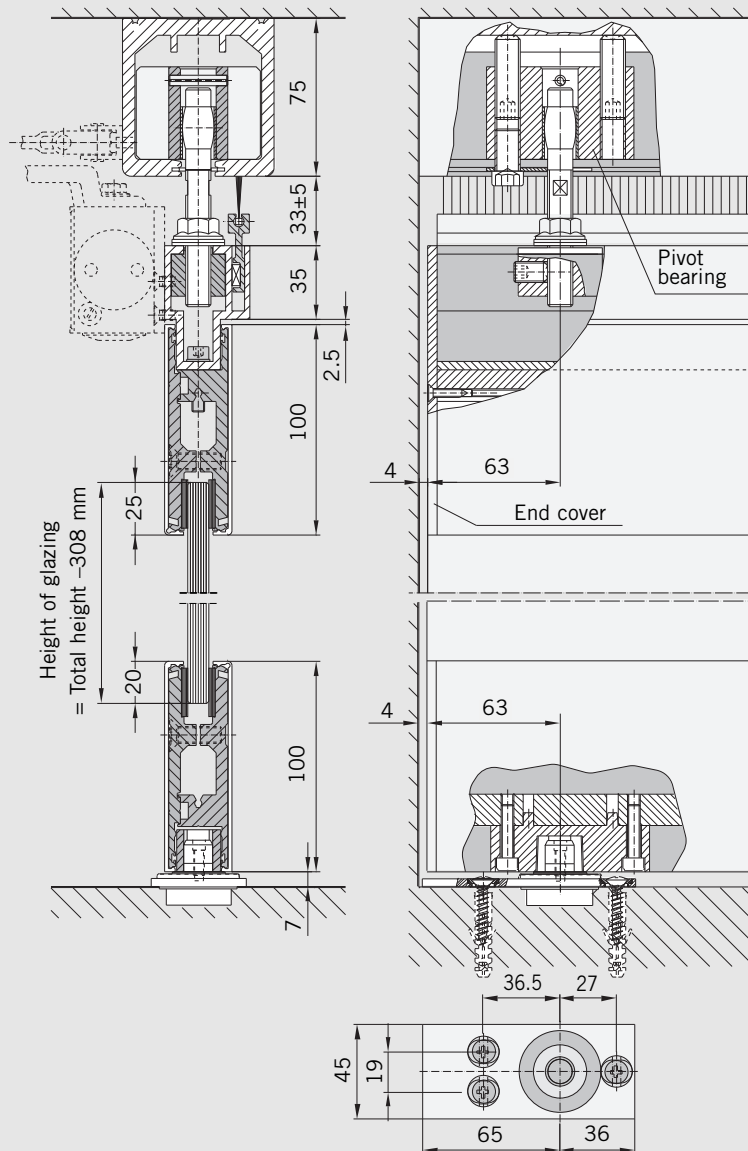
Single action end panel

with stop-type covers top and bottom.

Assembly types:

- Floor pivot with round spindle
- As above, but with DORMA TS 73 or 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

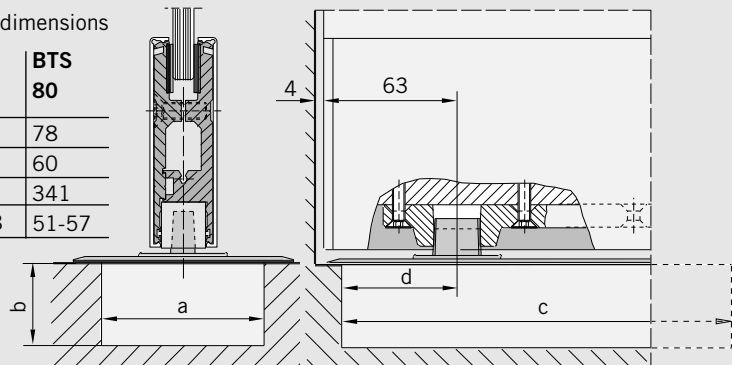
Double action or single action end panel with floor pivot



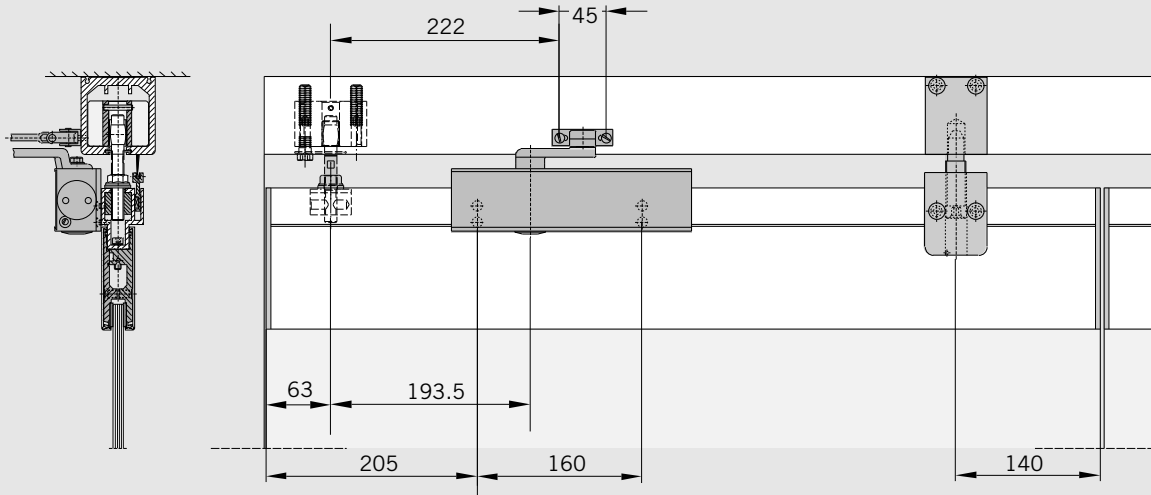
Double action end panel with floor spring

Mounting dimensions

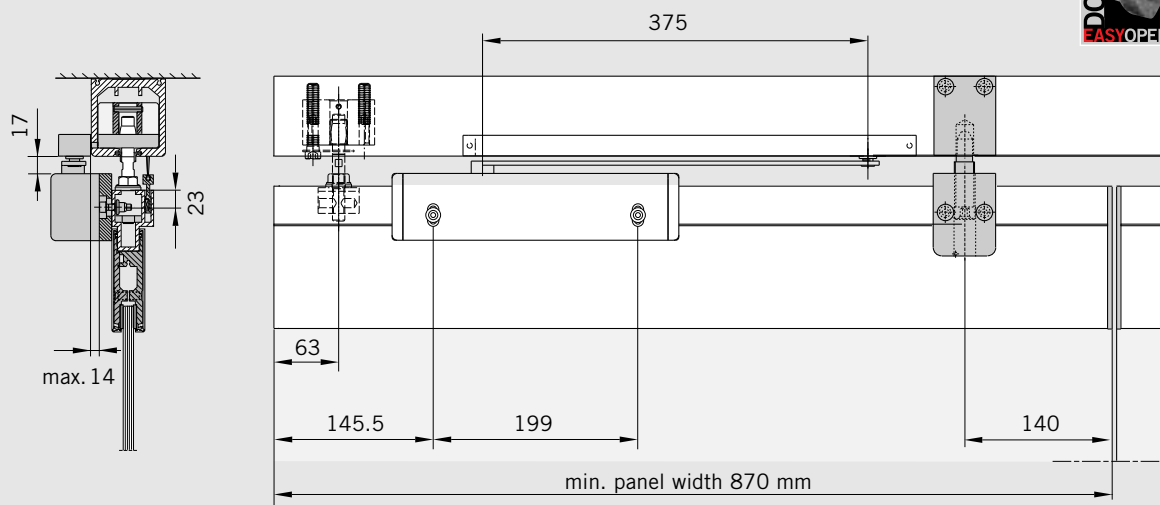
	BTS 84	BTS 80
a	108	78
b	40	60
c	306	341
d	51-58	51-57



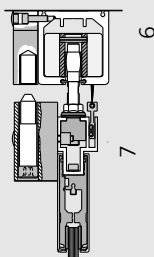
Single action end panel with TS 73 overhead door closer and additional locking device



Single action end panel with TS 92 overhead door closer and additional locking device



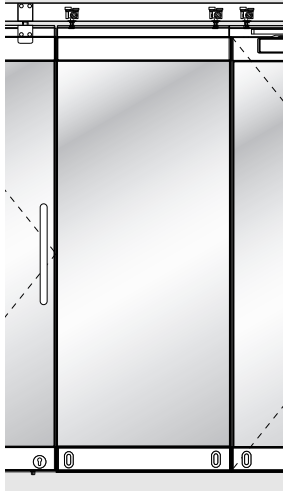
Additional locking device



Data and features	TS 73 V	TS 92
Closing strength/size	EN 2-4	EN 2-4
Closing strength, variable	via adjusting screw and arm hinge	via adjusting screw and arm hinge
Closing speed adjustment	via valve	via valve
Non-handed	•	•
Latching speed adjustment	via arm	via arm
Cushioned stay limit adjustment	75°-180°	80°-120°
Hold-open adjustment	75°-160°	75°-150°
Weight	1.8 kg	1.9 kg
Length	233 mm	281 mm
Overall depth	42.50 mm	47 mm
Height	60 mm	65 mm

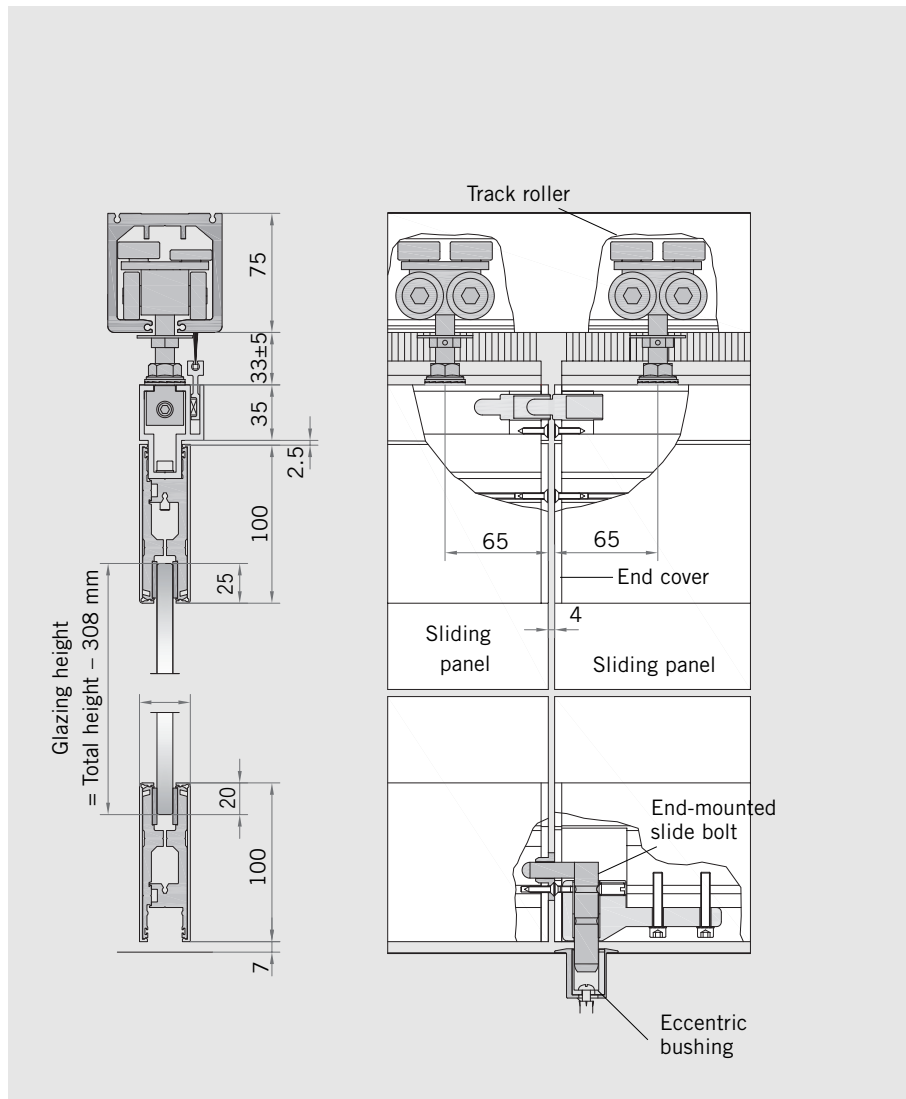
Sliding panel

Stationary when the frontage or partition is closed.

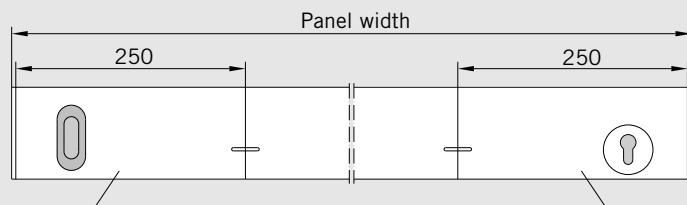


Sliding panel

The sliding panels are the moving elements. Once in their closed position, they are locked down. The components available for this are provided in the bottom door rail in the form of face-mounted slide bolts, end-mounted slide bolts, end pin bolts or deadlocks.



Bottom door rail

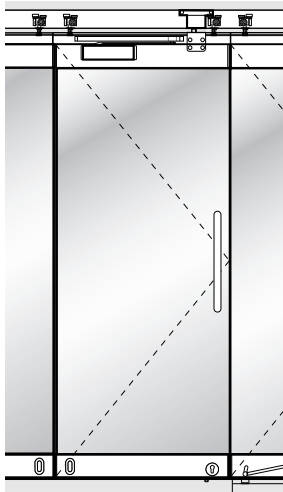


Base profile with integral functional element (here: face-mounted slide bolt)

Base profile with functional element (here: deadlock)

Single action sliding panel

Swing panel with TS 92 cam-action door closer for operation as a single action door when the frontage is closed.



Single-action sliding panel with DORMA TS 92 cam-action door closer

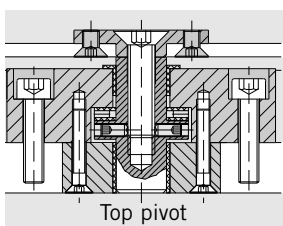
This panel type is installed where doors only need to be opened in one direction. The pivoting sliding panels can be fitted open inwardly or outwardly. In both cases, the cam-action door closer is fixed to the inside face.

Standard assembly

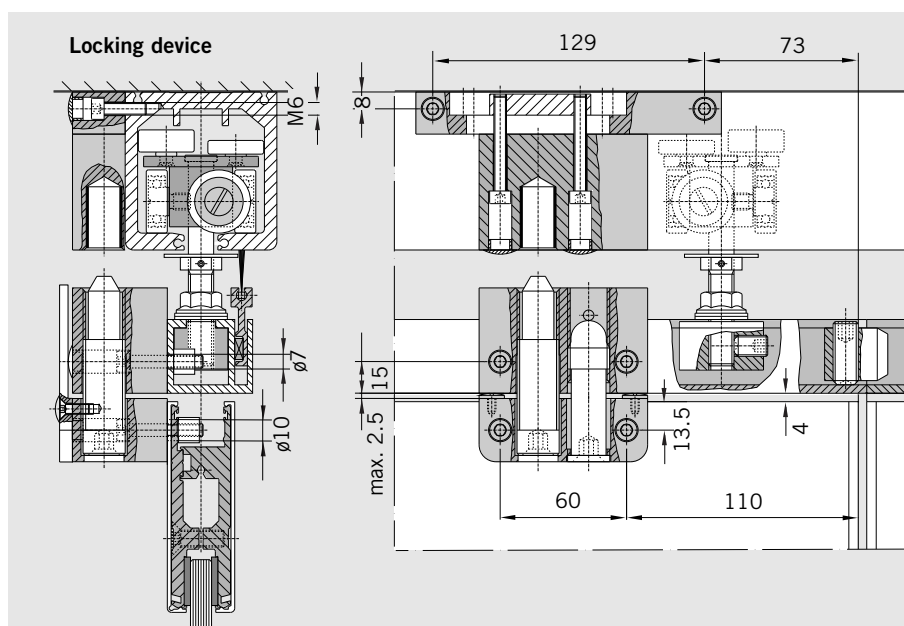
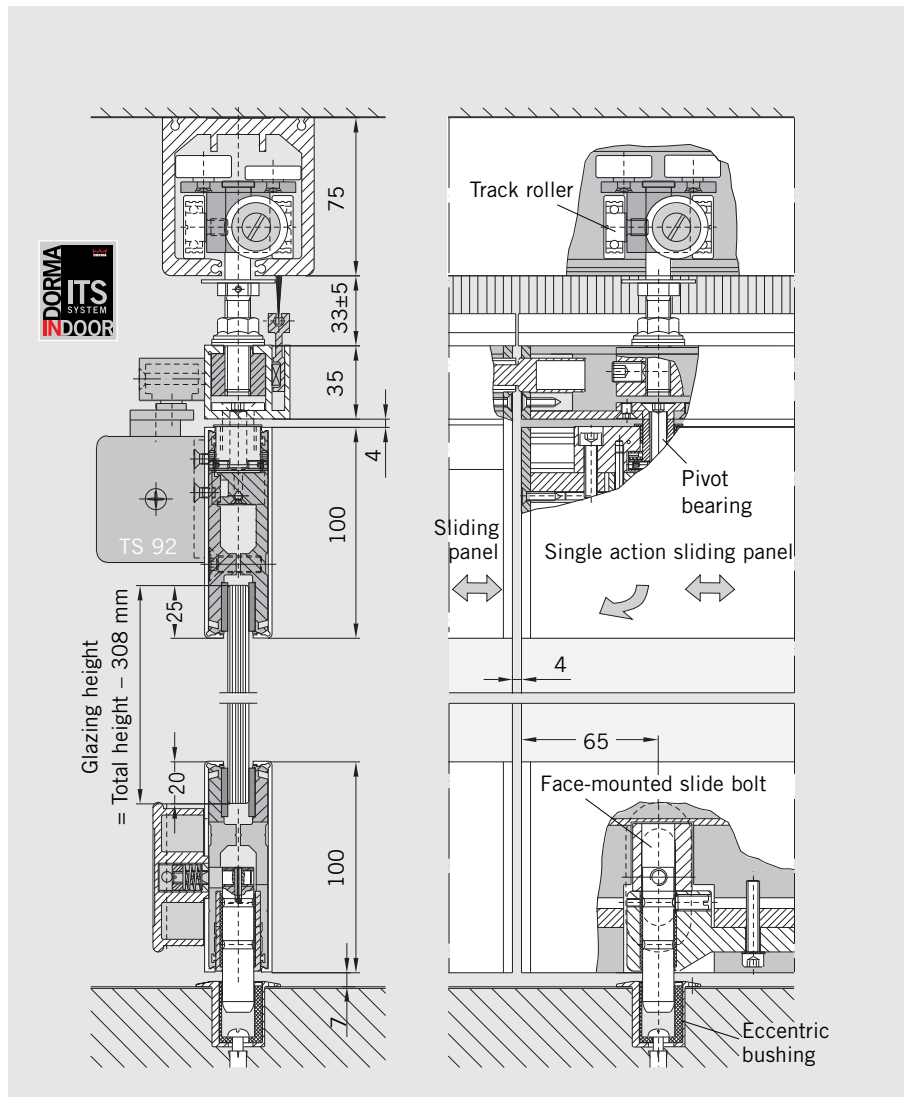
- top: Pivot bearing, TS 92 with slide channel, one locking device
- bottom: Face-mounted slide bolt as pivot (released for sliding function) and lock

Optional equipment

- top: Second locking device (for reshuffle bypass)
- bottom: Optional second face-mounted slide bolt instead of deadlock

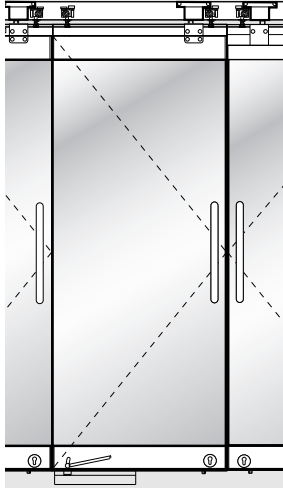


Top pivot



Double action sliding panel

Pivoting panel with BTS floor spring for operation as a double action door when the frontage is closed.



Double action sliding panel with DORMA BTS floor spring

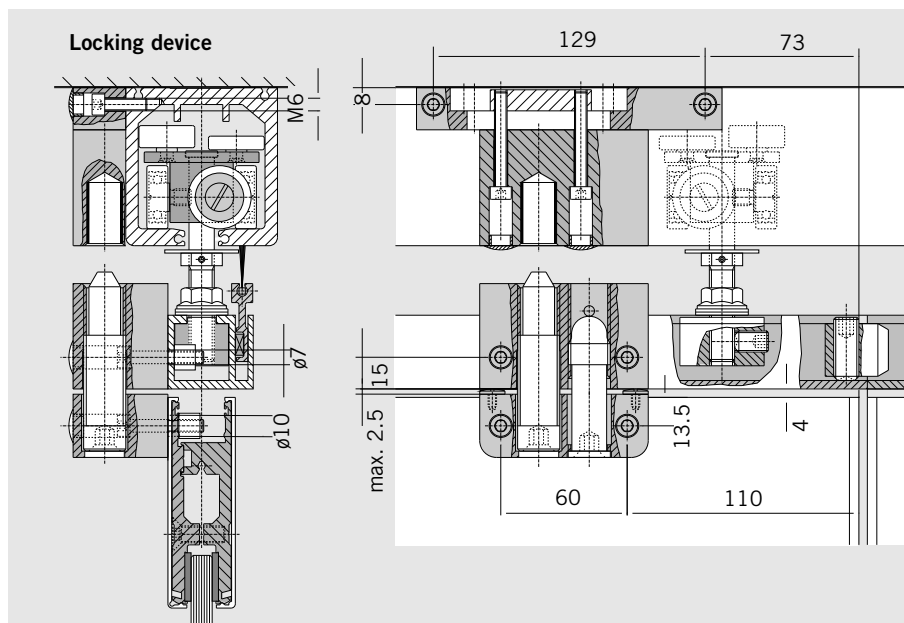
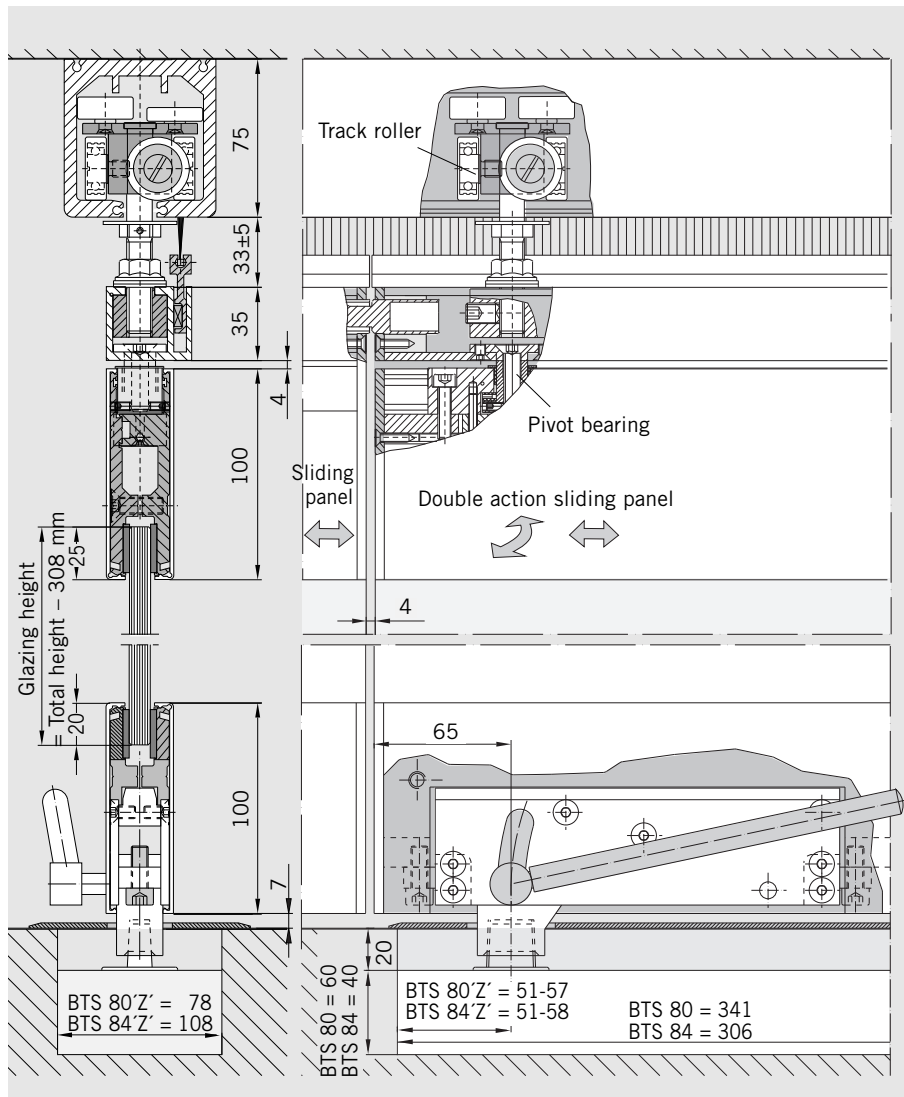
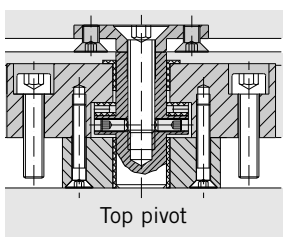
The combination of double action sliding panels with DORMA BTS floor springs has become a classic solution. These panels are generally equipped with a bottom dead-lock and top locking device.

Assembly types:

- BTS 84'Z' for double action sliding panels with BTS, with optional hold-open at 90° door opening angle.
- BTS 80'Z' for double action sliding panel with adjustable hold-open device.

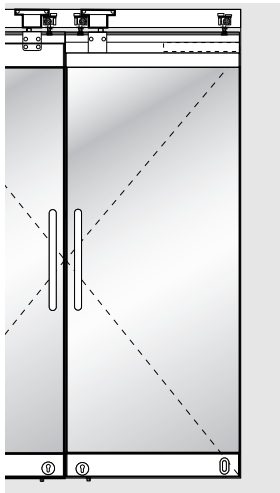
The maximum weight for the double action sliding panel with DORMA BTS floor spring is 75 kg.

For these panel types please consider our notes on portal systems on page 87.



Double action sliding panel

Pivoting panel with RTS transom door closer for operation as a double action door when the frontage is closed.

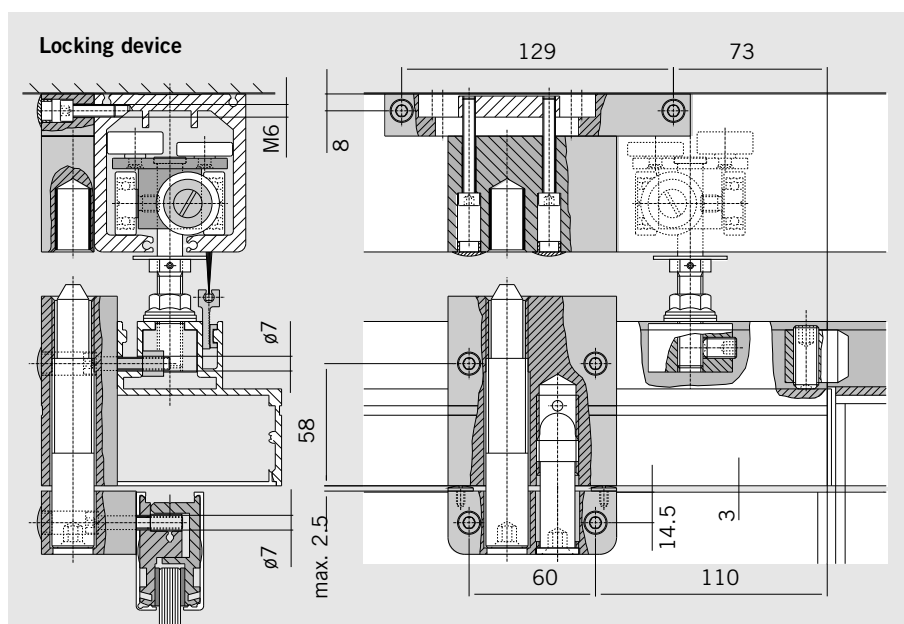
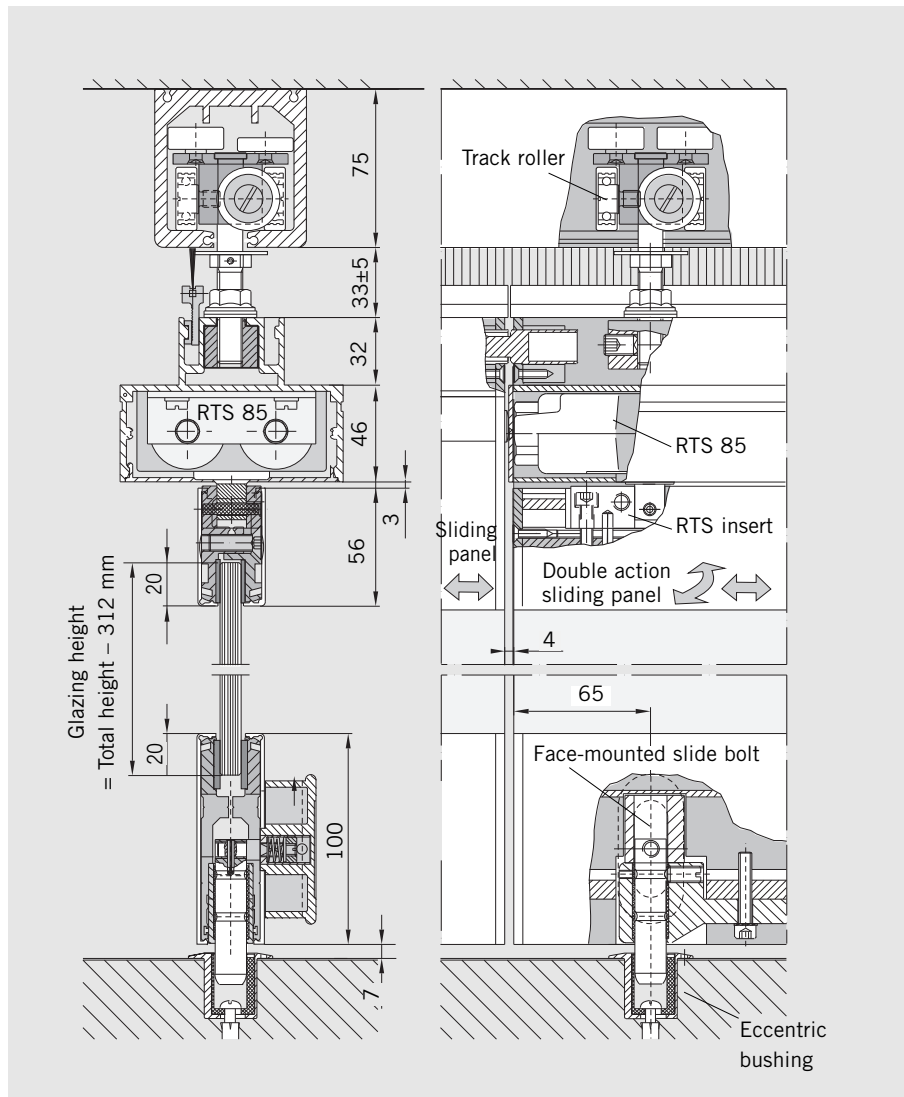


Double action sliding panel with integral DORMA RTS transom door closer

Double action sliding panels with DORMA RTS transom door closers (patented design) are characterised by their exceptional ease of installation and operation; an excellent alternative to the solution with the BTS floor spring because the RTS does not require a large recess in the floor. These panels are generally equipped with a bottom deadlock and top locking device plus a bottom face-mounted slide bolt operating as the pivot bearing (released for the sliding function).

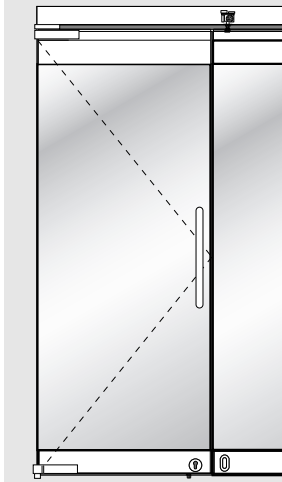
The standard solution takes the form of the RTS 85 without hold-open, or as a special option, with a 90° hold-open.

For these panel types please consider our notes on portal systems on page 87.

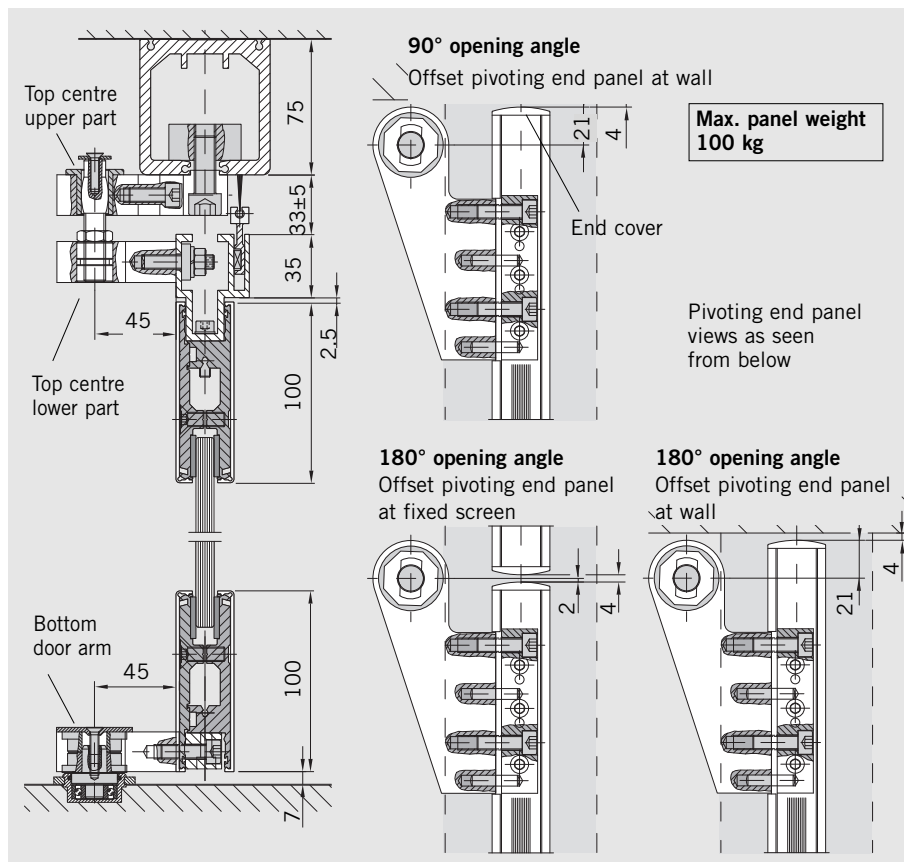


Single action door

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

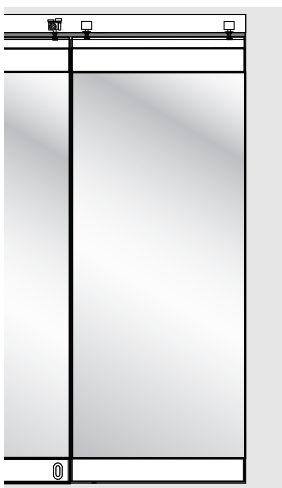


The single action door with offset pivoting arm assembly can be swung around 180°, so leaving the entire operating zone free. A bottom deadlock secures the closed leaf.

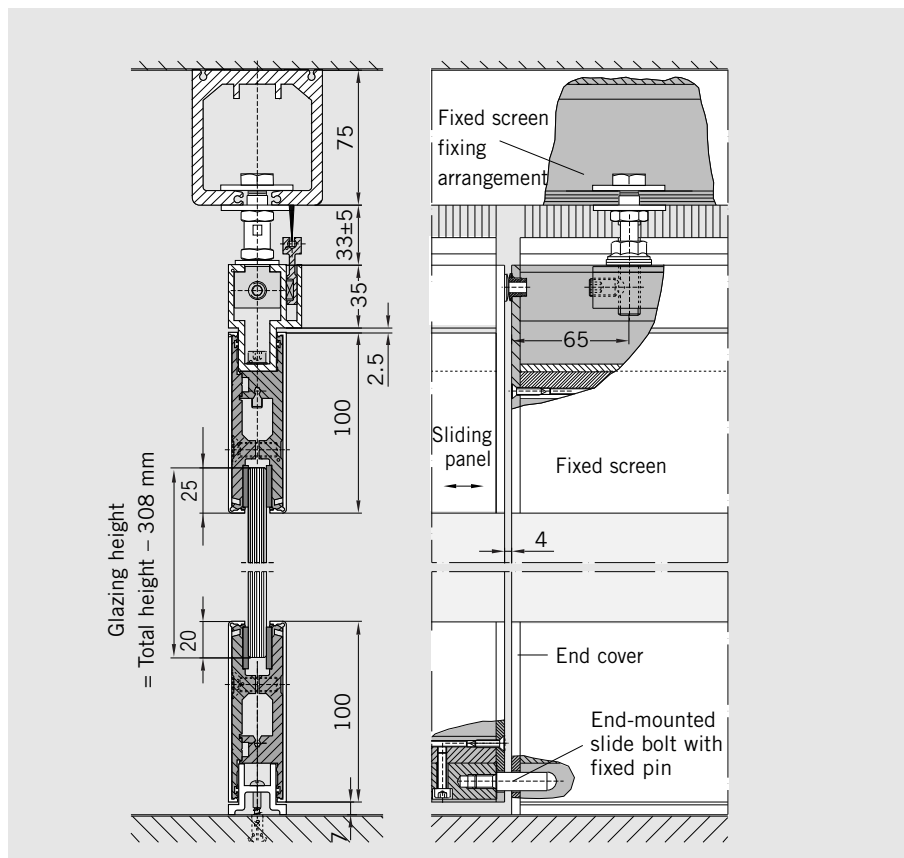


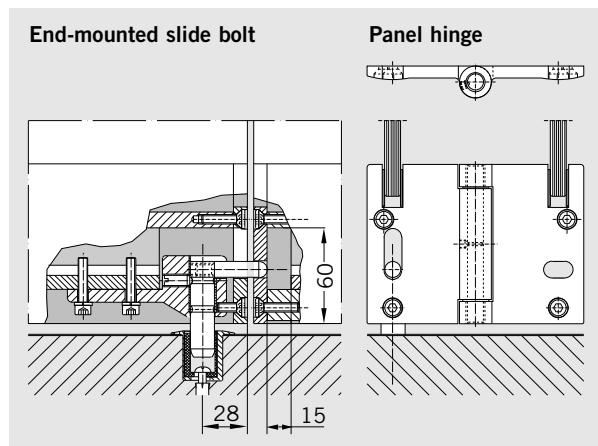
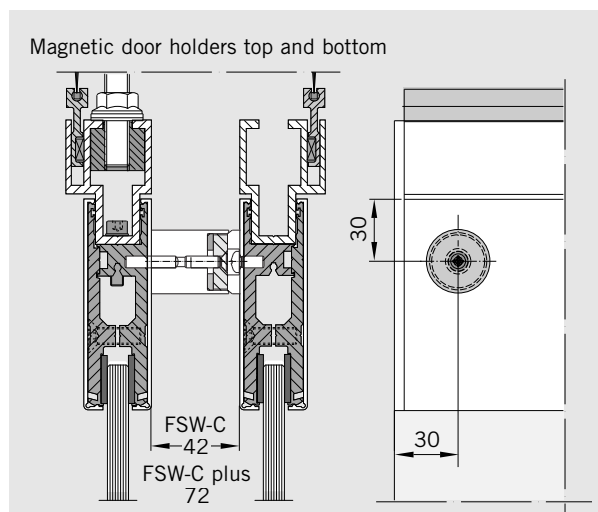
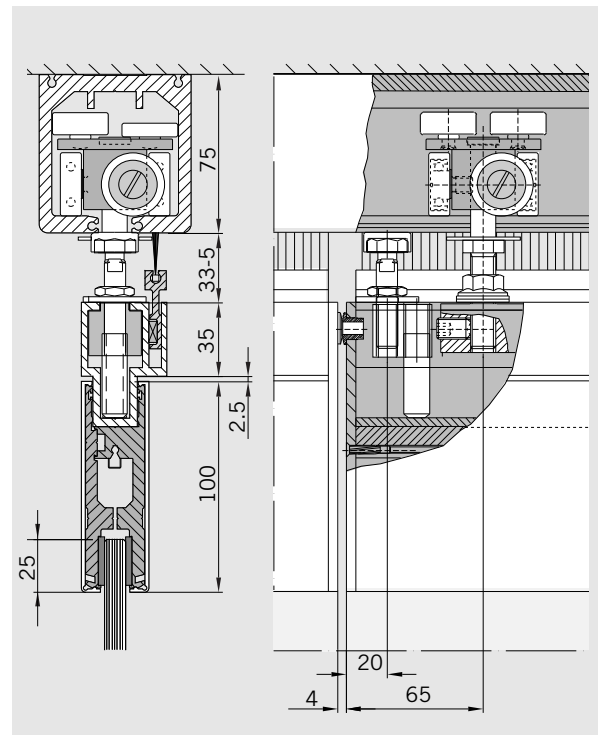
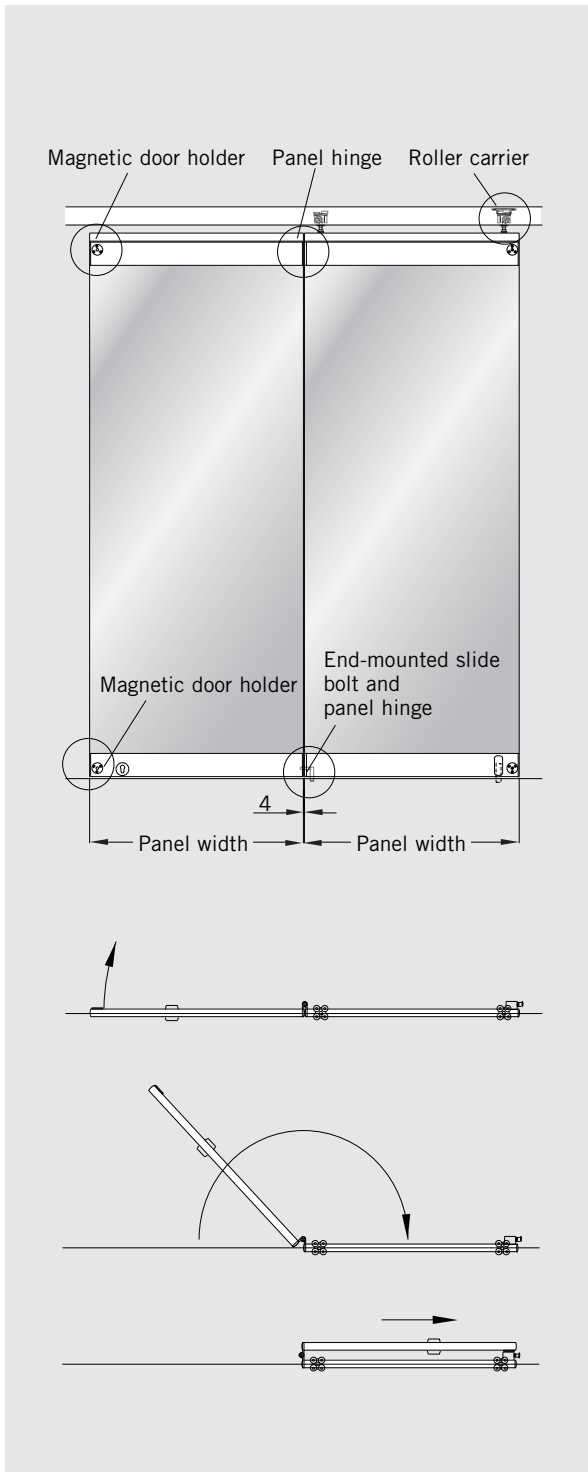
Fixed side screen

Non-moving side screen, independent of the rest of the system.



The fixed side screen is of the same basic design as the sliding panels. And if required, the fixings can be replaced by a carrier system to convert such a screen into a sliding panel.





Folding sliding 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

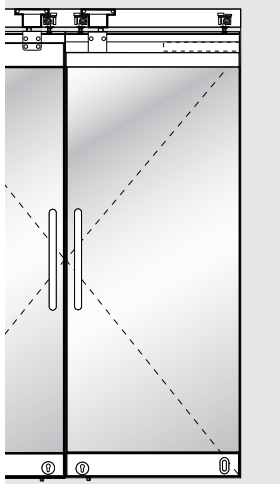
Max. panel width 2 x 1,000 mm

Max. system height 3,000 mm

Max. panel weight 2 x 70 kg

Single action sliding panel

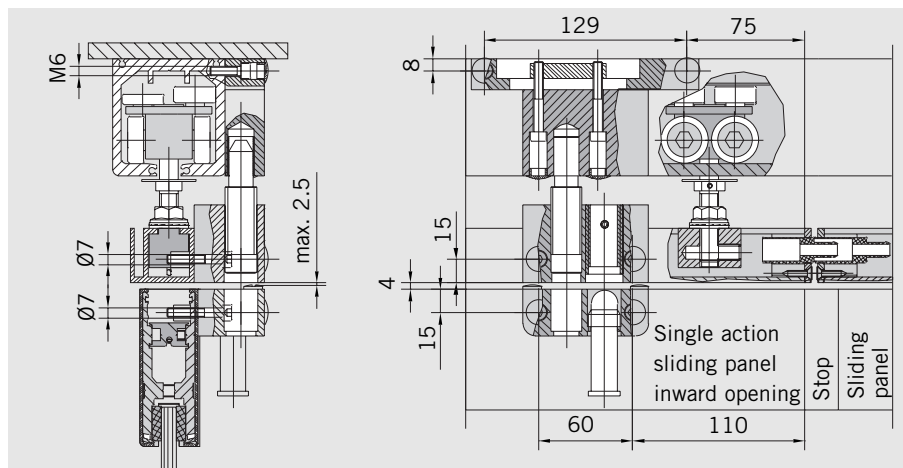
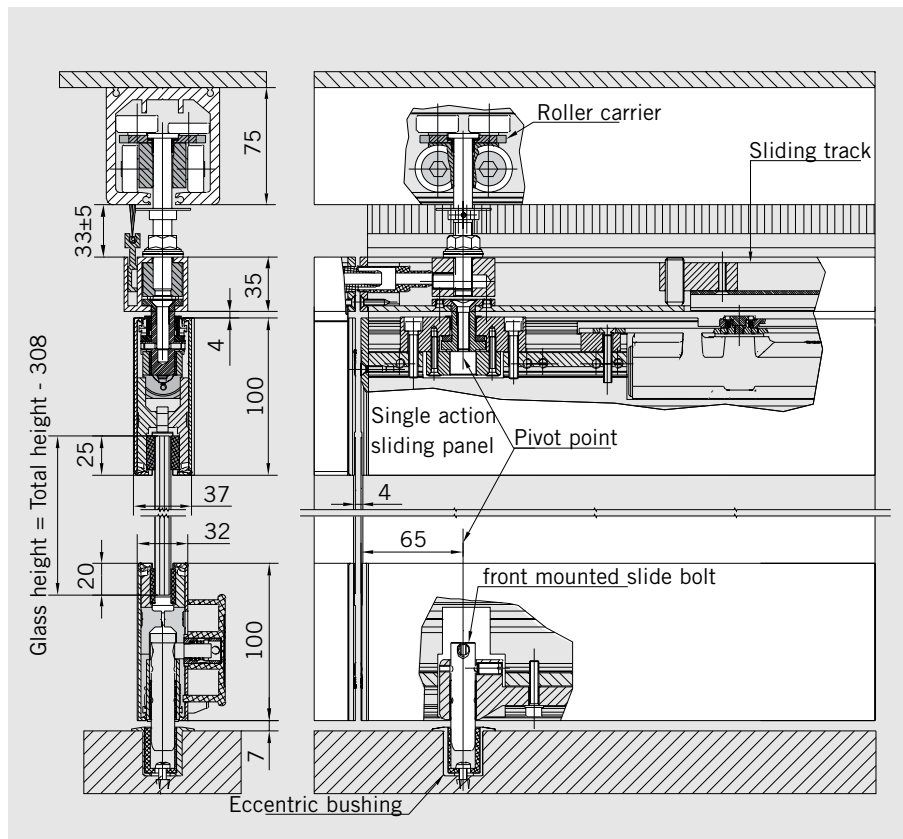
When frontage closed
Single action panel with
integral door closer
ITS 96 2-4.



**Single action sliding panel
with integral door closer
DORMA ITS 96 Gr. 2-4**

This panel variant is used
where the door element is
required to only open in one
direction. Single action sli-
ding panels can be either
inward or outward opening.
Standard equipment:
pivot at the top,
ITS 96 with slide channel,
1 locking device at the
bottom in the form of a face-
mounted slide bolt (released
in sliding mode) and dead-
bolt lock.

Optional equipment top:
2nd locking device
(to facilitate disengaging);
bottom: 2nd face-mounted
slide bolt instead of deadbolt
lock.

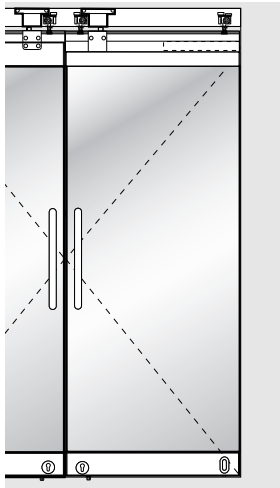


**ITS 96 Gr. 2 - 4,
Data and features:**

Closing strength / size	EN 2 - 4
Max. panel width	≤ 1100 mm
Max. panel height	≤ 130 kg
Closing strength continuously variable	Adjusting screw
Closing speed continuously variable	Valve
Same design for DIN-L and DIN-R	yes
Latching speed continuously variable	yes
Cushioned stay limit mechanically variable	yes
Max. opening angle	ca. 120°
Hold-open variable	yes
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

When frontage closed
Double action panel with integral door closer ITS 96 2-4.



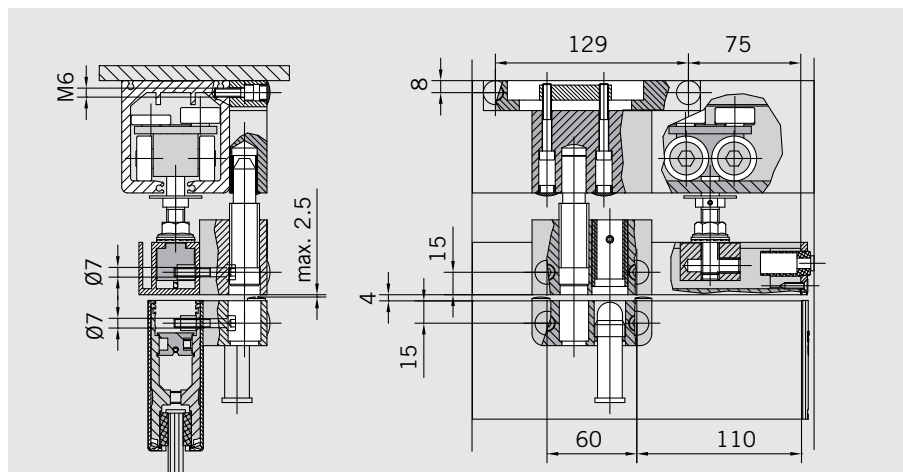
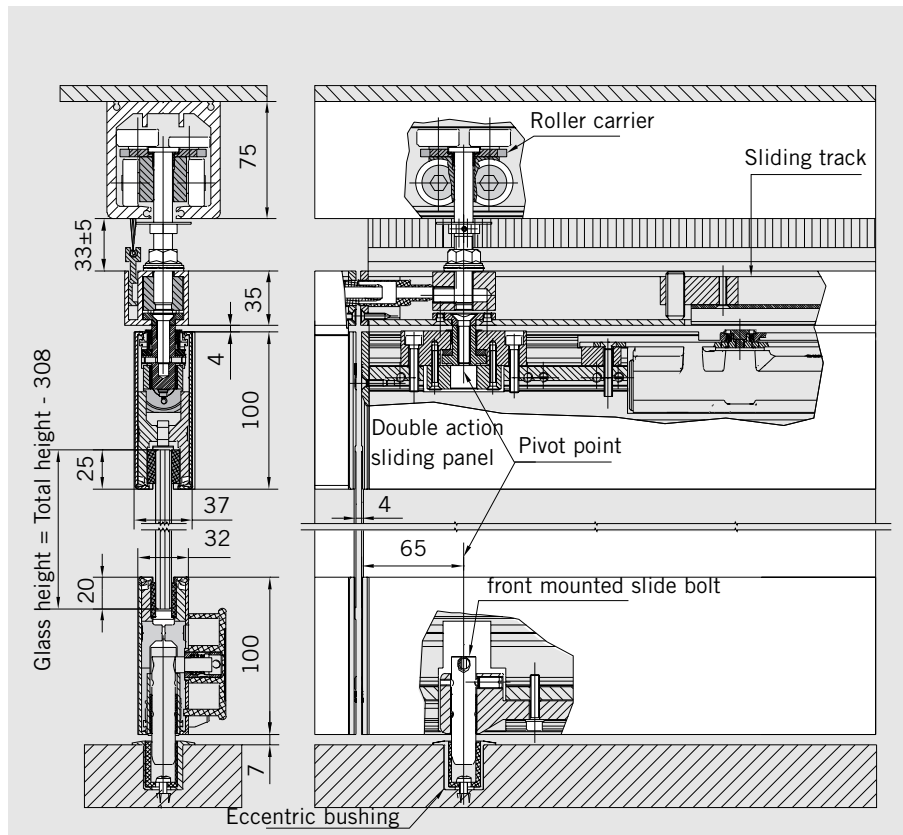
Double action sliding panel with integral DORMA door closer

Double action sliding panels with DORMA ITS 96 Gr. 2-4 offer exceptional ease of installation and operation, making them a good alternative to the variant with the BTS floors spring – particularly as the ITS 96 does not need a large recess in the floor. **Being virtually invisible, its presence has no effect on the overall appearance of the partition.**

These panels come equipped as standard with a bottom deadbolt lock and a locking device at the top, together with a face-mounted slide bolt as the bottom pivot point (released in the sliding mode).

In its standard form, ITS 96 is provided with a 90° hold-open.

If you care considering this panel type, please note our advisories relating to portal systems on page 87.

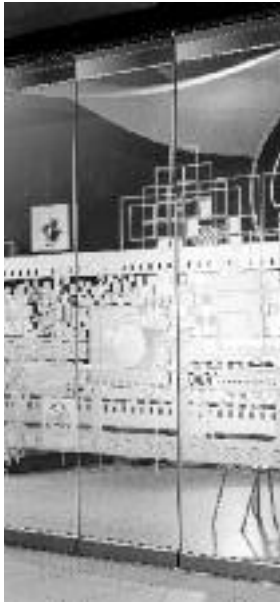


**ITS 96 Gr. 2 – 4,
Data and features:**

Closing strength / size	EN 2 - 4
Max. panel width	≤ 1100 mm
Max. panel height	≤ 130 kg
Closing strength continuously variable	Adjusting screw
Closing speed continuously variable	Valve
Same design for DIN-L and DIN-R	yes
Latching speed continuously variable	yes
Cushioned stay limit mechanically variable	yes
Max. opening angle	ca. 120°
Hold-open variable	yes
Weight	1.3 kg
Length	277 mm
Overall depth	32 mm
Height	42 mm
Door closer tested according to EN 1154	yes

HSW-MR panel types and functions

Horizontal sliding walls
Fully glazed with glazing rails
(75 mm high) top and bottom



Designed to meet the minimum essential requirements of a shopfront, the HSW-MR constitutes a cost-efficient alternative to the classic HSW-G.

The HSW-MR assemblies are available for 10 or 12 mm glass thicknesses.

	<p>Double action / single action end panel Non-sliding. Double action end panel with floor bearing and top pivot. Optional with floor spring BTS 80 / 84. Or as single action end panel with stop and BTS 80 / 84 or TS 92 / TS 73.</p>	<p>Sliding panel Fixed when frontage closed.</p>	<p>Sliding panel Fixed when frontage closed.</p>	<p>Fixed panel Non-sliding. Fixed side screen with retaining pins at the top and door rail with bottom spacer profile at the bottom.</p>
Max. panel sizes and weights				
Max. system height	3,000 mm	3,000 mm	3,000 mm	3,000 mm
Max. panel width	1,250 mm	1,250 mm	1,250 mm	1,250 mm
Max. panel weight	100 kg	100 kg	100 kg	100 kg

HSW-MR system design

Irrespective of the function of the individual panels, an HSW-MR system comprises the following basic components:

1 Installation-efficient DORMA substructure to accommodate track rail mounting requirements (optional)

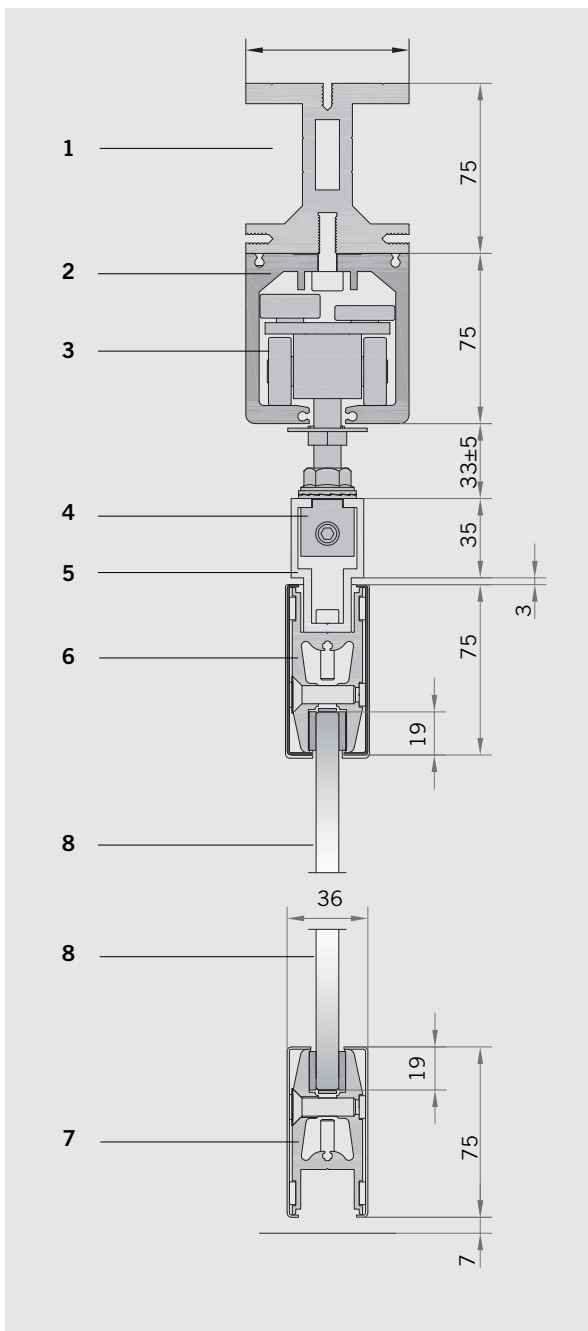
2 Track rail for bolting to the substructure.

3 Carrier

4 Suspension assembly and **5** bearing profile for safe and easy sliding of the panels.

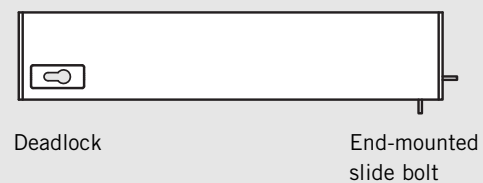
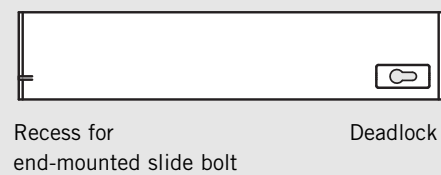
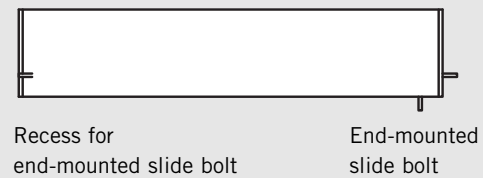
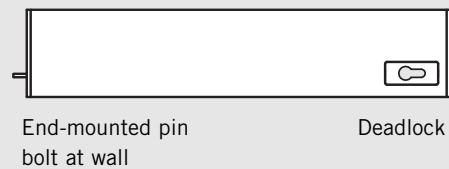
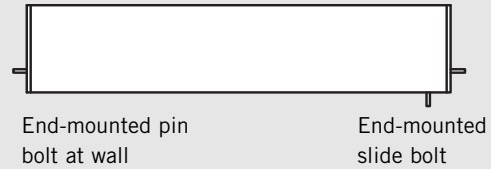
6 Top door rail and **7** bottom door rail, both comprising base profiles with velcro technique and side covers.

8 Toughened safety glass or toughened laminated safety glass (by others) 10/12 mm.



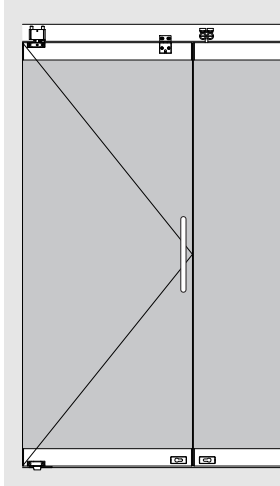
Bottom door rail designs

All depicted combinations are also available as mirror arrangements



End panel

Non-moving and always equipped with a bottom dead-bolt with the option of a top bolt or side-action deadlock. Can be designed as a double action or single action leaf.



Double action end panel

Assembly types:

- Floor pivot with round spindle
- BTS 80 / 84 for panels up to 100 kg, with optional hold-open at 90° door opening angle

Single action end panel

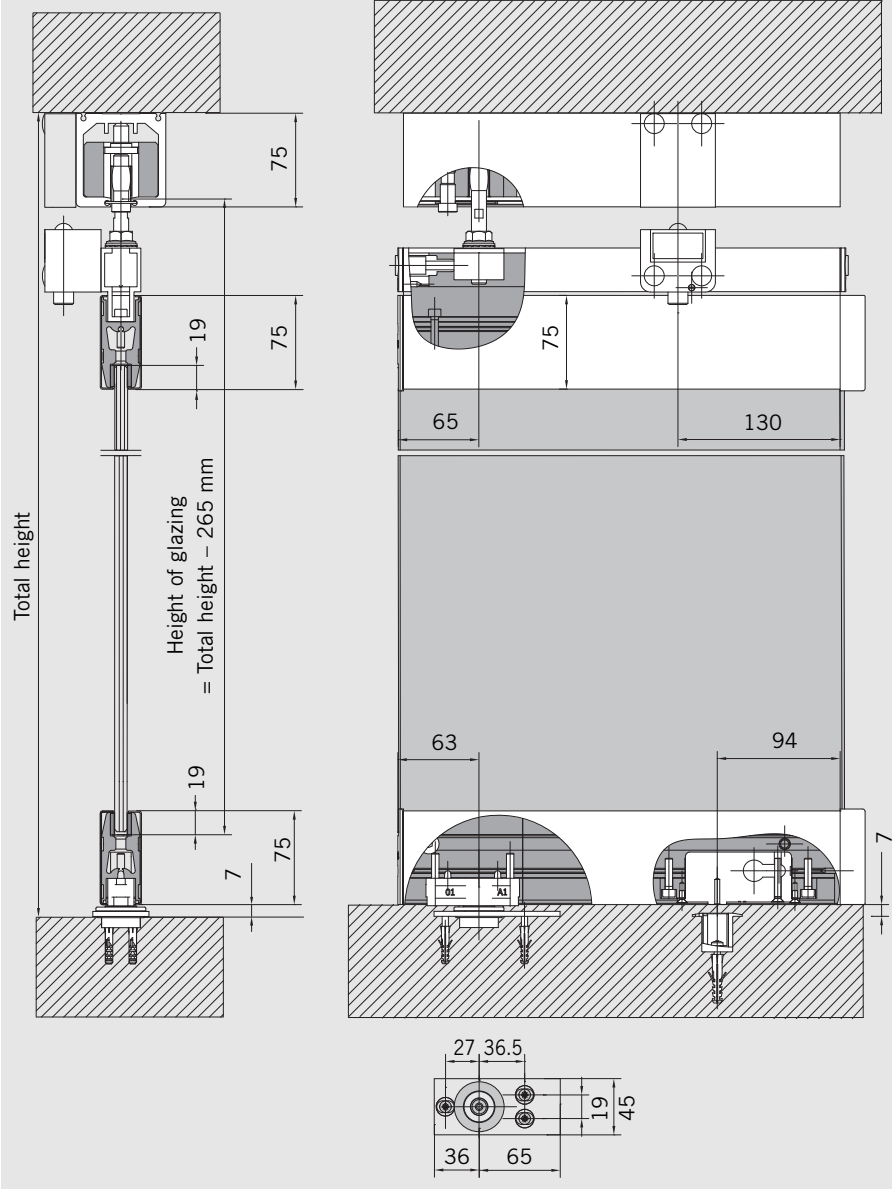
with stop top or stop-type covers top and bottom.

Assembly types:

- Floor pivot with round spindle
- BTS 80 / 84 for panels up to 100 kg, with optional hold-open at 90° door opening angle

The choice of door closer will depend on the installation situation in each case.

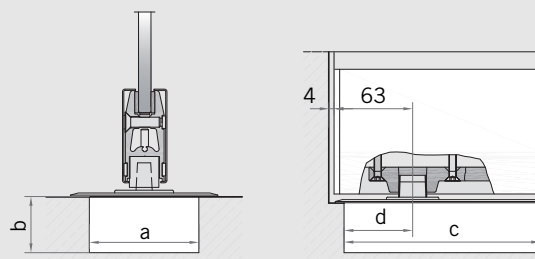
Double action or single action end panel with floor pivot



Double action end panel with floor spring

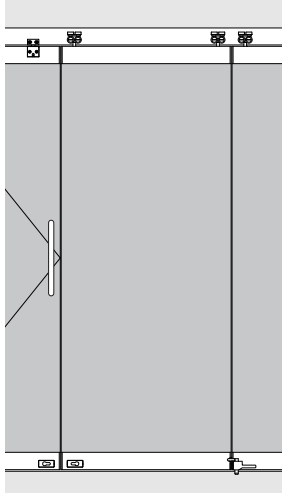
Mounting dimensions

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



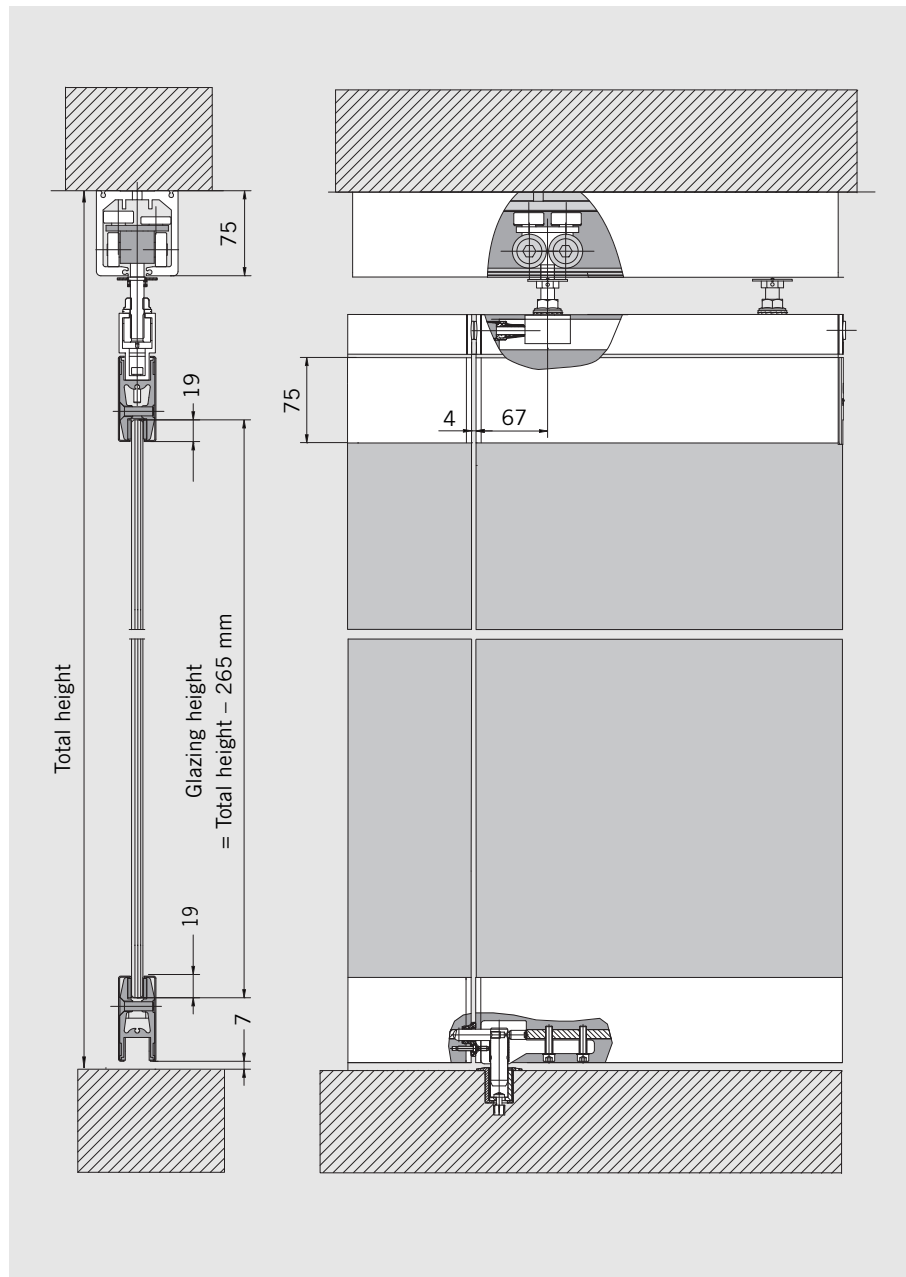
Sliding panel

Stationary when the frontage or partition is closed.

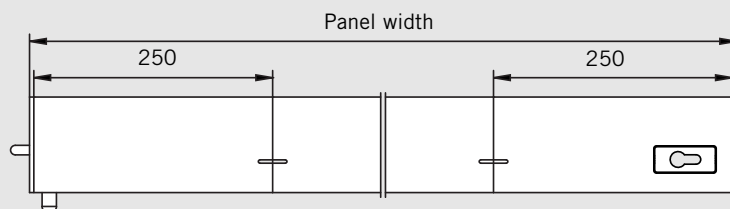


Sliding panel

The sliding panels are the moving elements. Once in their closed position, they are locked down. The components available for this are provided in the bottom door rail in the form of end-mounted slide bolts, end pin bolts or deadlocks.



Bottom door rail

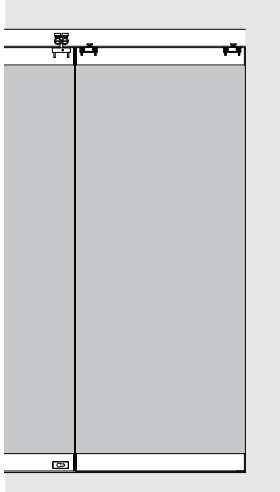


Base profile with integral functional element (here: end-mounted slide bolt)

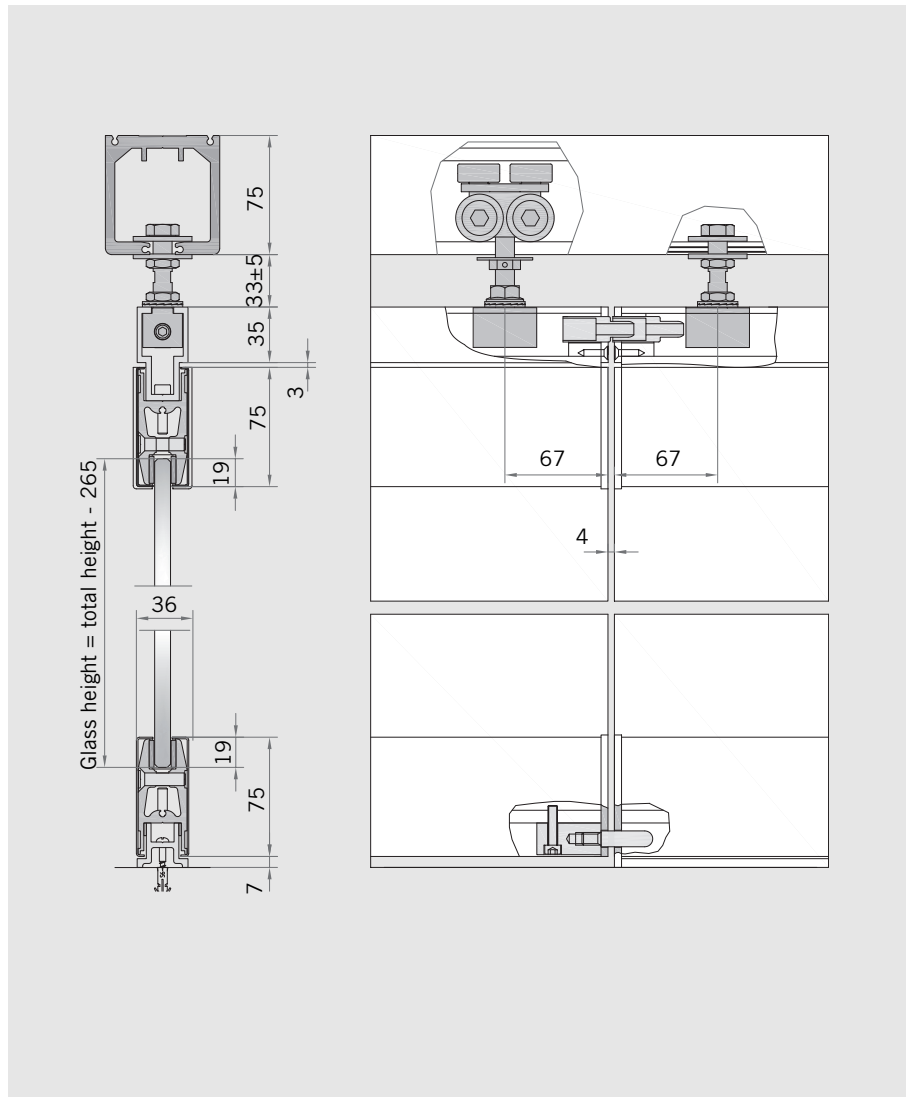
Base profile with functional element (here: deadlock)

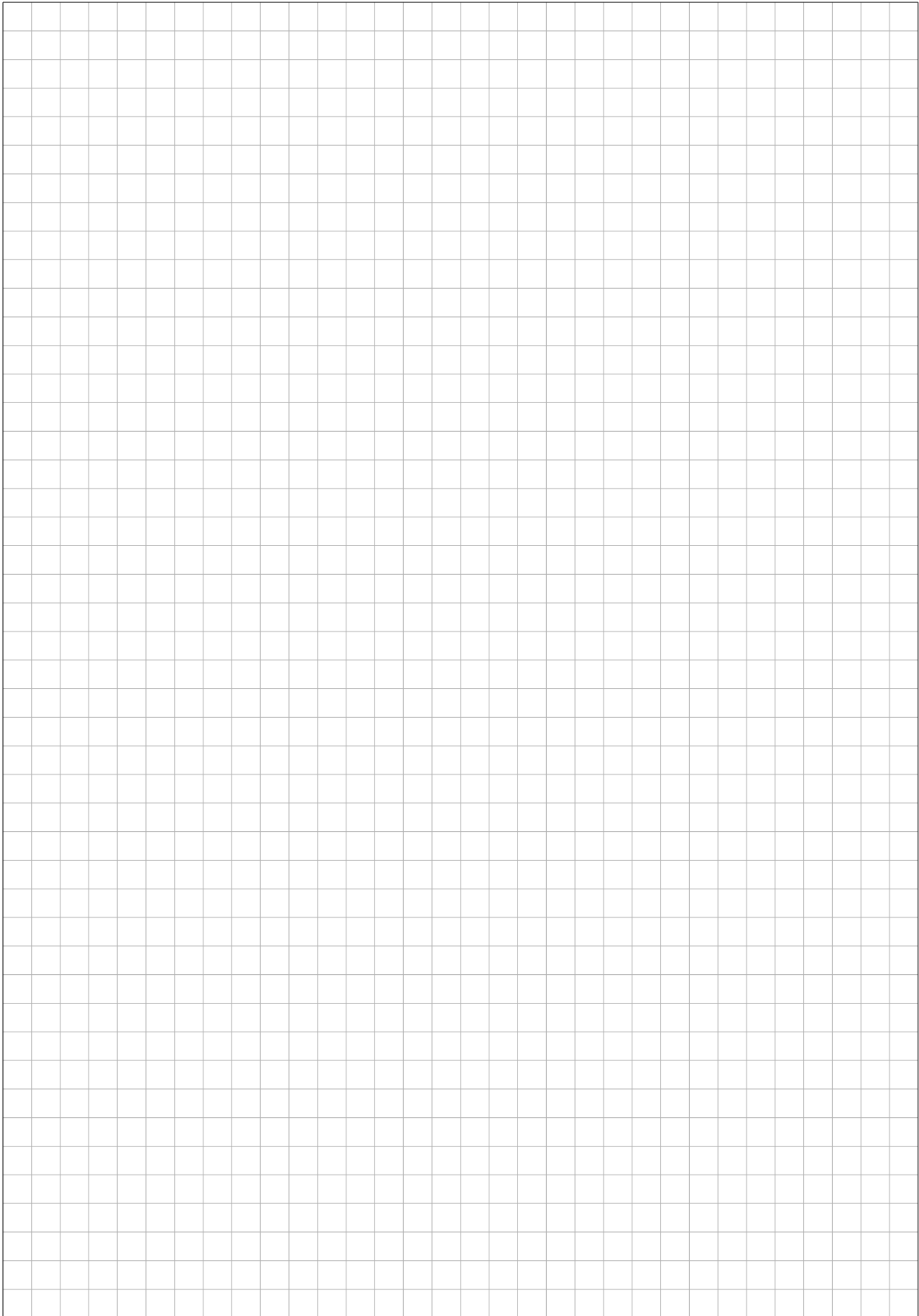
Fixed side screen

Non-moving side screen, independent of the rest of the system.



The fixed side screen is of the same basic design as the sliding panels. And if required, the fixings can be replaced by a carrier system to convert such a screen into a sliding panel.



A large, empty grid of small squares, intended for taking notes or drawing technical diagrams. The grid consists of approximately 30 columns and 40 rows of squares.

HSW-GP panels and functions

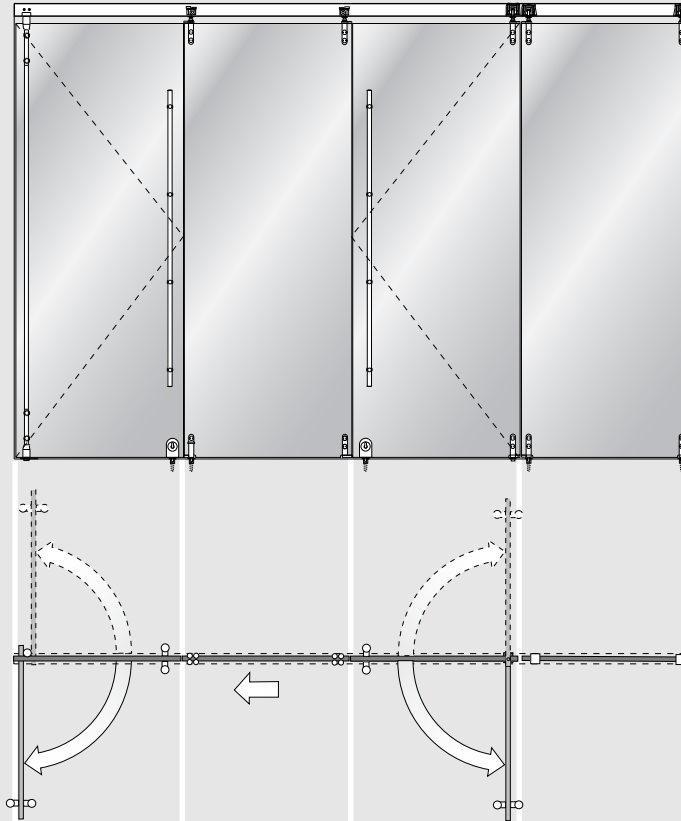
Fully glazed sliding walls with point-fixed track roller carriers engaging in standard track rail



The characteristic features of HSW-GP systems are the single-point fixings of the glass panels in combination with a conventional track rail profile. The design, featuring a high-grade stainless steel finish and the distinctive flush-mounted or clamping disc attachments, coordinates perfectly with contemporary architecture. Even curved glazing can be securely held by this system. And this can also be combined with curved track rail profiles to produce unique configurations. The standard glass thickness is 10/12 mm. Further glass thicknesses on request.

Max. panel sizes and weights

Max. system height	3,000 mm	3,000 mm	3,000 mm	3,000 mm
Max. panel width	1200 mm	1200 mm	1200 mm	1200 mm
Max. panel weight	100 kg	100 kg	100 kg	100 kg



Double / single action end panel

Non-sliding. With full-length pivot rod and offset pivot. Single action panel with floor pivot, round spindle and stop. Double action panel with floor pivot or BTS floor spring.

Sliding panel

Fixed when frontage closed.

Double / single action end panel

Non-sliding. With centre pivot top and bottom. Single action panel with floor pivot, round spindle and stop. Double action panel with floor pivot.

Fixed screen

Non-sliding. Fixed side screen with retaining pins at the top and fixed screen straps at the bottom.

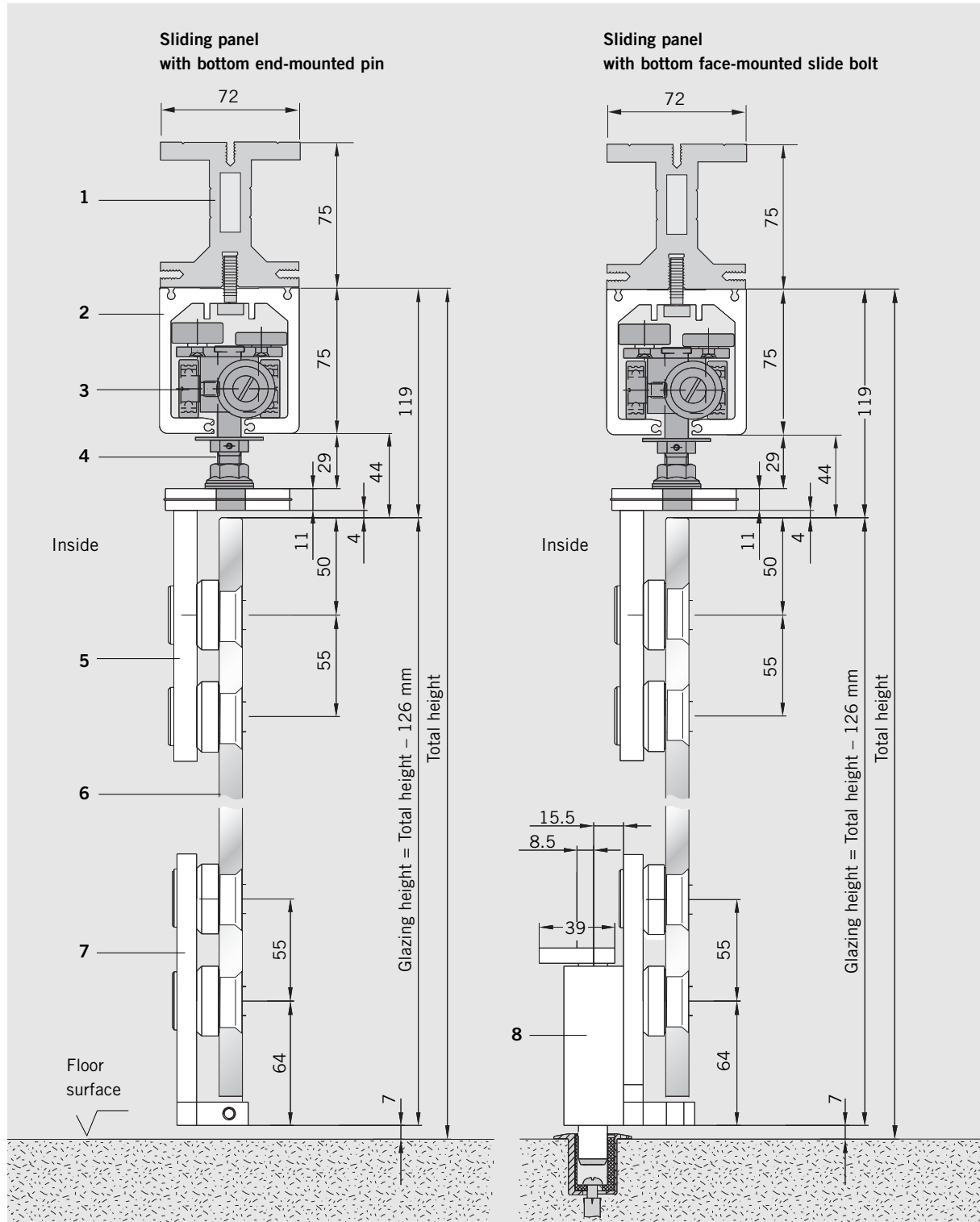
The position of the track is not adjustable.
The width of all panels must be uniform.

HSW-GP system design

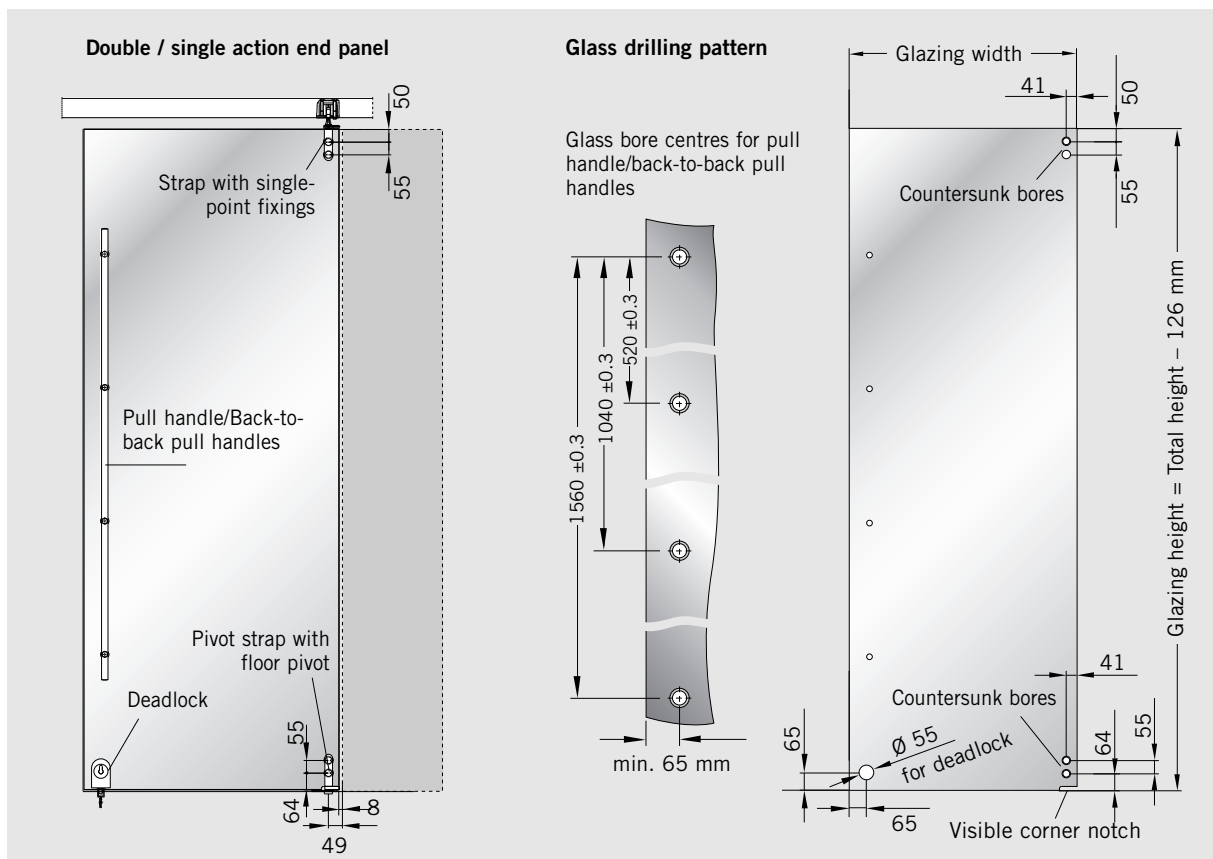
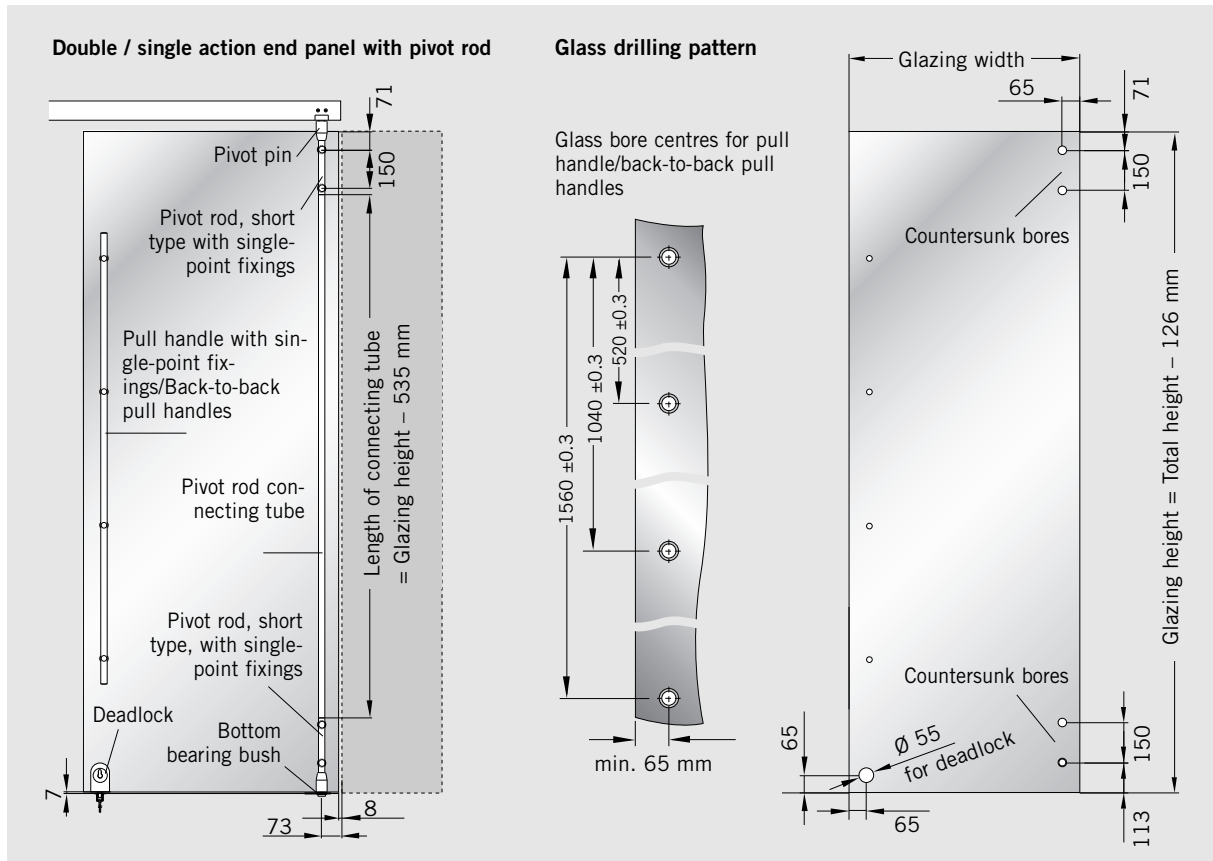
The HSW-GP system consists of the following basic components:

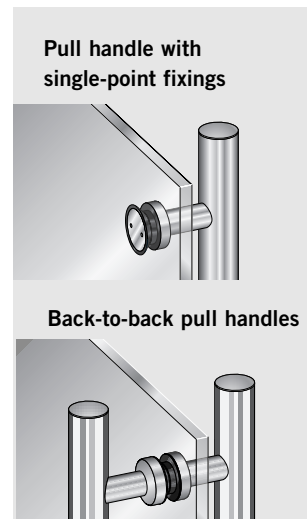
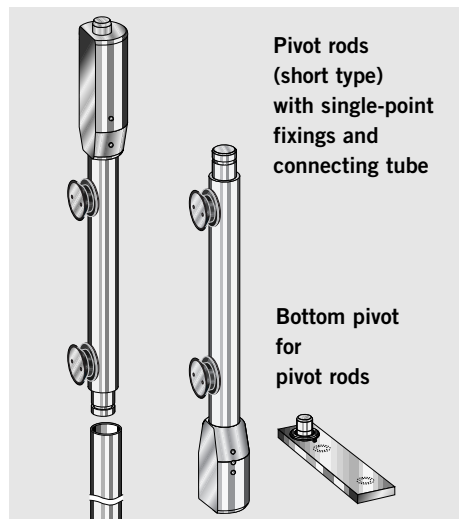
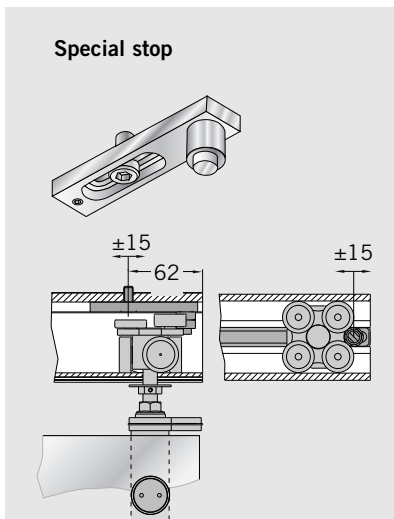
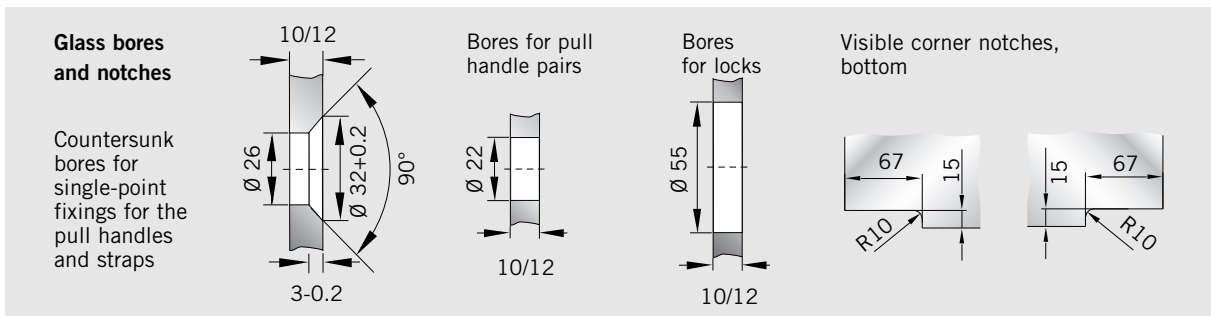
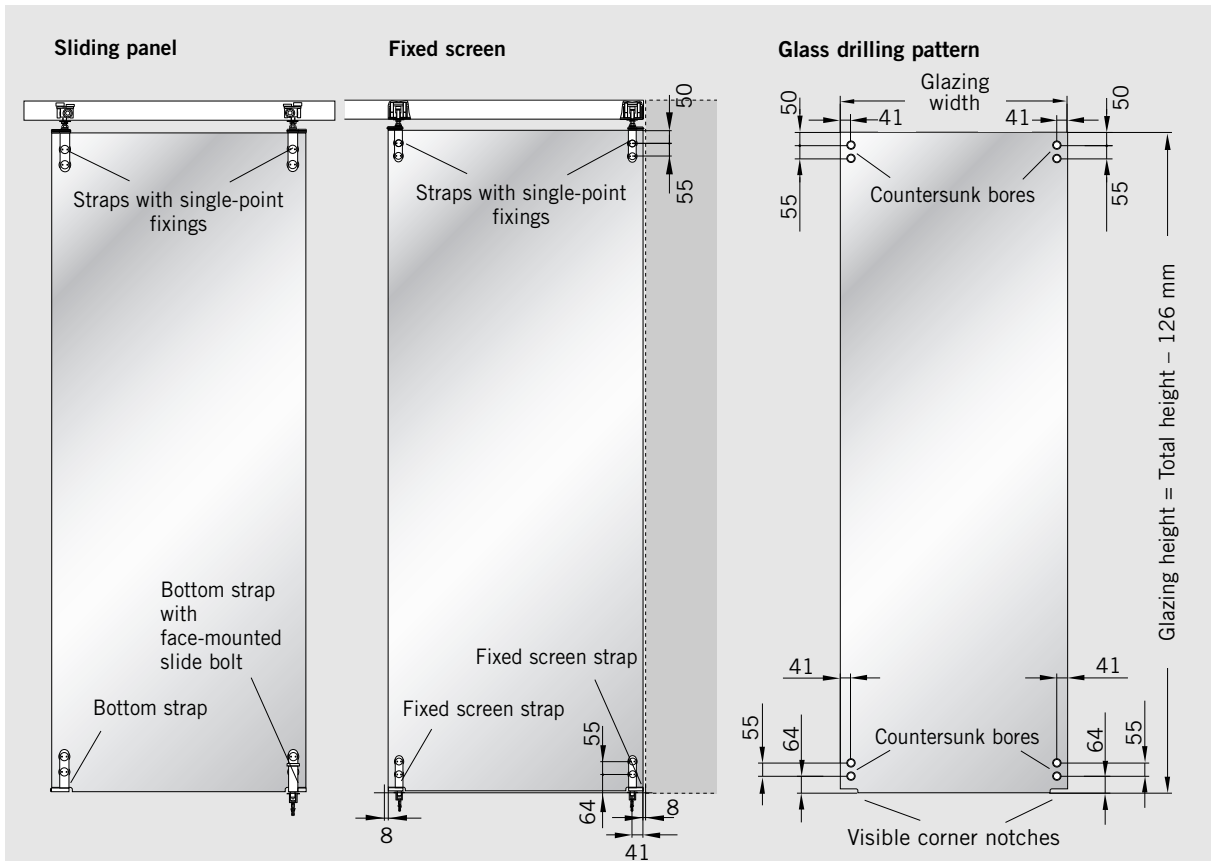
- 1 installation-efficient DORMA substructure to accommodate track rail mounting requirements (optional).
- 2 track rail for bolting to the substructure.

- 3 roller,
- 4 suspension assembly,
- 5 strap with single-point fixings,
- 6 toughened safety glass or toughened laminated safety glass (by others),
- 7 bottom strap with end-mounted pin,
- 8 bottom strap with face-mounted slide bolt.



HSW-GP panel types and glass drilling requirements





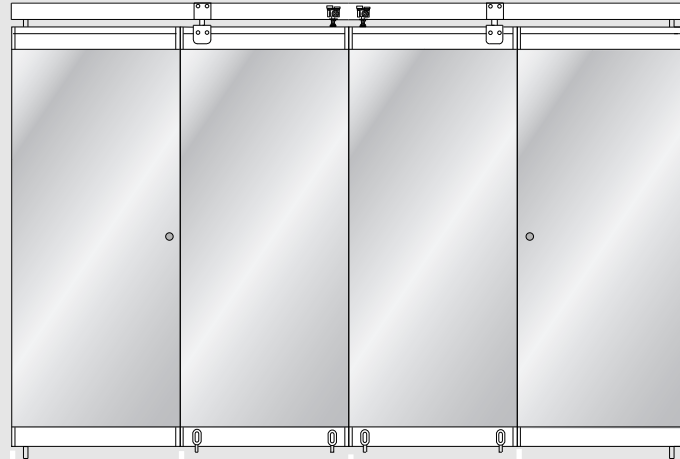
FSW-G panel types and functions

FSW folding sliding walls as fully glazed partitions and frontages, with door rails top and bottom, track roller position at the end of every second panel.



Folding sliding walls are ideal for a straight-line system configuration. In an FSW-G partition, there are either 2 or 4 interlinked panels (1 base panel and 1 or 3 folding panels). With double assemblies moving counter to each other (bi-parting), therefore, it is possible to create frontages comprising up to 8 FSW panels. As the panels of an FSW system are visually compatible with those of the HSW-G line and both systems use the same track construction, the two can be ideally combined as a single shopfront or transparent partition, with the FSW system mating at its free end with a free HSW single-action or double-action access panel (types 4 + 5).

Example:
assembly with 2 x 2 panels (type 1c) moving counter to each other

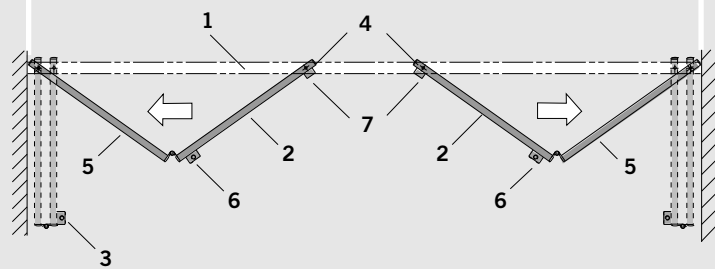


Base panel
with top pivot
and bottom
floor pivot.

Folding panel
with carrier and
locking device
top and bottom.

Folding panel
with carrier and
locking device
top and bottom.

Base panel
with top pivot
and floor pivot.



- 1 Track rail
- 2 Folding panel
- 3 Folding hinge
- 4 Roller

- 5 FSW base panel
- 6 Top locking device
- 7 Bottom locking device

The standard glass thickness is 10/12 mm. Further glass thicknesses on request.

Max. panel sizes and weights

Max. system height	3,000 mm	3,000 mm	3,000 mm	3,000 mm
Max. panel width	1,000 mm	1,000 mm	1,000 mm	1,000 mm
Max. panel weight	70 kg	70 kg	70 kg	70 kg

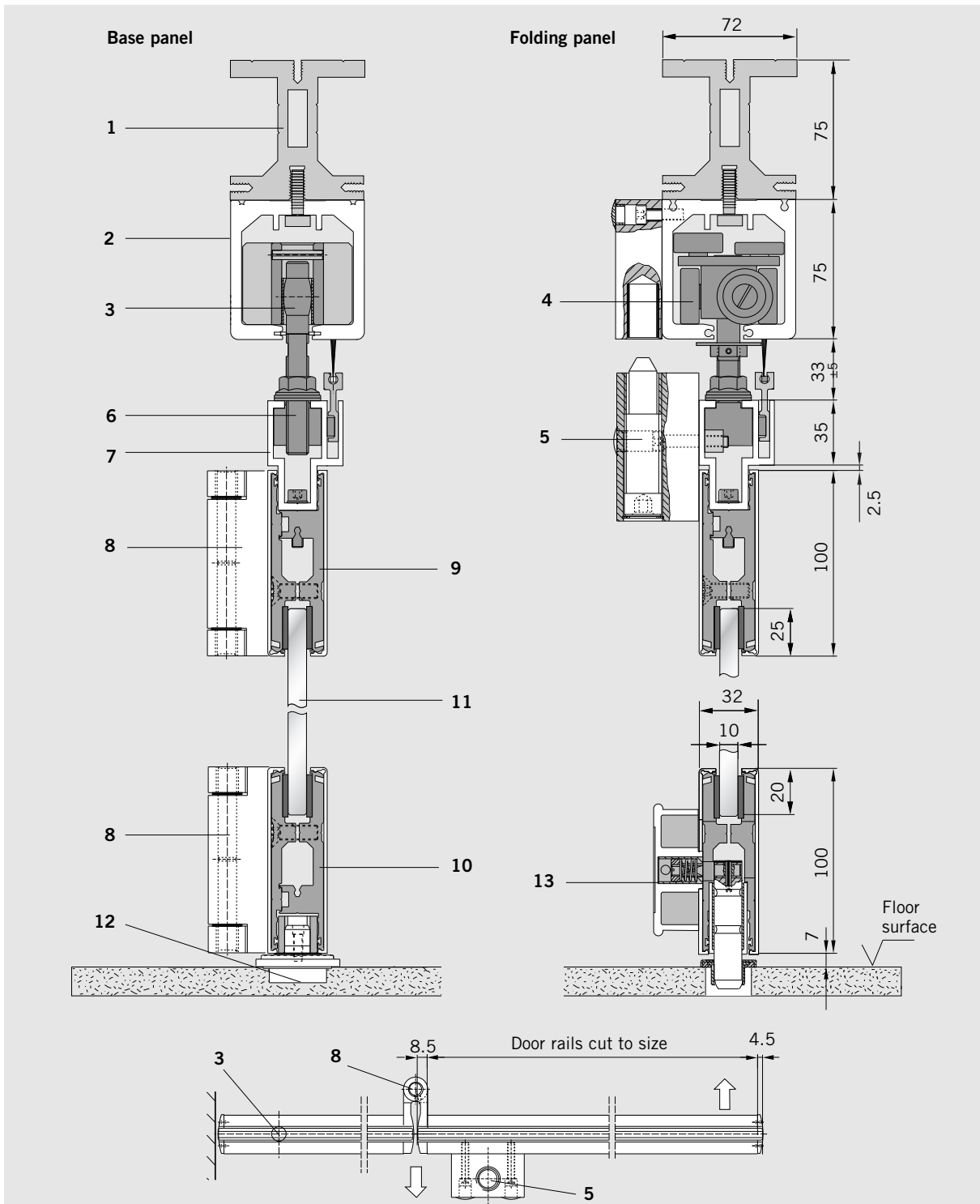
FSW-G system design

The FSW-G system consists of the following basic components:

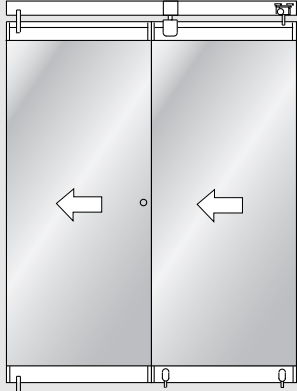
- 1 installation-efficient DORMA substructure to accommodate track rail mounting requirements (optional).
- 2 track rail for bolting to the substructure.
- 3 top pivot,
- 4 roller,

- 5 top locking device,
- 6 suspension assembly and
- 7 carrier profile for safe and easy sliding of the panels.
- 8 folding hinge,
- 9 top door rail and
- 10 bottom door rail, both

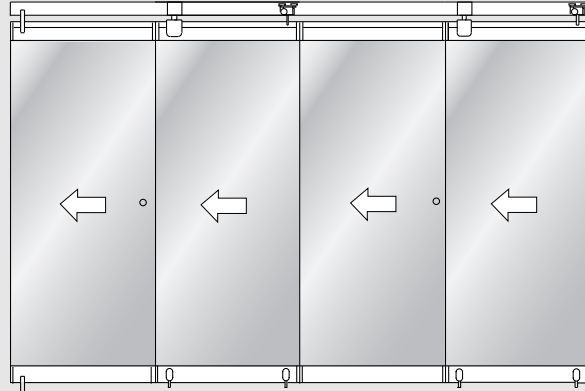
- comprising base profiles with clip-on face and side covers.
- 11 toughened safety glass or toughened laminated safety glass (by others),
- 12 floor pivot,
- 13 face-mounted slide bolt



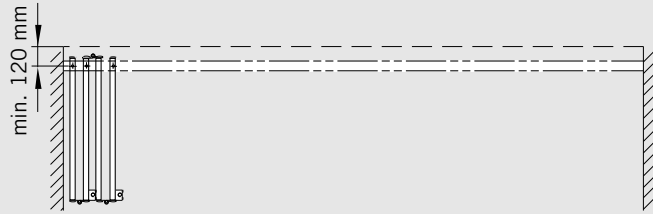
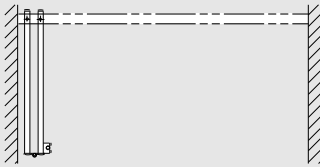
FSW-G assembly types



Type 1



Type 2



Type 1a 2 panels left, as drawn

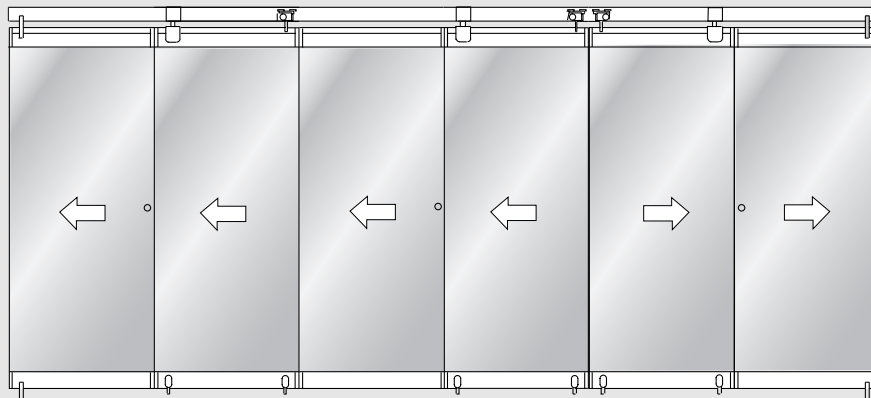
Type 1b 2 panels right, mirror arrangement

Type 1c 4 panels (2 panels left and
2 panels right), bi-parting

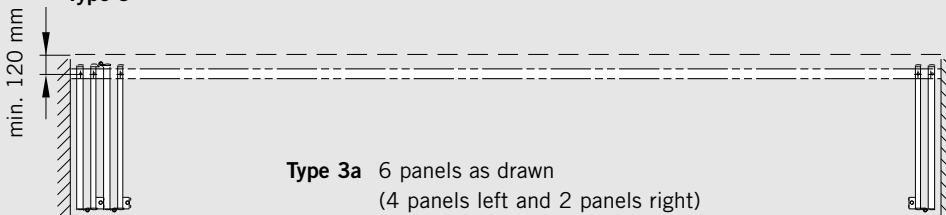
Type 2a 4 panels left, as drawn

Type 2b 4 panels right, mirror arrangement

Type 2c 8 panels (4 panels left and 4 panels right),
bi-parting

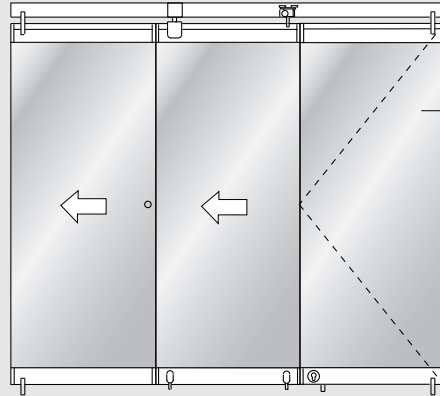


Type 3

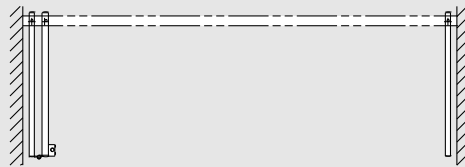


Type 3a 6 panels as drawn
(4 panels left and 2 panels right)

Type 3b 6 panels, mirror arrangement
(2 panels left and 4 panels right)

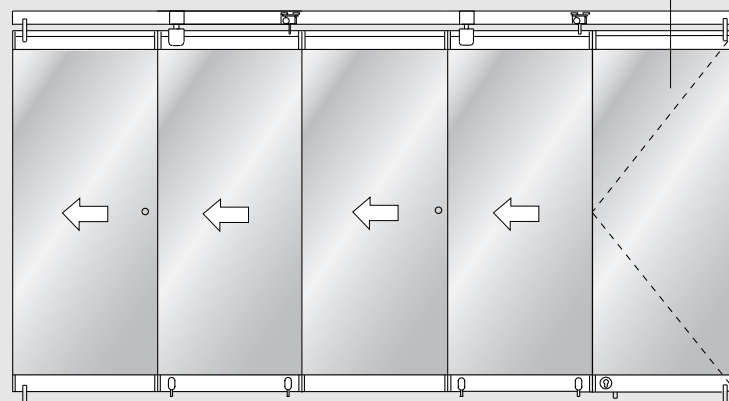


Type 4

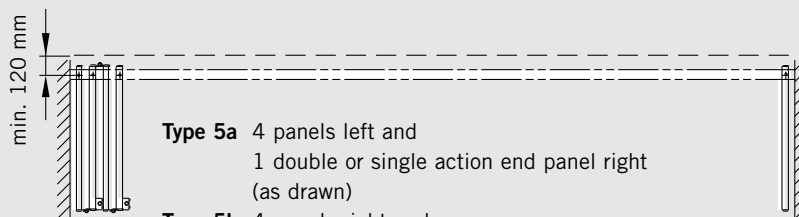


Type 4a 2 panels left and
1 HSW double or single action end panel right
(as drawn)

Type 4b 2 panels right and
1 HSW double or single action end panel left
(mirror arrangement)



Type 5



Type 5a 4 panels left and
1 double or single action end panel right
(as drawn)

Type 5b 4 panels right and
1 double or single action end panel left
(mirror arrangement)

FSW-C panels and functions

Folding sliding walls, fully glazed, with door rails top and bottom, track roller position in the panel centre.

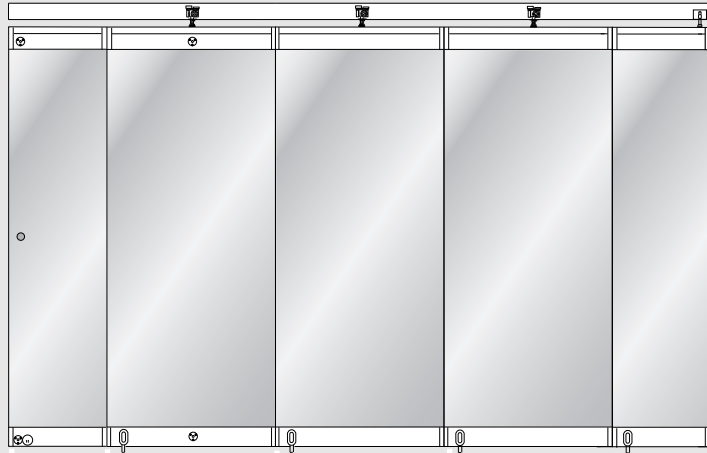
Large spans can be implemented with the FSW-C. Such a system consists of 1 base panel with up to 6 inter-linked folding panels connected to it, plus one final folding panel as the access leaf (or alternatively 1 free single-action or double-action door panel). Hence the number of panels can range from 3 to 8. Because the track rollers are located at the centre of the folding panels, the base panel has to be of half width (+ pivot offset of 63 mm). For reasons of symmetry, the final folding panel without guide roller is usually also of half-width design. The folding hinges have a small degree of pivot offset, which means the panels take up less room when stacked and also gives added stability to the system.

The hinges exhibit a slight pivot offset. This ensures that the folded assembly is particularly compact while at the same time providing for good stability.

The standard glass thickness is 10/12 mm. Further glass thicknesses on request.

For assembly options, see pages 52/53.

Example: assembly type C2 (symmetrical with narrow folding panel)



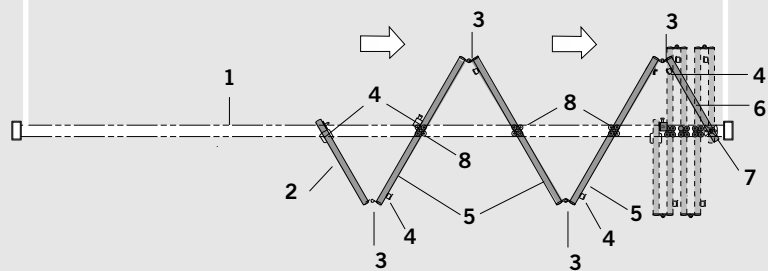
Final folding panel
access leaf with locking devices top and bottom.

Folding panel
with carrier, locking devices top and bottom.

Folding panel
with carrier and locking device bottom.

Folding panel
with carrier and locking device bottom.

Base panel
with top and bottom pivot bearing and locking device bottom.



- | | |
|-----------------------|--------------------------------|
| 1 Track rail | 5 Folding panel |
| 2 Final folding panel | 6 Base panel |
| 3 Folding hinge | 7 Top and bottom pivot bearing |
| 4 Locking device | 8 Roller |

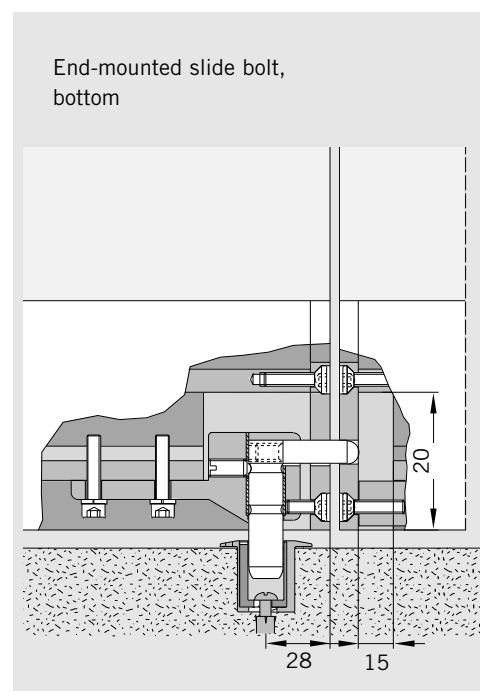
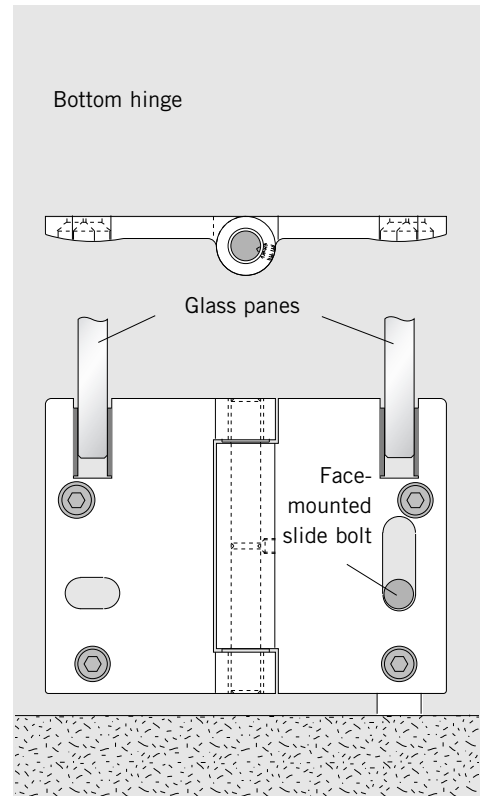
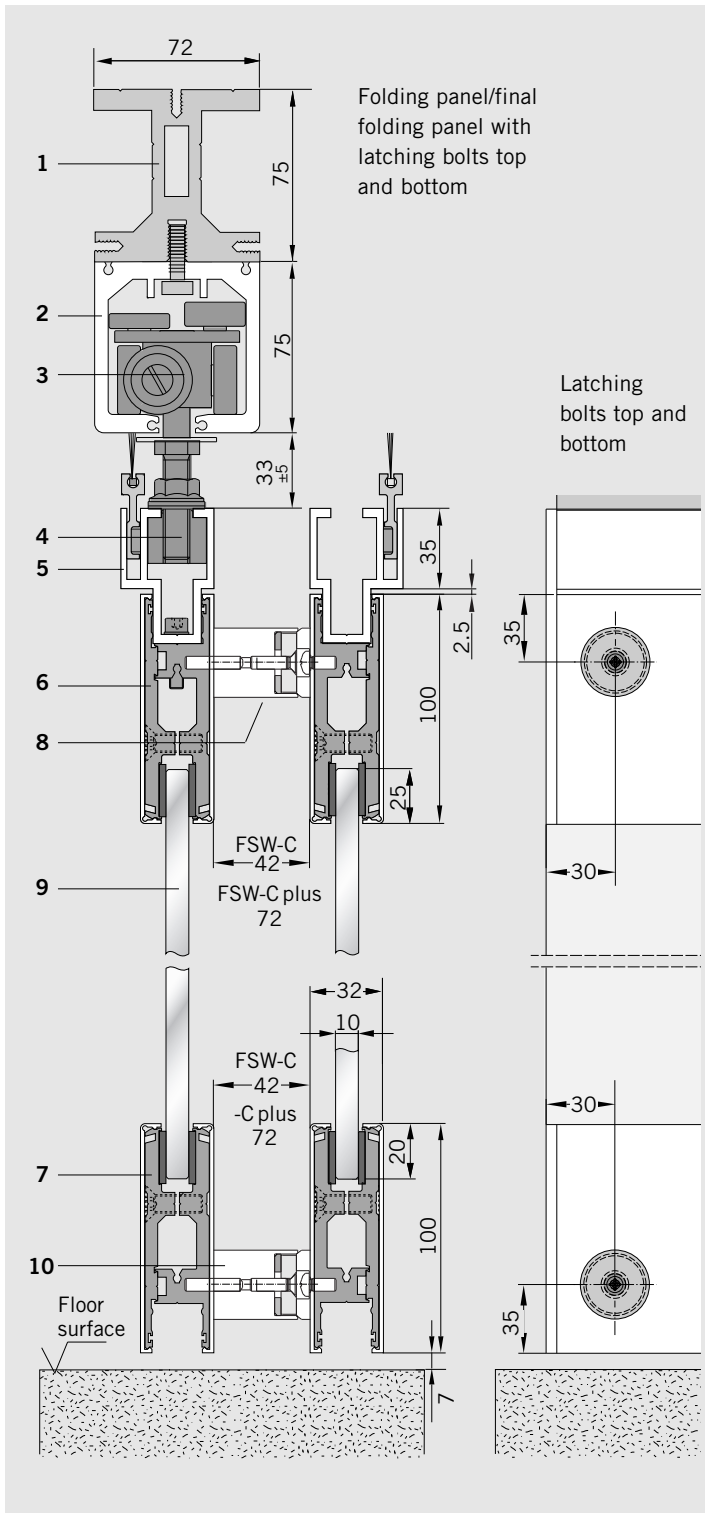
Maximum panel sizes and weights

Max. assembly height	3,000 mm	3,000 mm	3,000 mm	3,000 mm	3,000 mm
Max. panel width	1,000 mm	1,000 mm	1,000 mm	1,000 mm	1/2 panel width + 63 mm
Max. panel weight	-	70 kg	70 kg	70 kg	70 kg

FSW-C system design

The FSW-C system consists of the following basic components:

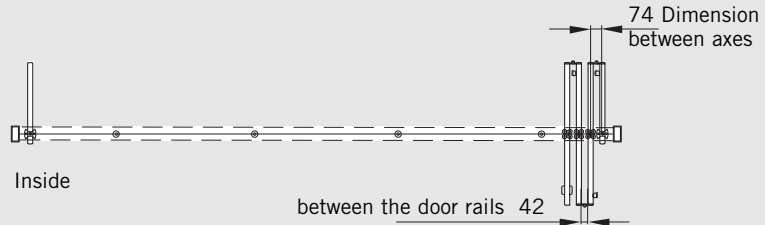
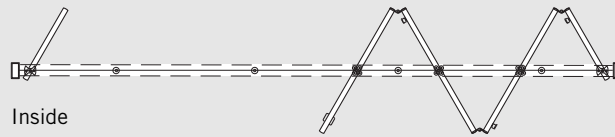
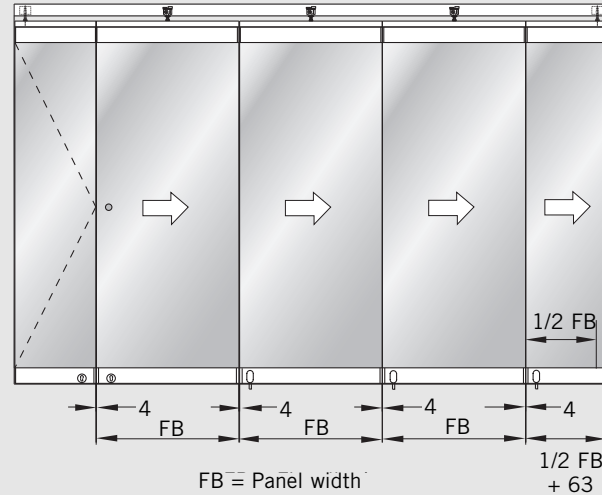
- 1 installation-efficient DORMA substructure to accommodate track rail mounting requirements (optional).
- 2 track rail for bolting to the substructure.
- 3 roller,
- 4 suspension assembly and
- 5 carrier profile for safe and easy sliding of the panels.
- 6 top door rail and
- 7 bottom door rail, both comprising base profiles
- 8 top latching bolt,
- 9 toughened safety glass or toughened laminated safety glass (by others),
- 10 bottom latching bolt.



FSW-C assembly types

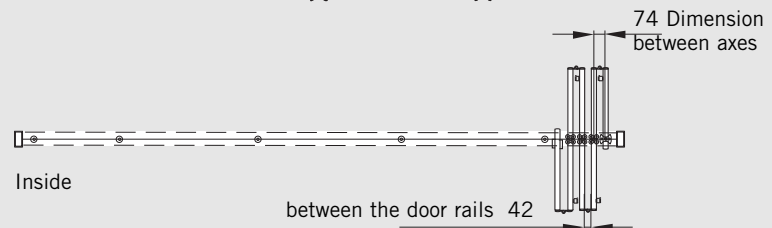
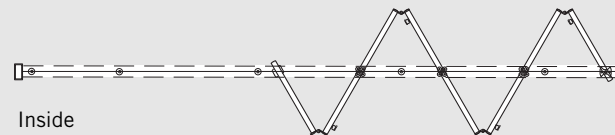
Type C1

- 1 HSW single action end panel as access leaf (here of narrow design for reasons of symmetry)
- 1 - 6 folding panels
- 1 base panel (narrow)



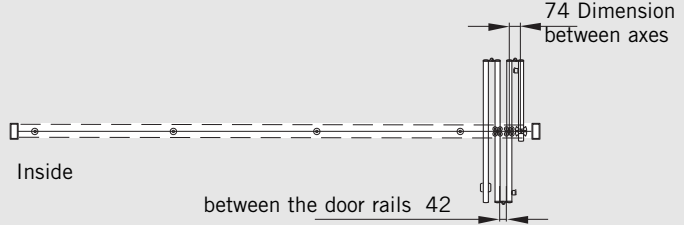
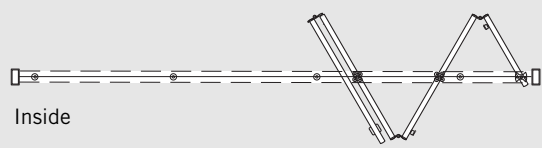
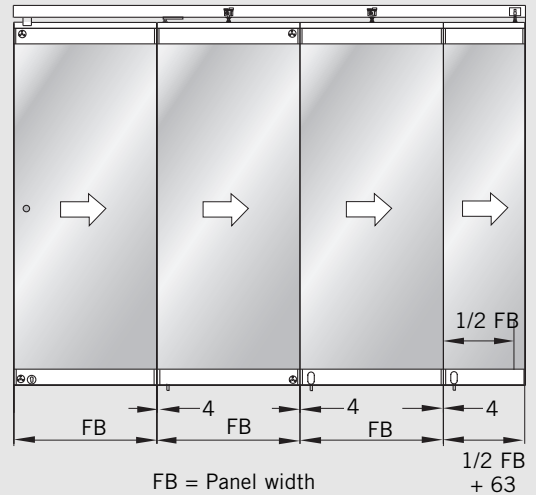
Type C2

- 1 final folding panel (here of narrow design for reasons of symmetry)
- 1 - 6 folding panels
- 1 base panel (narrow)



Type C3

- 1 final folding panel as access leaf
- 1 - 6 folding panels
- 1 base panel (narrow)



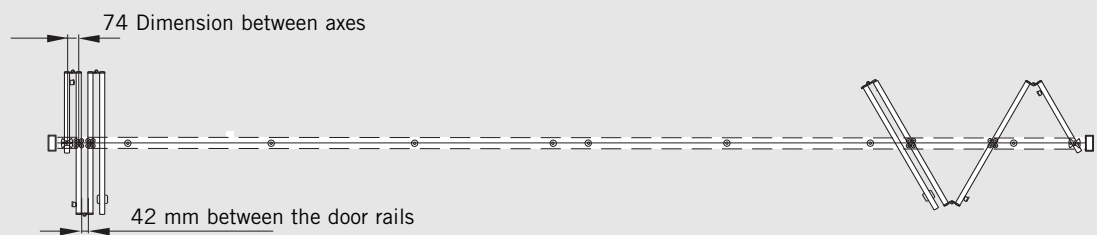
Type C3 double (counter-running) system

Left:

- 1 base panel (narrow)
- 1 - 6 folding panels
- 1 final folding panel as access leaf

Right:

- 1 final folding panel as access leaf
- 2 folding panels
- 1 base panel (narrow)



FSW-C plus, panel types, functions, assembly types

Access with convenience – the plus with the FSW-C.

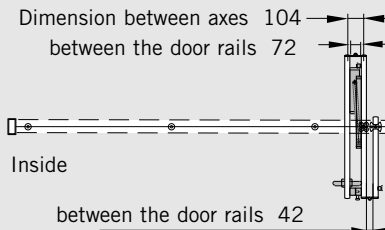
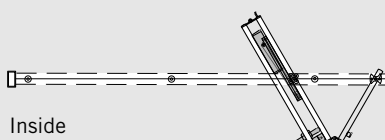
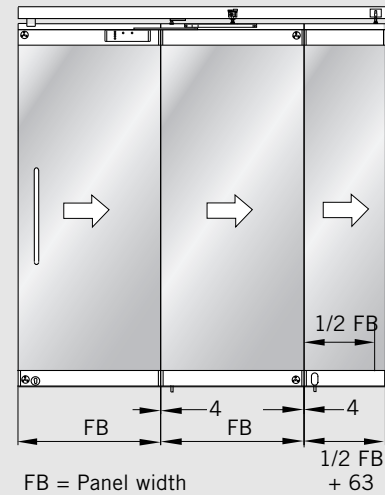
Basierend auf dem Aufbau
Based on the design of the FSW-C, the alternative FSW-C plus offers the added benefit that the connected final folding panel can also function as a fully fledged access leaf when the partition is closed – with all the convenience of the DORMA TS 93 G door closer.

In this case, the special bottom locking device and the top clamp-mounted stop stabilise the first folding panel, while the top angle stop ensures that the closed final folding panel is in the correct position.

The folding hinges connecting the access leaf to the folding panel have a large pivot point offset in order to create room for the door closer and pull handles. All the other folding panels are equipped with a standard folding hinge and roller.

Type Cp1

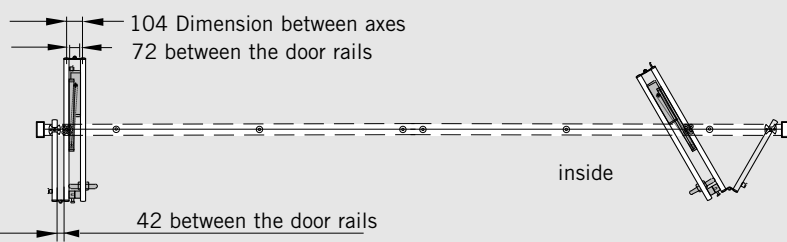
- 1 final folding panel as access leaf with TS 93 G door closer
- 1 - 6 folding panel
- 1 base panel (narrow)



Type Cp1 double (counter-running) system

- Left:
- 1 base panel (narrow)
 - 1 folding panel
 - 1 - 6 final folding panel as access leaf with TS 93 G door closer

- Right:
- 1 final folding panel as access leaf with TS 93 G door closer
 - 1 - 6 folding panel
 - 1 base panel (narrow)



Max. panel sizes and weights

Max. system height 3,000 mm

Max. width of final folding panel and folding panel
1,000 mm

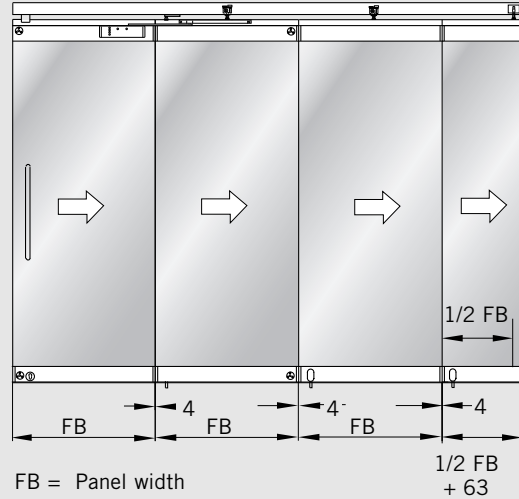
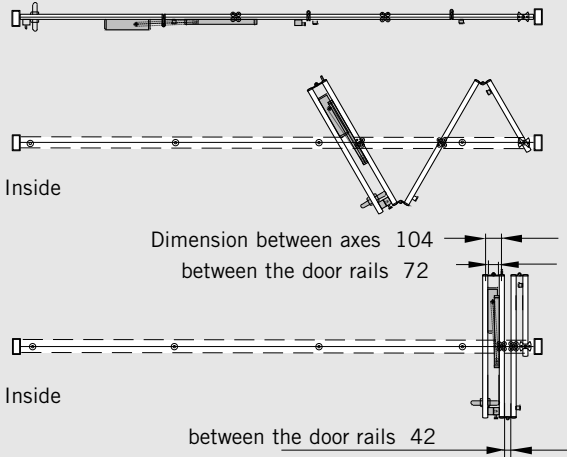
Width of the base panel
= half panel width + 63 mm

Max. weight of final folding panel and folding panel
70 kg

Number of panels 3 to 8

Type Cp2

- 1 final folding panel as access leaf with TS 93 G door closer
- 1 - 6 folding panel
- 1 base panel (narrow)



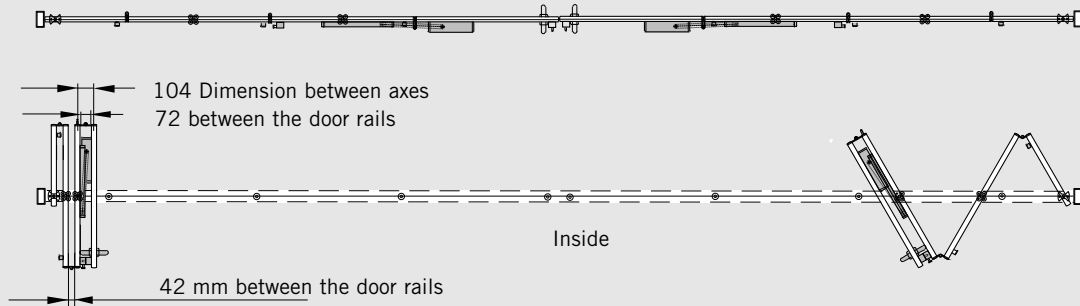
Type Cp2 double (counter-running) system

Left:

- 1 base panel (narrow)
- 2 folding panels
- 1 final folding panel as access leaf with TS 93 G door closer

Right:

- 1 final folding panel as access leaf with TS 93 G door closer
- 1 - 6 folding panel
- 1 base panel (narrow)



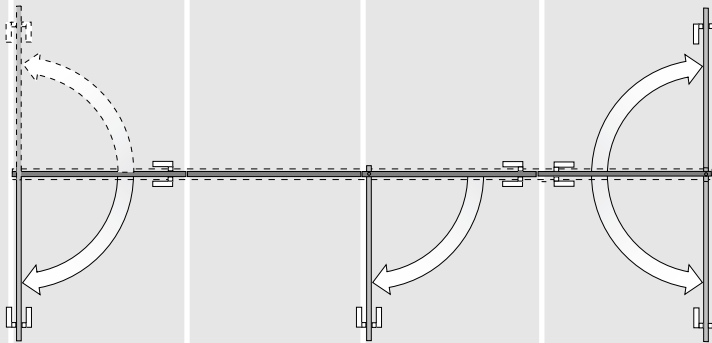
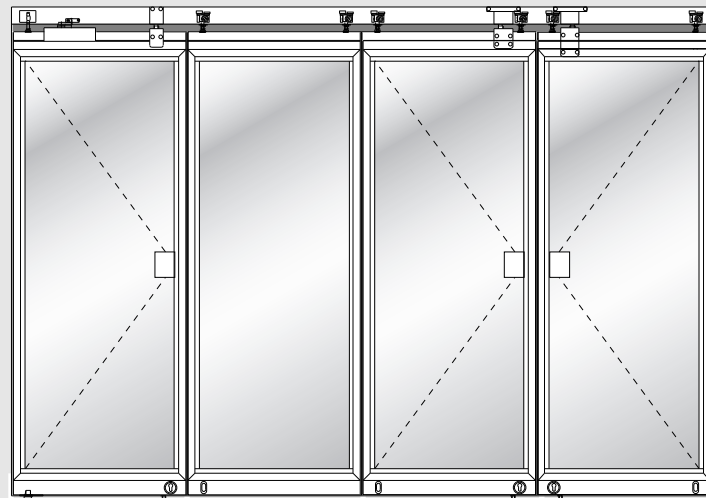
Data and features	TS 93	
	EN 2-5	EN 5-7
Closing strength/size	EN 2-5	EN 5-7
Closing force, variable	via adjusting screw	via adjusting screw
Closing speed adjustment	via valve	via valve
Non-handed	yes	yes
Latching speed adjustment	via valve	via valve
Cushioned stay limit adjustment	80°-120°	80°-120°
Hold-open adjustment	75°-150°	75°-150°
Weight	3.5 kg	5.2 kg
Length	275 mm	285 mm
Overall depth	53 mm	62 mm
Height	60 mm	71 mm

HSW-R panel types and functions

Horizontal sliding walls,
fully framed,
for toughened safety glass,
laminated safety glass or
double glazing



Robust profile frames with top, bottom brush seals and side rubber seals for elevated resistance to mechanical loading and decrease of weathering, heat loss and draughts. Prepared for toughened safety glass, laminated safety glass, double glazing or special glazing; standard fixing profile for 8 to 22 mm, other glazing thicknesses on application.



Single / double action end panel

Non-sliding. Double action end panel with floor bearing and top pivot. Optional with floor spring BTS 80 / 84. Or as single action end panel with stop and BTS 80 / 84 or TS 92 / TS 73.

Sliding panel

Fixed when frontage closed.

Single action sliding panel

With integrated concealed door closer type ITS 96, Size 3-6; operational when frontage closed. Minimal panel width 870 mm.

Double action sliding panel *

With integrated concealed door closer type ITS 96, Size 3-6; operational when frontage closed. Minimal panel width 870 mm.

Max. panel sizes and weights

Max. system height	3,000 mm	3,000 mm	3,000 mm	3,000 mm
Max. panel width	1100 mm	1100 mm	1100 mm	1100 mm
Max. panel weight	100 kg	100 kg	100 kg	100 kg

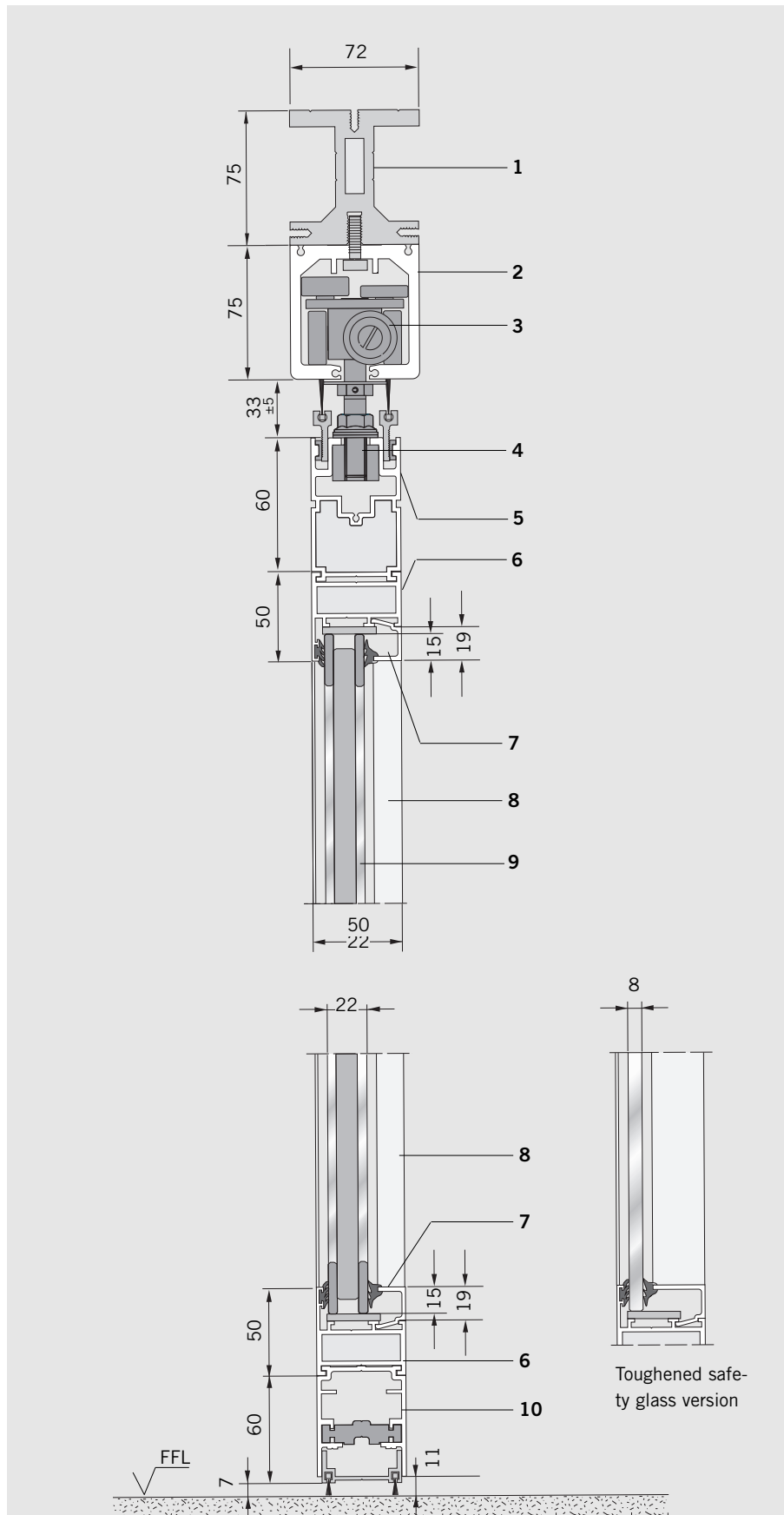
The individual panels can also be of differing widths.
The largest width should not exceed max. 115% of the smallest width.

* For these panel types please consider our notes on portal systems on page 87.

HSW-R system design

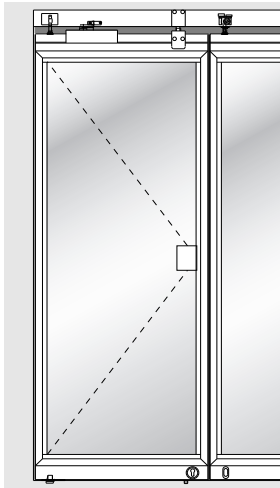
Irrespective of the function of the individual panels, an HSW-R system comprises the following components:

- 1 Installation-efficient DORMA substructure to accommodate track rail mounting requirements (optional)
- 2 Track rail for bolting to the substructure
- 3 Carrier
- 4 Suspension assembly
- 5 Adapter frame
- 6 Glazing frame profile, horizontal
- 7 Glazing rail
- 8 Glazing frame profile, vertical
- 9 Toughened safety glass, laminated safety glass or sealed double glazing units (by others)
- 10 Bottom frame profile



End panel

Non-moving and always equipped with bottom deadbolt with the option of a top bolt or side action dead-lock. Single action or double action options.



Double action end panel

Assembly types:

- 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 of 100-150 kg, provided with hold-open as standard

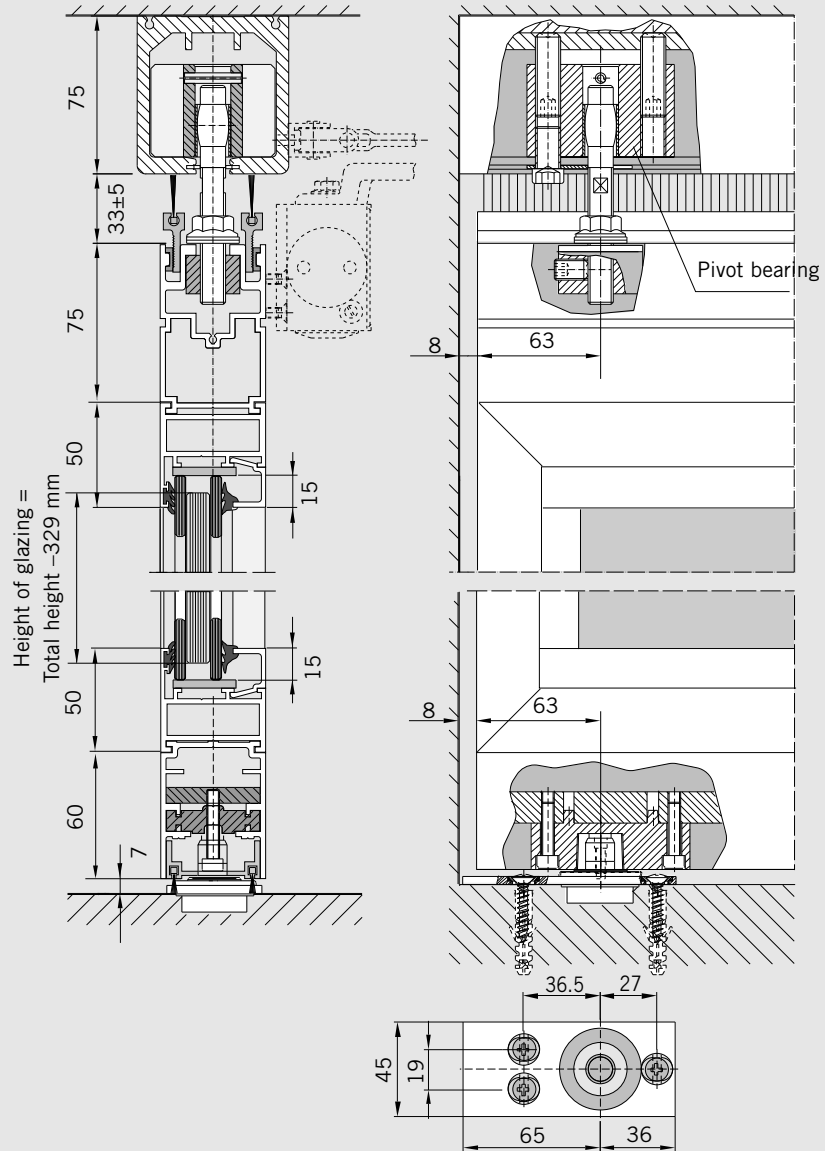
Single action end panel

with stop plates at the top bolt.

Assembly types:

- Floor pivot with round spindle
- As above, but with DORMA TS 73 or 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 of 100-150 kg, provided with hold-open as standard

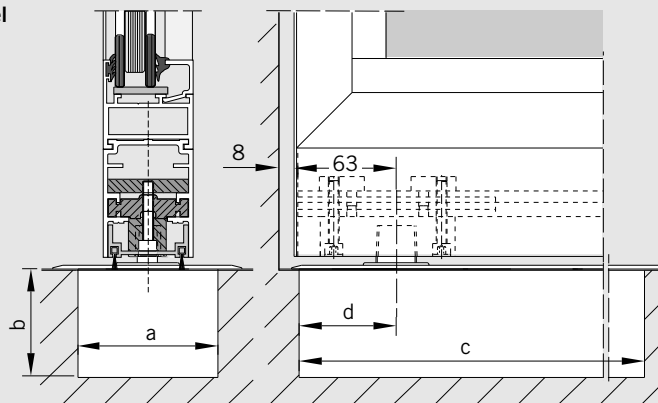
Single action or double action end panel with floor pivot



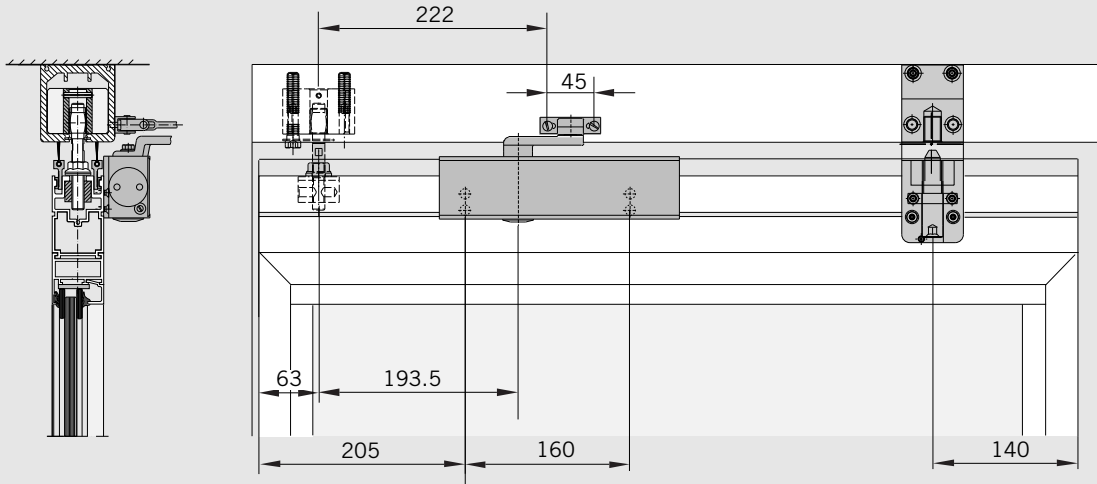
Double action end panel with floor spring

Mounting dimensions

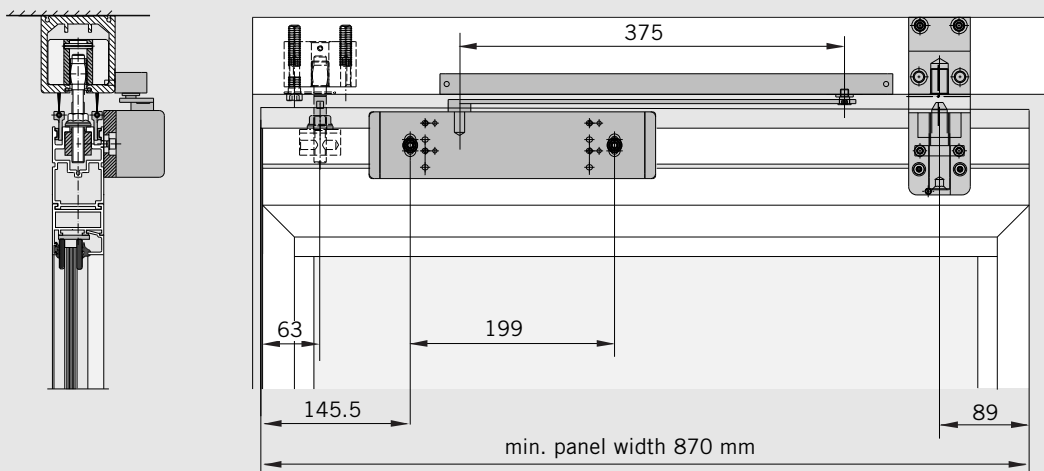
	BTS 80	BTS 84
a	78	108
b	60	40
c	341	306
d	51-57	51-58



Single action end panel with TS 73 overhead door closer and additional locking device and door stop

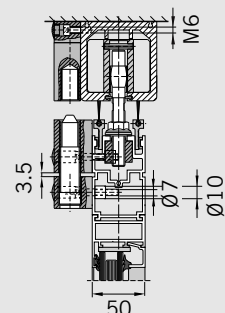


Single action end panel with TS 92 overhead door closer and additional locking device



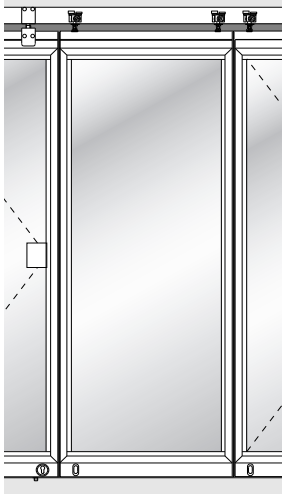
Data and features	TS 73 V	TS 92
Closing strength/size	EN 2-4	EN 2-4
Closing strength, variable	via adjusting screw and arm hinge	via adjusting screw and arm hinge
Closing speed adjustment	via valve	via valve
Non-handed	•	•
Latching speed adjustment	via arm	via arm
Cushioned stay limit adjustment	75°-180°	80°-120°
Hold-open adjustment	75°-160°	75°-150°
Weight	1.8 kg	1.9 kg
Length	233 mm	281 mm
Overall depth	42.50 mm	47 mm
Height	60 mm	65 mm

Additional locking device



Sliding panel

Fixed when partition is closed.

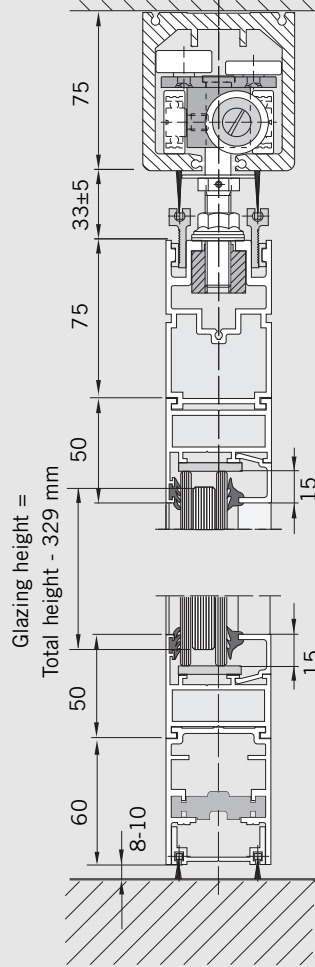


Sliding panels

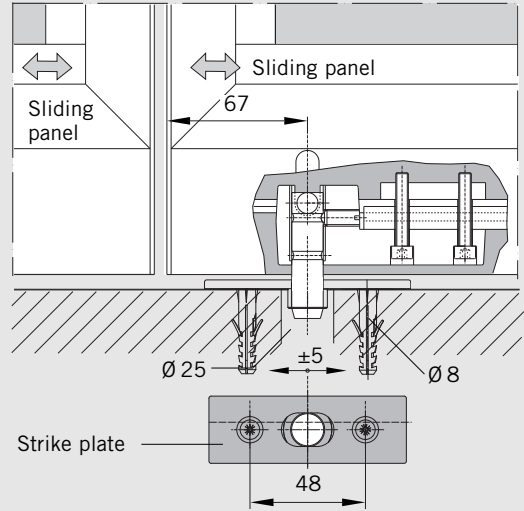
The sliding panels are moving elements. Once in their closed position, they are locked down.

The components available for this are provided in the bottom rail in the form of face-mounted floor bolts or deadlocks.

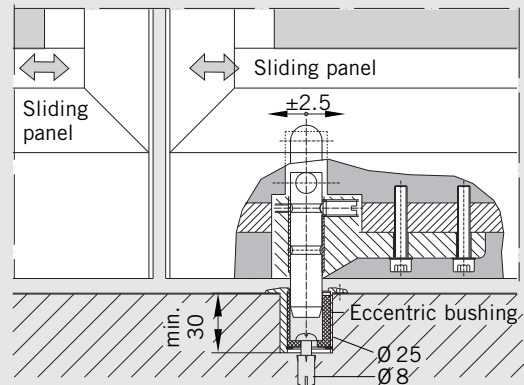
Sliding panel



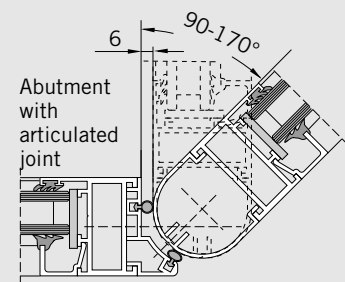
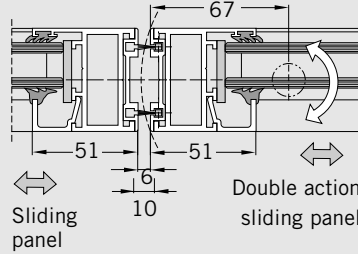
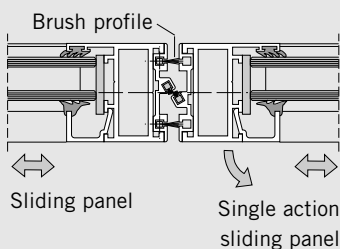
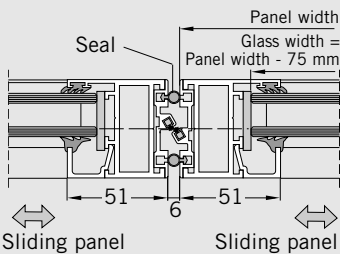
Engaging the panel in the strike plate



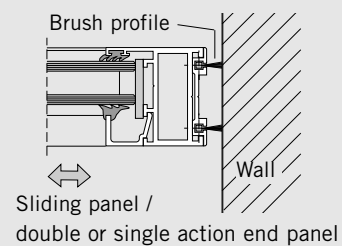
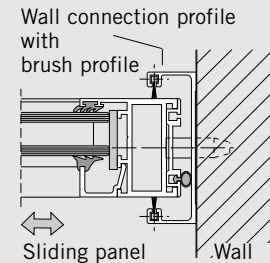
Engaging the panel in eccentric bushing



Sliding panel to panel connections

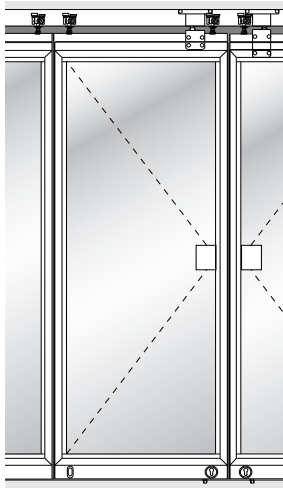


Panel to wall connection



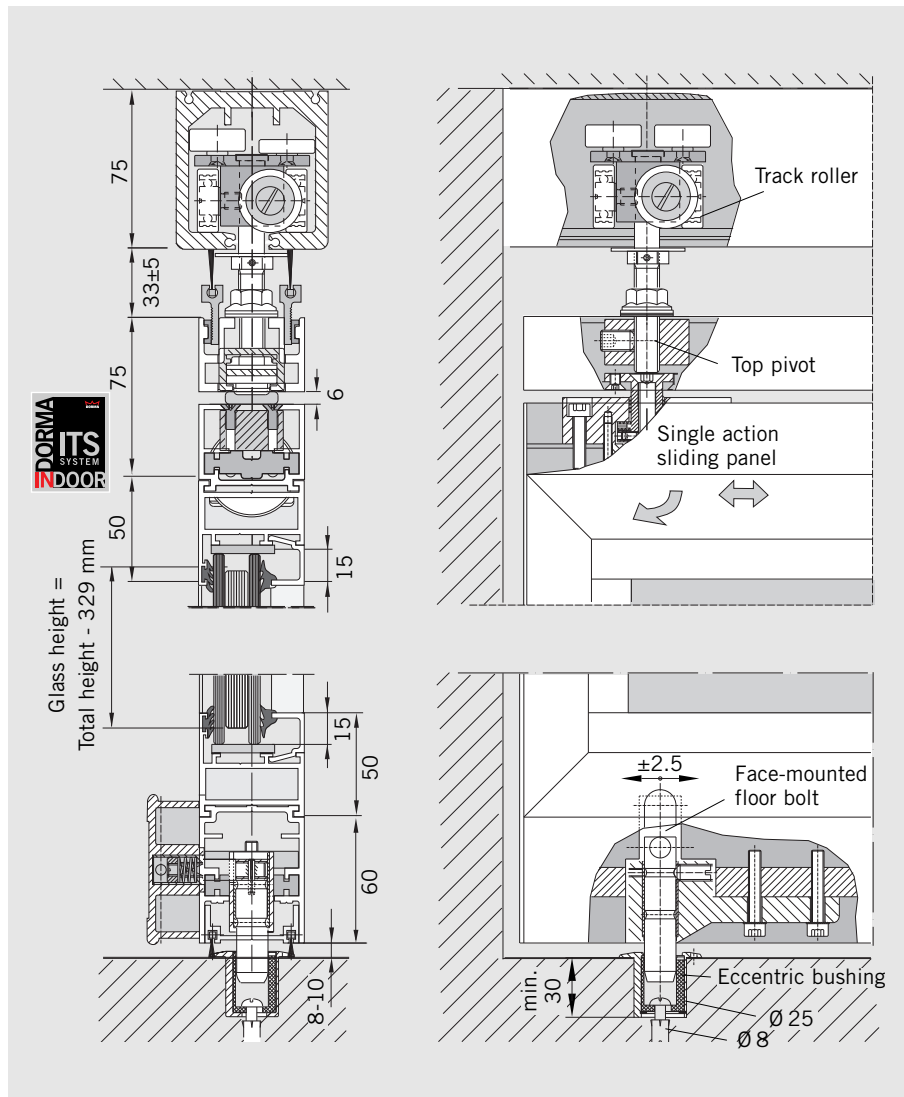
Single action sliding panel

Single action sliding panel with integrated ITS 96, size 3-6 concealed door closer for operation as single action door when the frontage is closed.



Single action sliding panel with integrated DORMA ITS 96 concealed door closer, size 3-6

This panel type is used where passdoors only need to be opened in one direction. The single action sliding panel can be configured for either inward or outward opening.

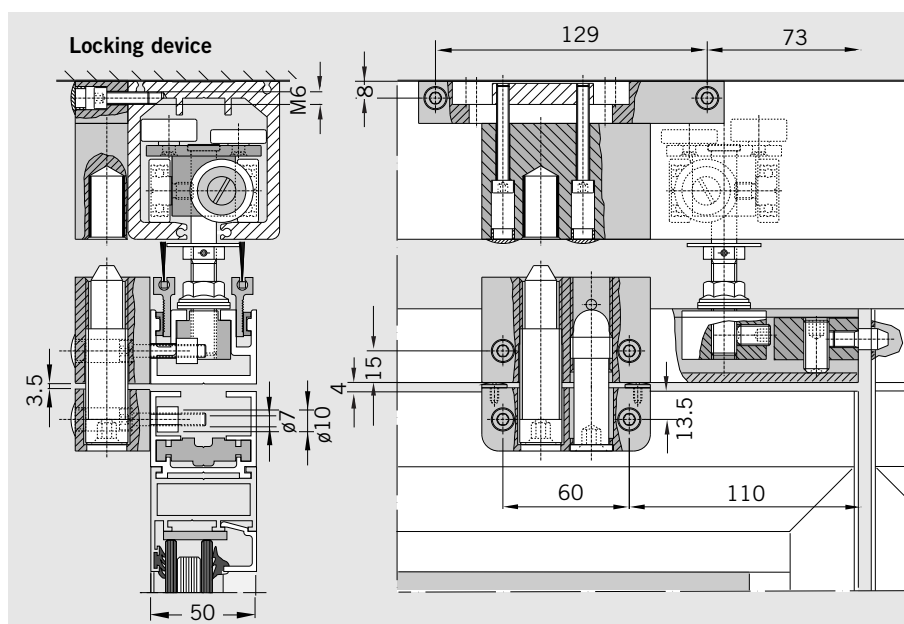


Standard assembly

- top: Pivot bearing, ITS 96, size 3-6, one locking device
- bottom: Face-mounted floor bolt as pivot (released for sliding function)

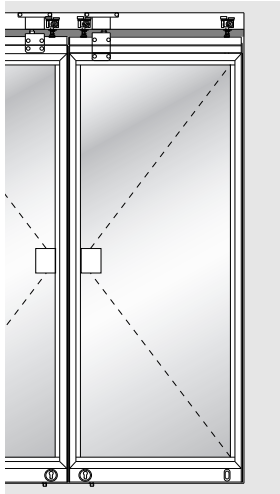
Optional equipment

- top: Second locking device (for reshuffle bypass stacking)
- bottom: Optional second face-mounted floor bolt or deadlock



Double action sliding panel

With integrated ITS 96, size 3-6 concealed door closer, for operation as double action passdoor when the frontage is closed.

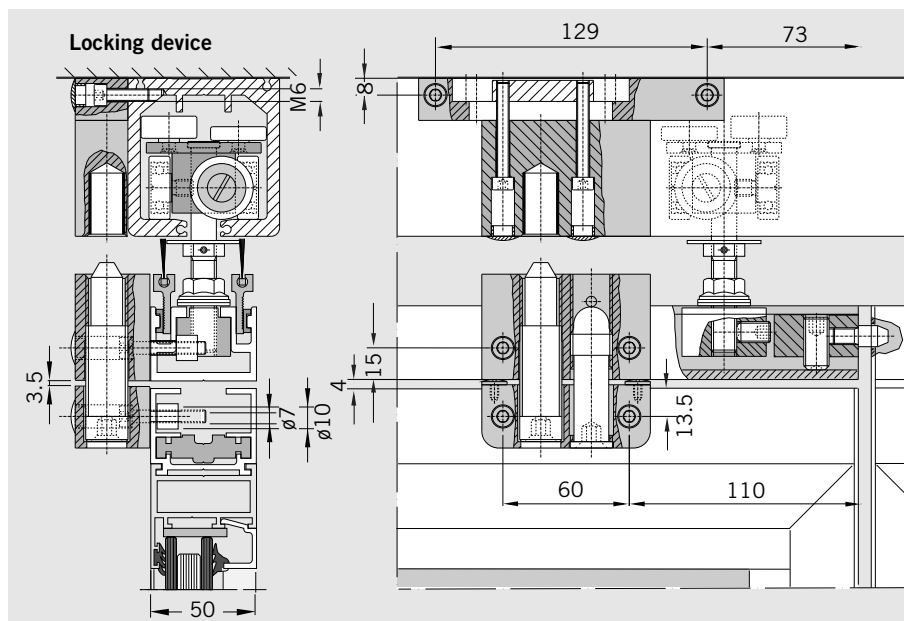
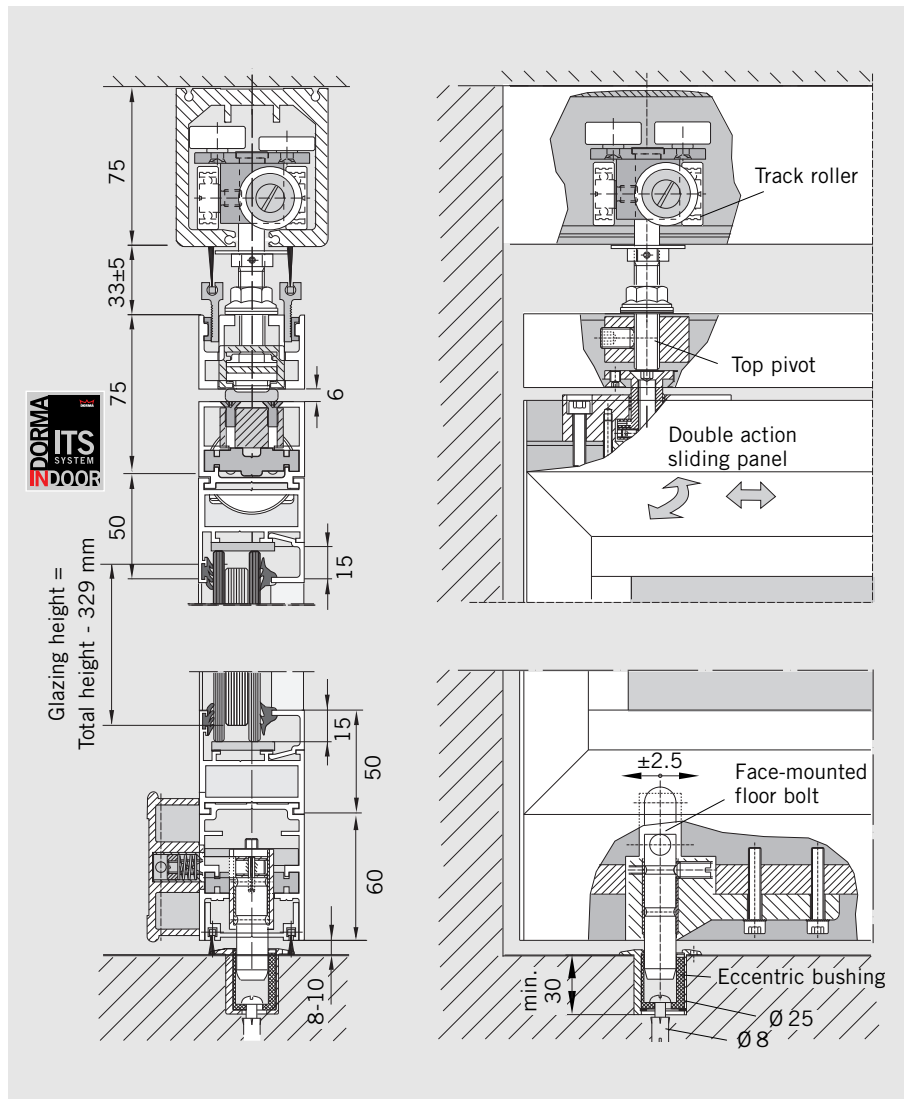


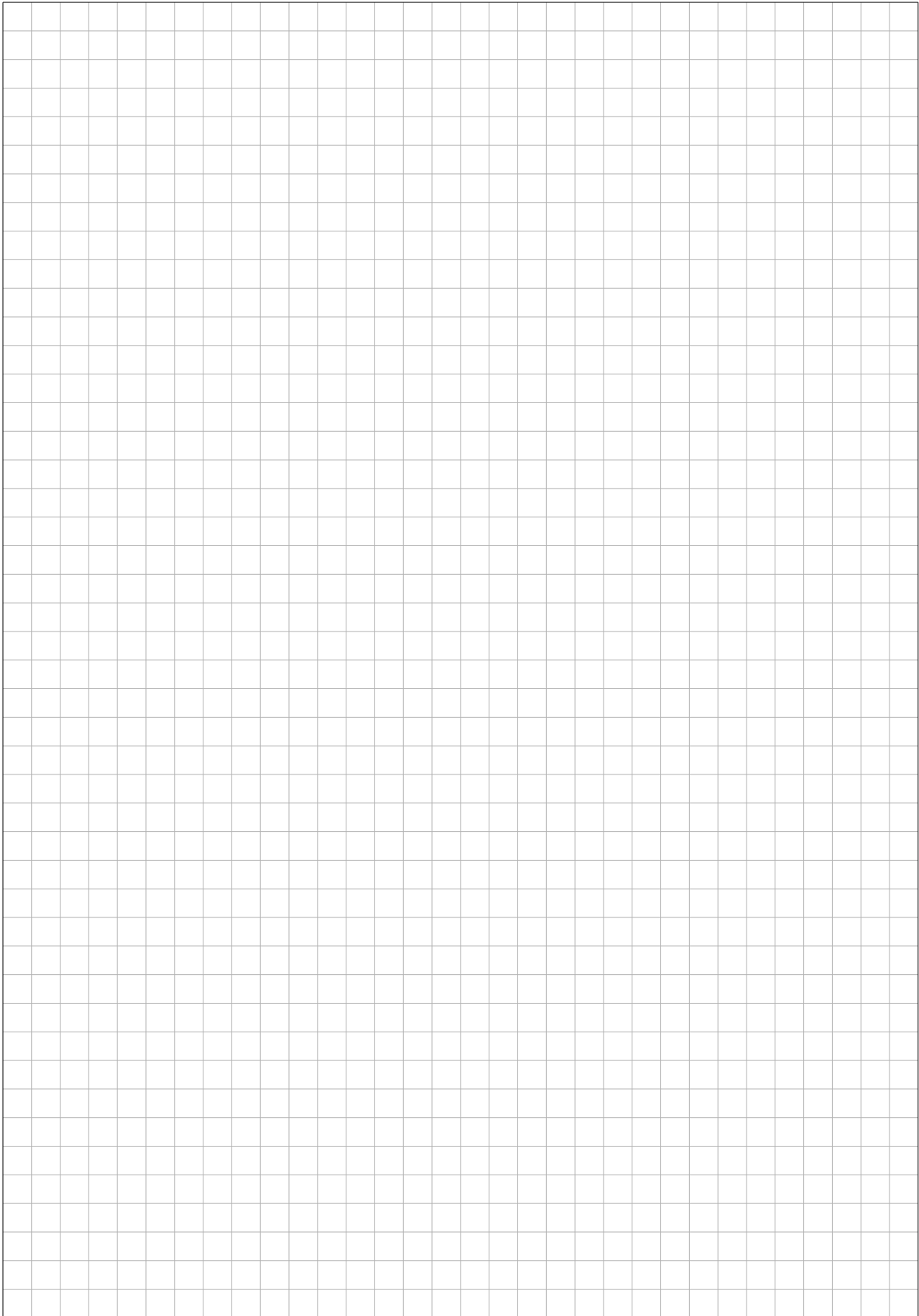
Double action sliding panel with integrated DORMA ITS 96 concealed door closer, size 3-6

Double action sliding panels with DORMA ITS 96, size 3-6 door closers are characterised by their exceptional ease of installation and operation. These passdoor panels are generally equipped with a bottom deadlock and top locking device plus a bottom floor bolt operating as the pivot bearing (released for the sliding function).

The ITS 96 does not feature a hold-open function as standard.

For these panel types please consider our notes on portal systems on page 87.





HSW-ISO panel types and functions

Double glazing with thermal-break frame profiles.



Panel types

These double-glazed panels with their frames of thermal-break profiles (frame material group 2.1) offer outstanding protection against the influences of the weather, effective thermal insulation and comfortable temperatures - even close to the frontage surface - during seasonal changes and in the winter months. And all these effects are ideally enhanced by laterally arranged, interlocking multiple-lip seals plus automatically extending top and bottom rubber seals that are pressed against the track rail and floor when the frontage is closed. Double glazing thickness 24 - 49 mm.

Max. panel sizes and weights

Max. system height	3,000 mm	3,000 mm	3,000 mm	3,000 mm
Max. panel width	1100 mm	1100 mm	1100 mm	1100 mm
Max. panel weight	120 kg	120 kg	120 kg	120 kg

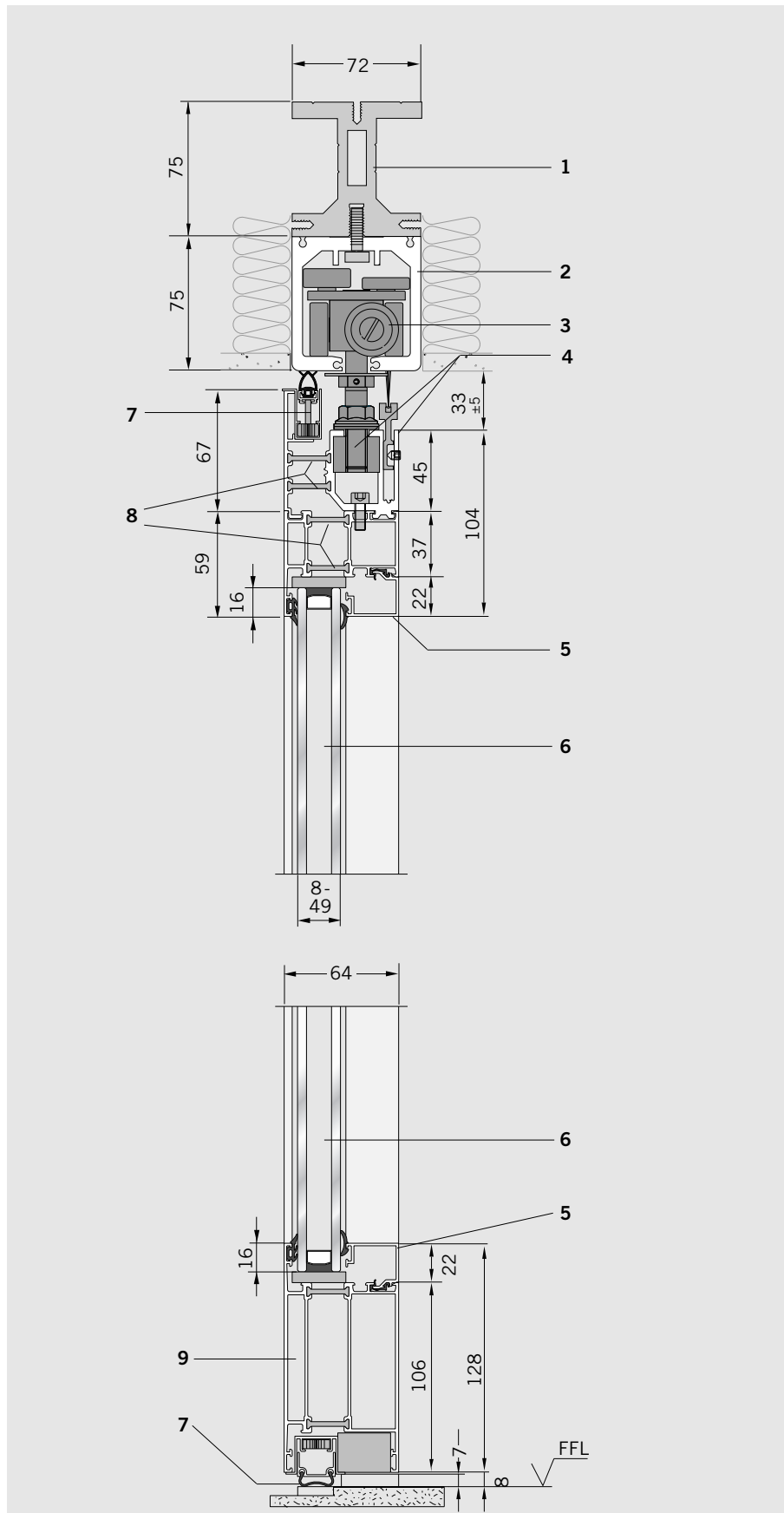
Single action door	Sliding panel	Single action sliding panel	Fixed screen
Single action panel, non-sliding, equipped with TS 92/93 door closer (optional)	Fixed when frontage closed.	Single action sliding panel for door access when frontage closed; with ITS 96 EN 3-6 concealed cam-action door closer, or with TS 92/TS 93 cam-action door closers if required.	Non-sliding side screen with top retaining brackets and bottom rail.

The individual panels can also be of differing widths.
The largest width should not exceed max. 115% of the smallest width.

HSW-ISO system design

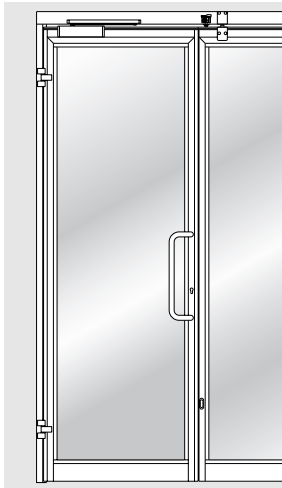
Irrespective of the function of the individual panels, an HSW-ISO system comprises the following basic components:

- 1 Installation-efficient DORMA substructure to accommodate track rail mounting requirements (optional)
- 2 Track rail for bolting to the substructure.
- 3 Carrier
- 4 Suspension assembly and bearing profile for safe and easy sliding of the panels
- 5 Glazing rail
- 6 Sealed double glazing unit (by others)
Glass thickness 8-49 mm
- 7 Automatically extending rubber seal
- 8 Insulating strips in the thermal-break profile
- 9 Bottom frame profile



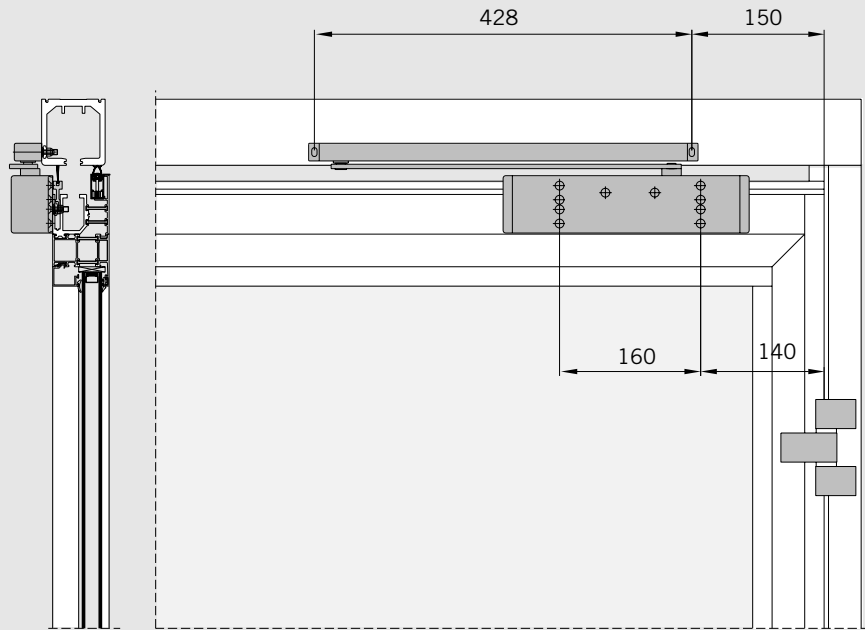
Single action door with wall connection profile

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



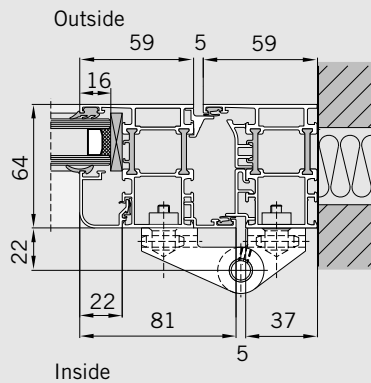
The single action door with wall connection arm assembly can be swung round 170°, so leaving the entire operating zone free. The closed panel is secured by a mortise centre lock.

Single action door with wall connection

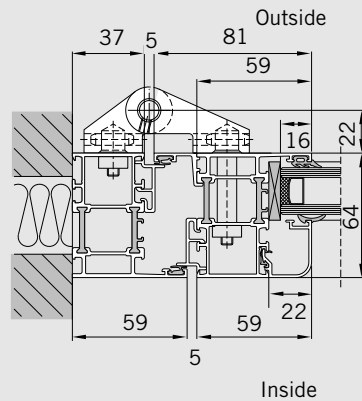


Single action door with wall connection

Inward opening



Outward opening



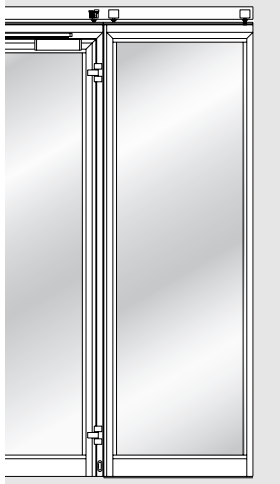
In order to provisionally determine the glazing area per panel, please apply the following formula:

$$\text{Approx. glazing area per panel} = \text{Panel width} \times \text{total height} \times 0.78$$

The precise dimensions of the sealed double glazing units to be ordered should be exclusively taken from the approval drawing released by DORMA-Glas.

Fixed screen

Non-sliding side screen that decouples from the rest of the system.



The fixed screen has the same appearance as the sliding panels. Instead of the automatically extending bottom rubber seal, it features a bottom rail.

Fixed screen with wall connection

Outside 59
Inside 76
64
16
22 59

Fixed screen with wall connection profile

Outside 77 5 37
Inside 64 16 22 59 54

In order to provisionally determine the glazing area per panel, please apply the following formula:
Approx. glazing area per panel
= Panel width x total height x 0.78

The precise dimensions of the sealed double glazing units to be ordered should be exclusively taken from the approval drawing released by DORMA-Glas.

Sound protection

Measurements performed by the Institute for Window Technology (Institut für Fenstertechnik e.V., Rosenheim), revealed a sound protection value of min. 27 dB based on a four-panel installation.

Thermal protection

The heat transfer coefficient U_w will be calculated according to DIN EN 10077-1.

Example value:

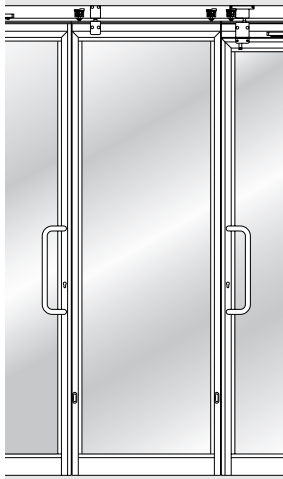
Panel B 900 x H 2,500, U_g (glass) = 1.1 W/m²K, U_f (frame) = 2.6 W/m²K, U_w = 1.9 W/m²K

The values necessary for calculating the U_w value are indicated in DIN EN ISO 10077-1:2006.

Data and features	TS 92		TS 93	
Closing strength/size	EN 2-4		EN 2-5	EN 5-7
Closing force, variable	via adjusting screw		via adjusting screw	via adjusting screw
Closing speed adjustment	via valve		via valve	via valve
Non-handed	yes		yes	yes
Latching speed adjustment	via valve		via valve	via valve
Cushioned stay limit adjustment	80°-120°		80°-120°	80°-120°
Hold-open adjustment	75°-150°		75°-150°	75°-150°
Weight	1.9 kg		3.5 kg	5.2 kg
Length	281 mm		275 mm	285 mm
Overall depth	47 mm		53 mm	62 mm
Height	65 mm		60 mm	71 mm

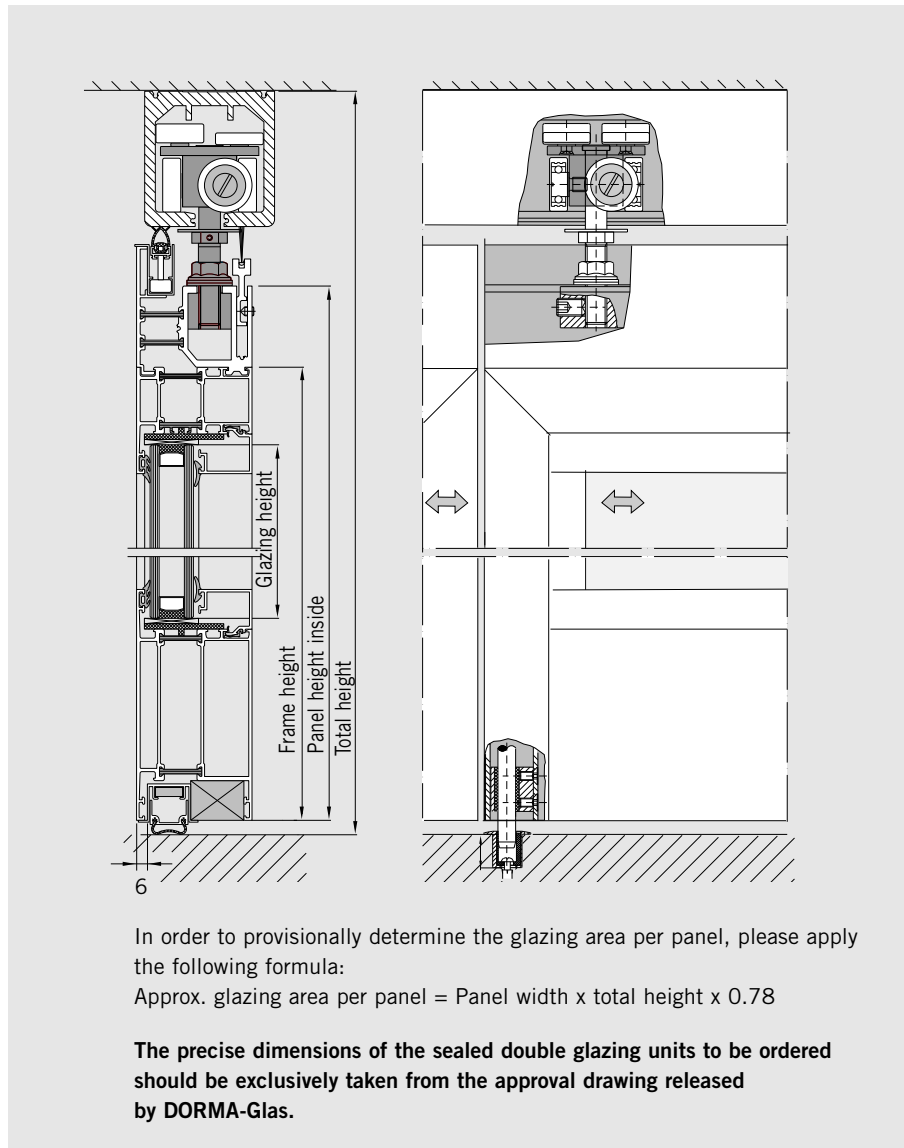
Sliding panel

Fixed when the frontage or partition is closed.



Sliding panels

The sliding panels are the moving elements. Once in their closed position, they are locked down. Face-mounted floor bolts are available as an option for the bottom glazing rail.

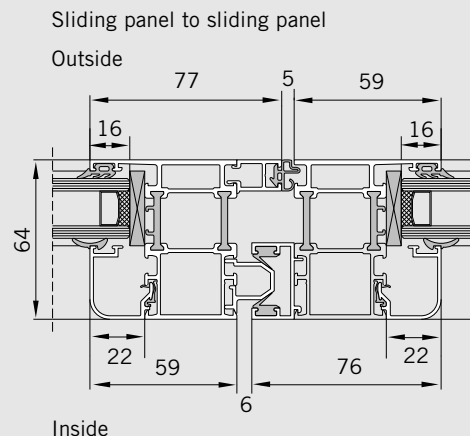
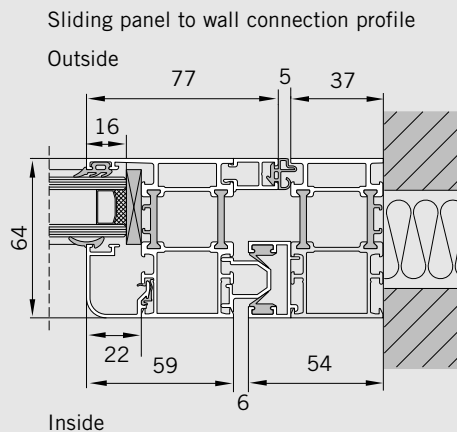


In order to provisionally determine the glazing area per panel, please apply the following formula:

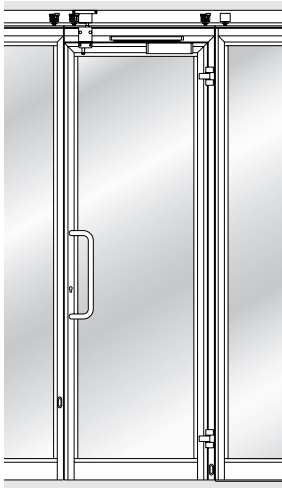
Approx. glazing area per panel = Panel width x total height x 0.78

The precise dimensions of the sealed double glazing units to be ordered should be exclusively taken from the approval drawing released by DORMA-Glas.

Horizontal sections of the sliding panels with connection details



Single action sliding panel
with DORMA ITS 96, size 3-6
cam-action door closer



This panel type is installed where doors need to be opened in one direction. The cam-action door closer can be fitted so that the single action panel is either inward or outward opening.

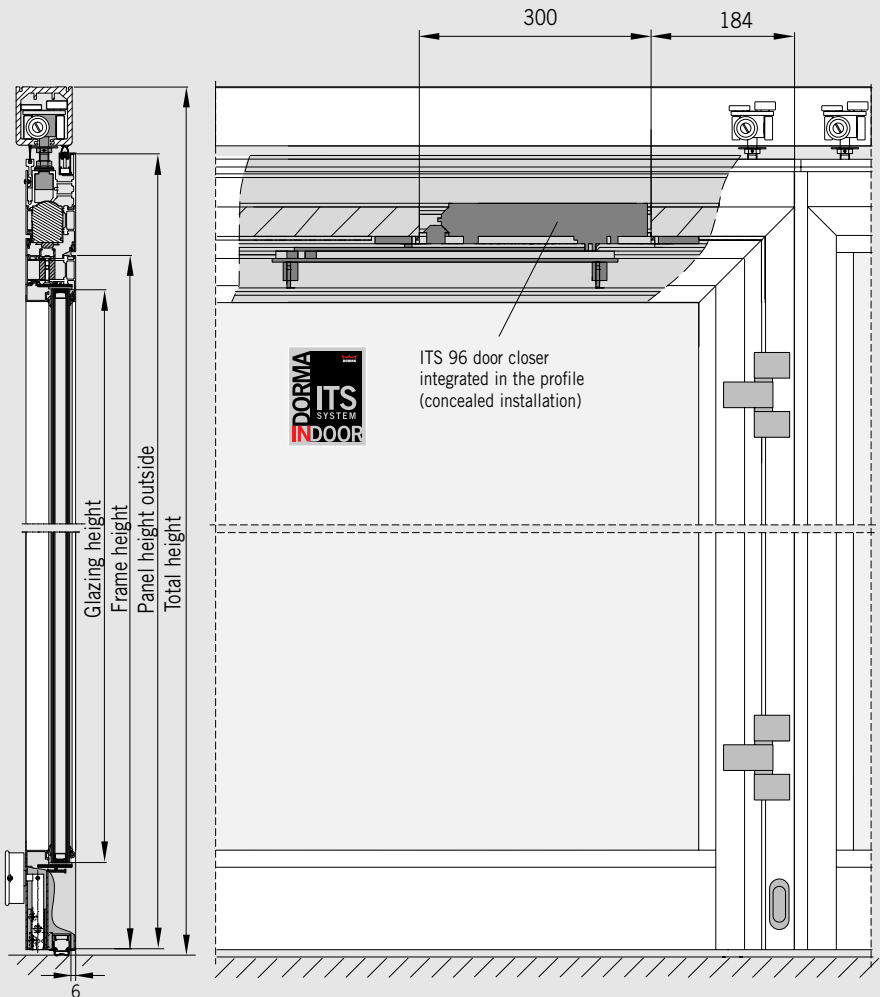
Standard assembly

- top: Pivot bearing,
ITS 96, size 3-6
one locking device
- bottom: Face-mounted slide
bolt as pivot (released
for sliding function)

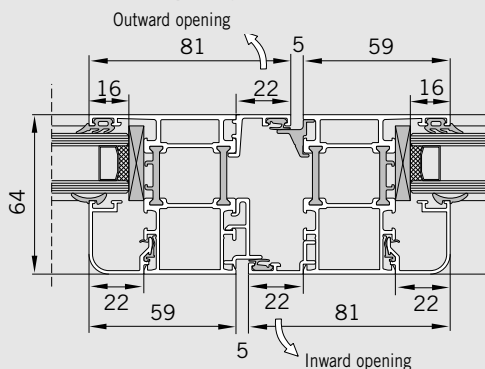
Optional equipment

- top: Second locking device
(for reshuffle bypass
stacking)
- bottom: Optional second
face-mounted
slide bolt

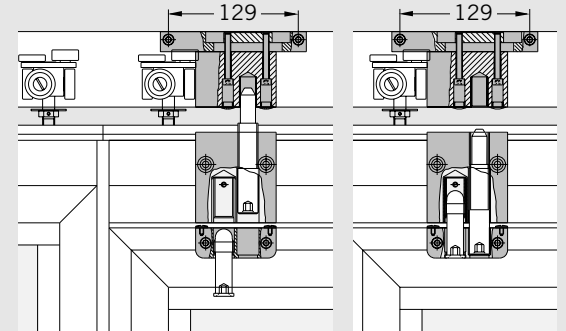
Single action sliding panel with integrated ITS 96



**Horizontal section of single action panels,
inward or outward opening**



Function of the top locking device

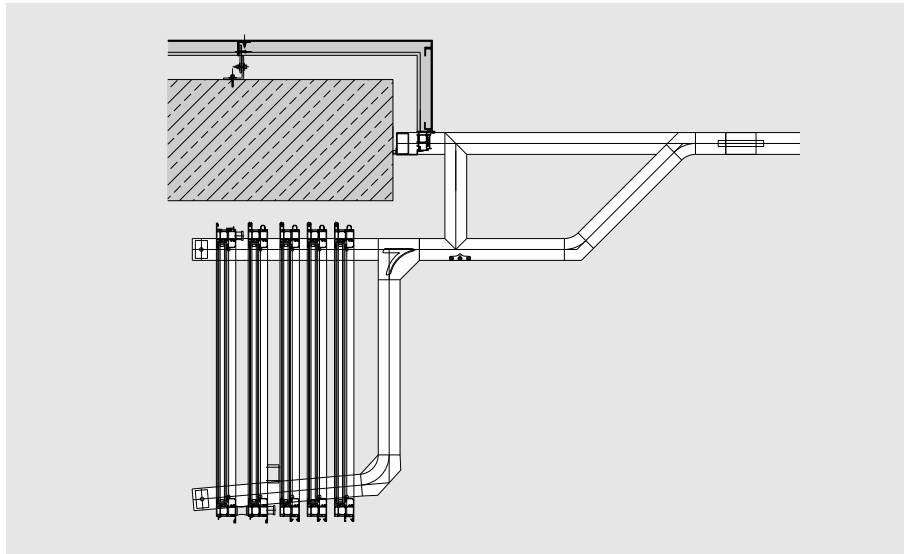




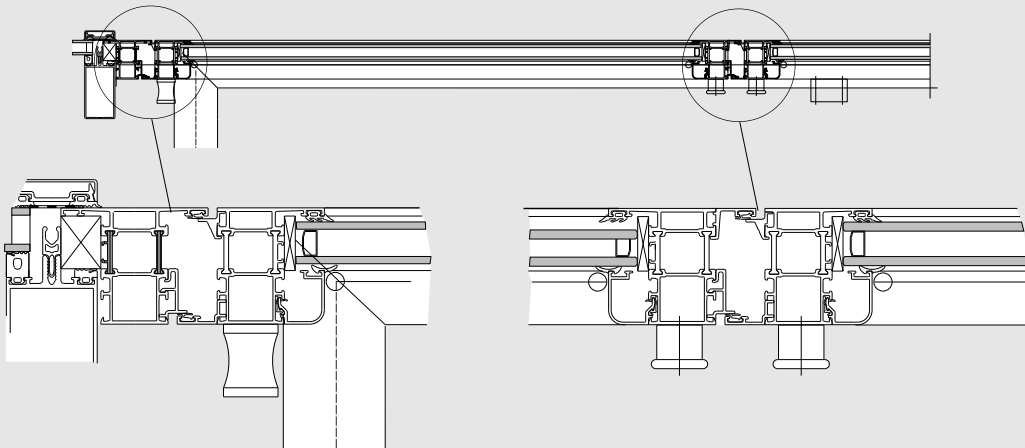
**Stacking in the reshuffle
bypass configuration**

This special stacking arrangement is applied when the panels should be parked in a niche and no single action end panel should be visible in the frontage.

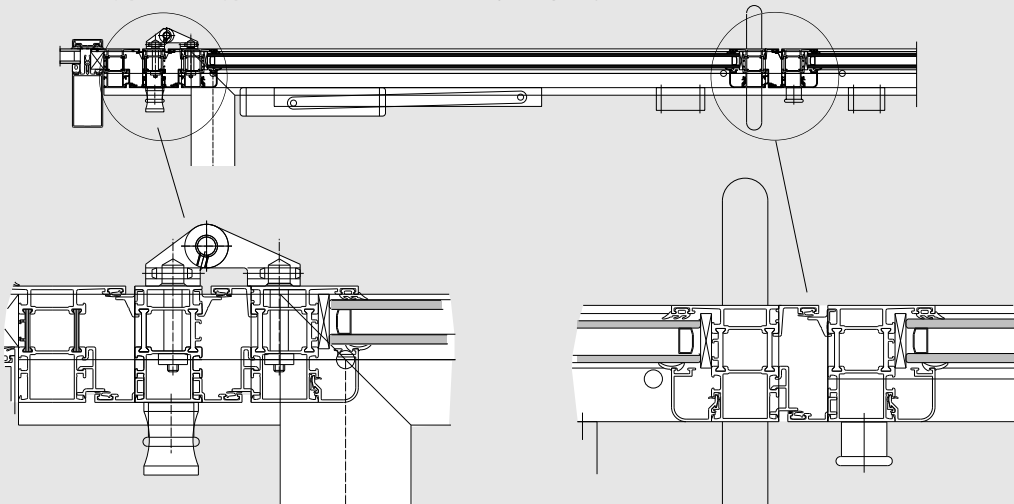
Please also see the following illustrations.



Sliding panel in bypass travel mode (sliding end panel)



Single action sliding panel in bypass travel mode (outward opening only)

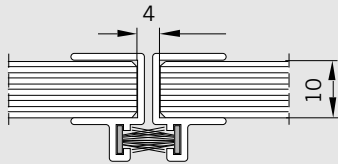


Seals retrofittable

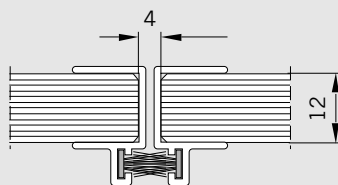
The following retrofittable profiles are available to provide the necessary lateral sealing so that the horizontal sliding can be made draught-proof for winter operation.

Aluminium alloy profile with brush

for 10 mm glass



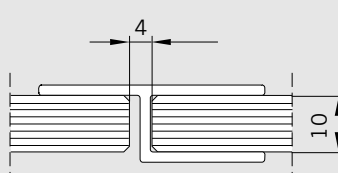
for 12 mm glass



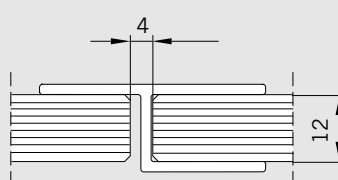
Clear plastics profile

(not for single/double action end panels or double action sliding panels)

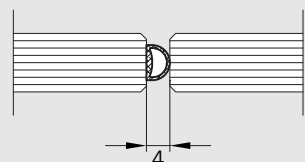
for 10 mm glass



for 12 mm glass



Glass joint gasket
for 10 - 12 mm glass thickness
adhesive, milky transparent



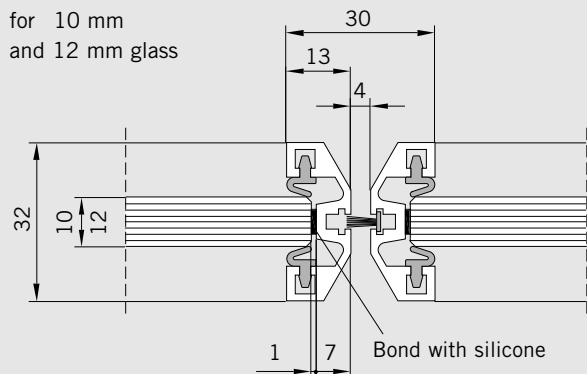
Seals individually customised

These frame profiles for rendering doors draught-proof are individually manufactured and therefore need to be taken into account when designing the horizontal wall system. All the relevant specifications must be provided with the system order.

Fineline

with brush seal (pages 73 - 77)

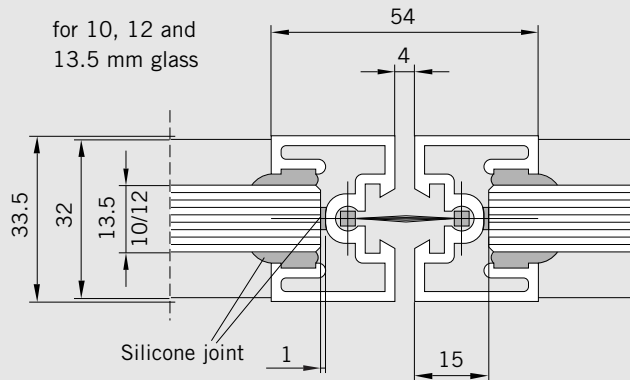
for 10 mm
and 12 mm glass



Line

Single action door with brush seal (page 79)

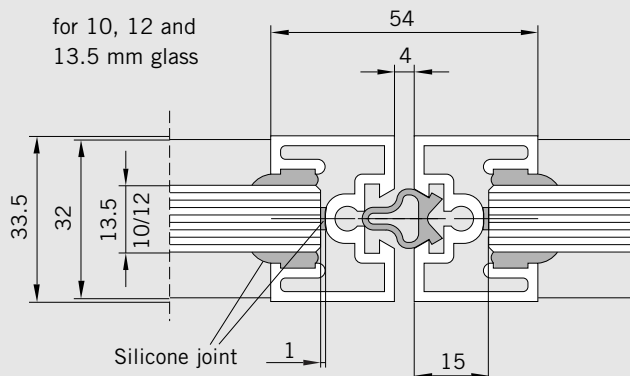
for 10, 12 and
13.5 mm glass



Line

Sliding door with rubber seal (pages 80 - 81)

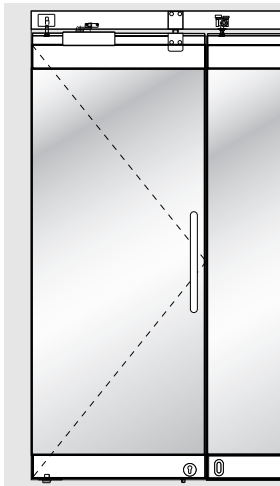
for 10, 12 and
13.5 mm glass



Fineline Seal

End panel

Non-moving and always equipped with a bottom deadbolt with the option of an additional top bolt or side-action deadlock. Can be designed as a single action or double action door.



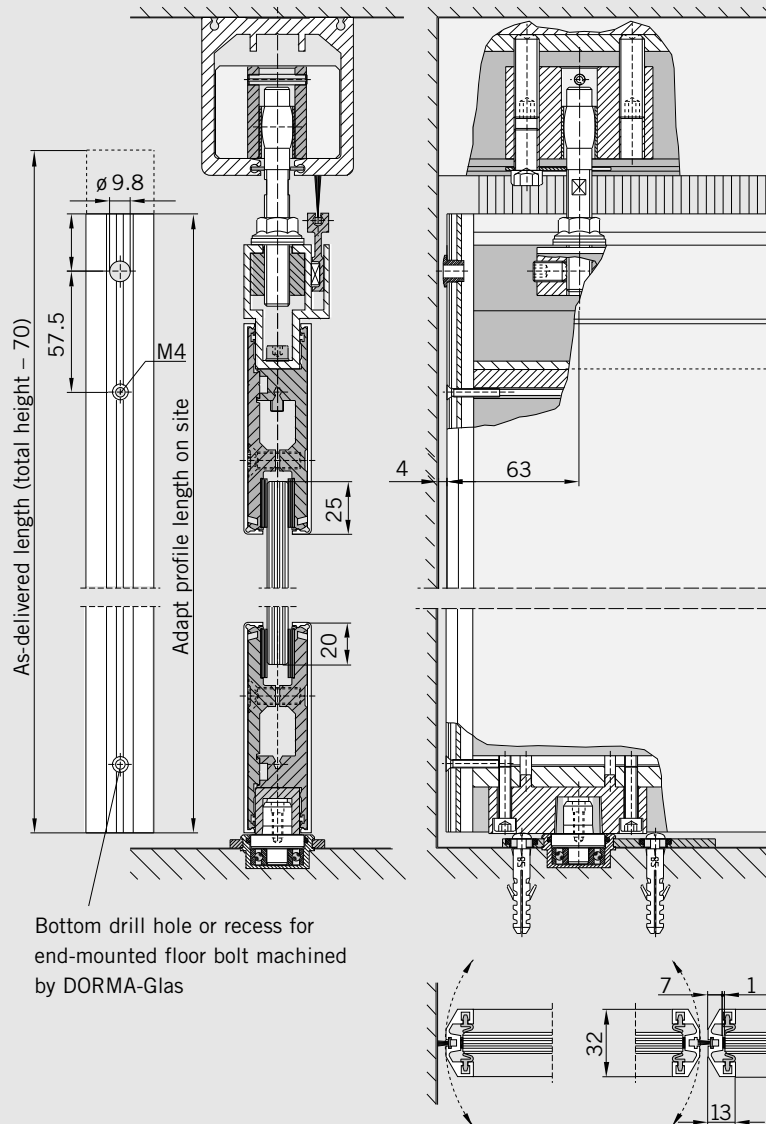
Calculation of the glass width
= Panel width – 16 mm

As-delivered condition:

Cut lengths supplied from factory
= Partition height – 70 mm
Holes and recesses are pre-machined in the profile for the bottom glazing rail only.

Any further machining work required for connection to the top glazing rail has to be performed on site.

Single action or double action end panel with floor pivot



Installation instructions

When fitting the glazing rails, please ensure that the glass protrusion is even over the full length.
Prior to profile machining, first hang the panels from the overhead track and then align.

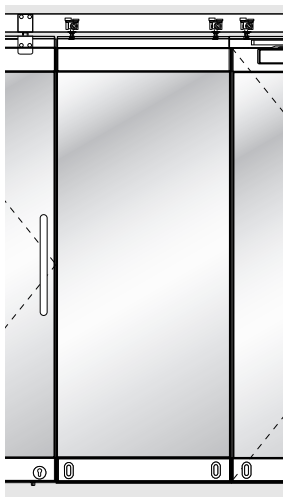
Sliding panel

Fixed when the frontage or partition is closed.

The sliding panels are the moving elements. Once in their closed position, they are locked down. The components available for this are provided in the bottom glazing rail in the form of face-mounted floor bolts, end-mounted floor bolts, end pin bolts or deadlocks.

Pivoting sliding panel

Pivoting panel with TS 92 when the frontage is closed.



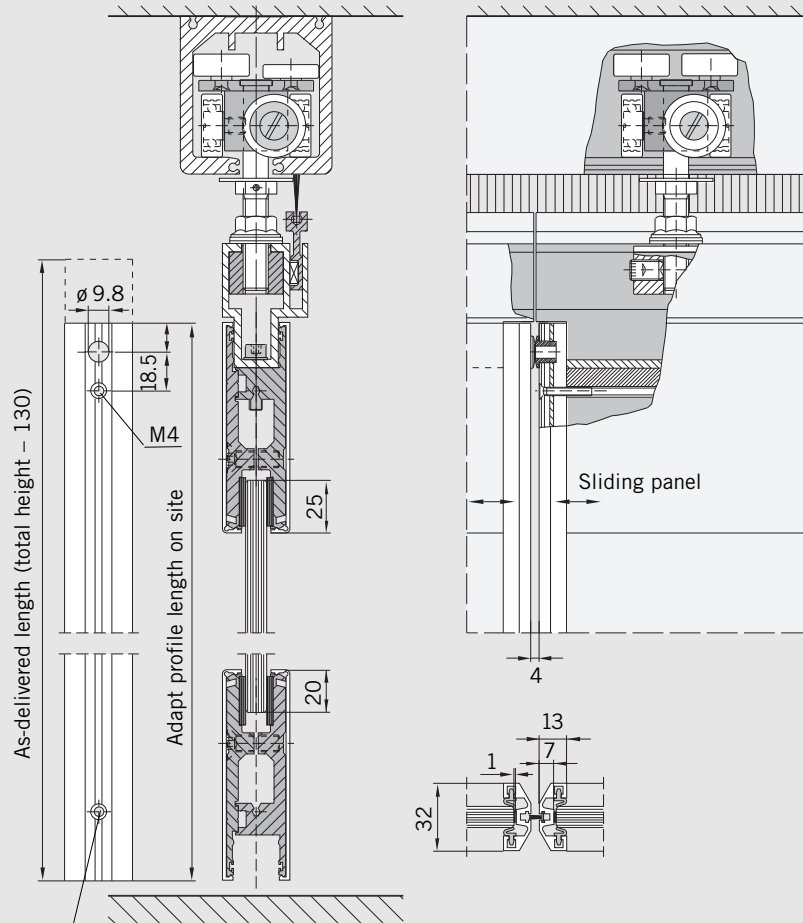
Calculation of the glass width
= Panel width – 16 mm

As-delivered condition:

Cut lengths supplied from factory
= Partition height – 130 mm
Holes and recesses are pre-machined in the profile for the bottom glazing rail only.

Any further machining work required for connection to the top glazing rail has to be performed on site.

Sliding panel / Pivoting sliding panel



Bottom drill hole or recess for end-mounted floor bolt machined by DORMA-Glas

Installation instructions

When fitting the glazing rails, please ensure that the glass protrusion is even over the full length.

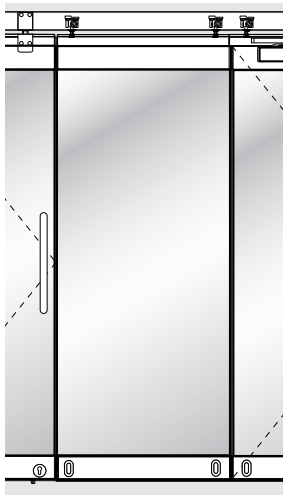
Prior to profile machining, first hang the panels from the overhead track and then align.

Use the factory-stamped recesses in the bearing profile for accurate adjustment of the top Fineline profile.

Sliding panels in segmented configurations

Fixed when frontage or partition closed.

The sliding panels are the moving elements. Once in their closed position, they are locked down. The components available for this are provided in the bottom glazing rail in the form of face-mounted floor bolts, end-mounted floor bolts, end pin bolts or deadlocks.



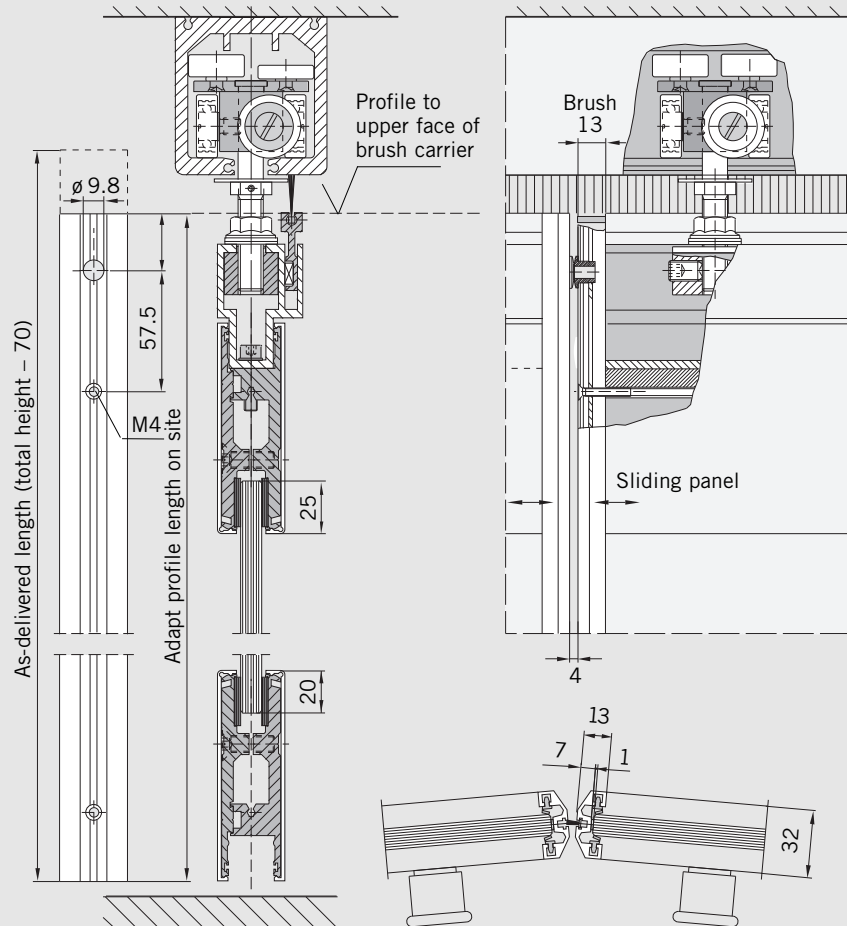
Calculation of the glass width
= Panel width – 16 mm

As-delivered condition:

Cut lengths supplied from factory
= Partition height – 70 mm
Holes and recesses are pre-machined in the profile for the bottom glazing rail only.

Any further machining work required for connection to the top glazing rail has to be performed on site.

Sliding panels in segmented configurations



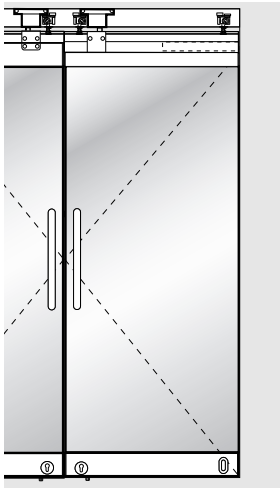
Installation instructions

When fitting the glazing rails, please ensure that the glass protrusion is even over the full length.

Prior to profile machining, first hang the panels from the overhead track and then align.

Double action sliding panel

Double action panel with RTS transom-concealed door closer for door access when frontage or partition closed.



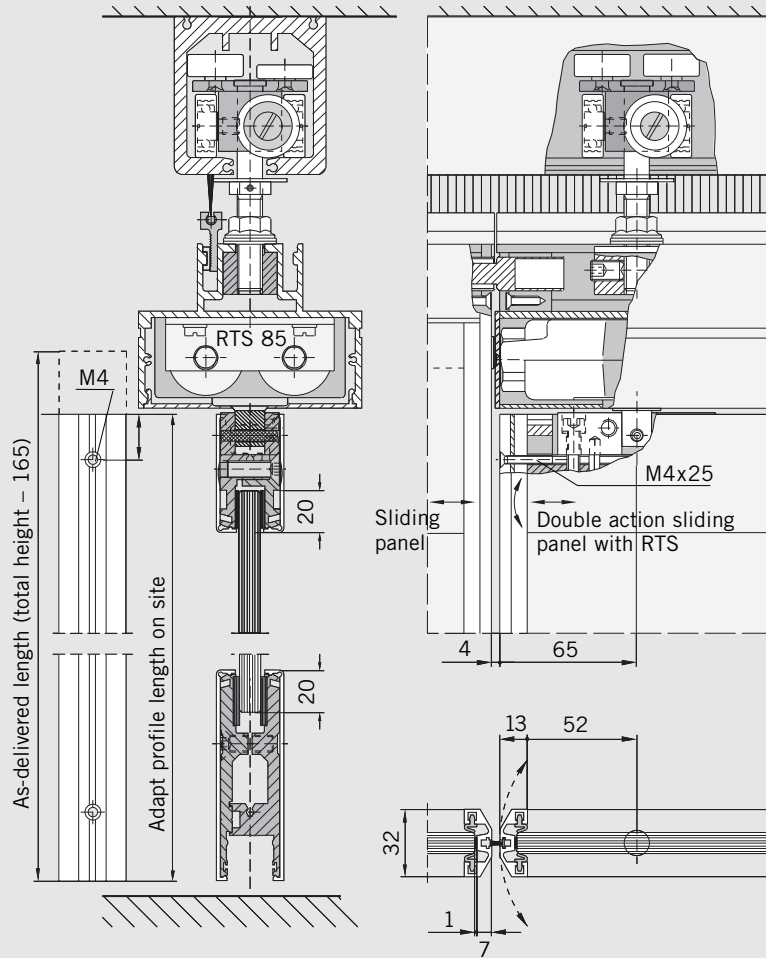
Calculation of the glass width
= Panel width – 16 mm

As-delivered condition:

Cut lengths supplied from factory
= Partition height – 165 mm
Holes and recesses are pre-machined in the profile for the bottom glazing rail only.

Any further machining work required for connection to the top glazing rail has to be performed on site.

Double action sliding panel with RTS 85



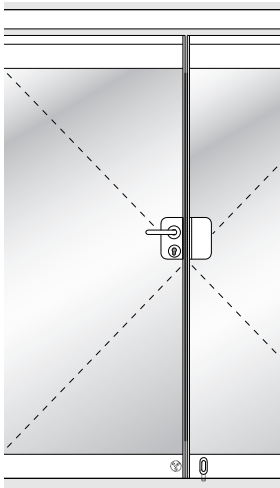
Installation instructions

When fitting the glazing rails, please ensure that the glass protrusion is even over the full length.

Prior to profile machining, first hang the panels from the overhead track and then align.

Folding sliding panel

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



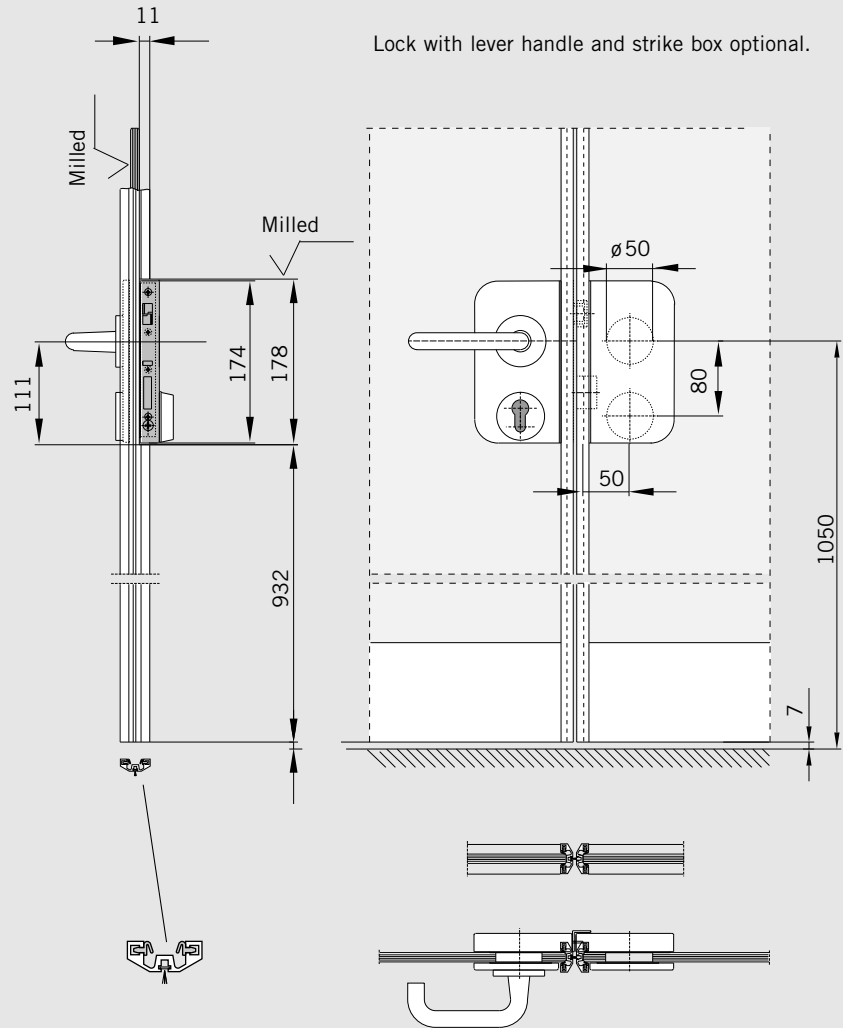
Calculation of the glass width
= Panel width – 16 mm

As-delivered condition:

Cut lengths supplied from factory
= Partition height – 70 mm
Holes and recesses are pre-machined in the profile for the bottom glazing rail only.

Any further machining work required for connection to the top glazing rail has to be performed on site.

Folding sliding panel



Installation instructions

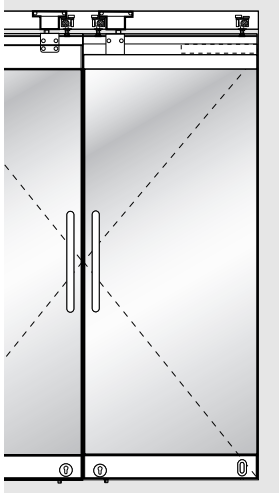
When fitting the glazing rails, please ensure that the glass protrusion is even over the full length.

Prior to profile machining, first hang the panels from the overhead track and then align.

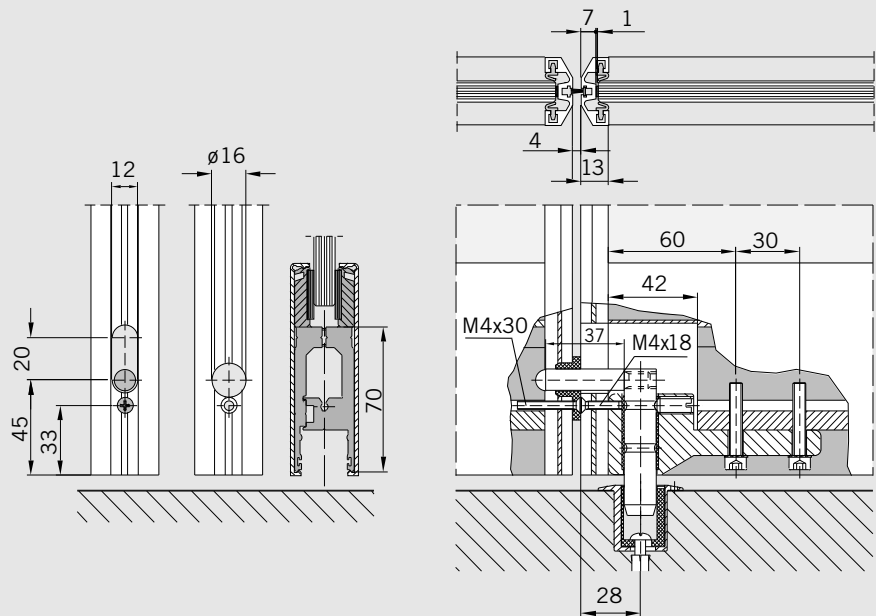
Fineline Seal

Profile machining

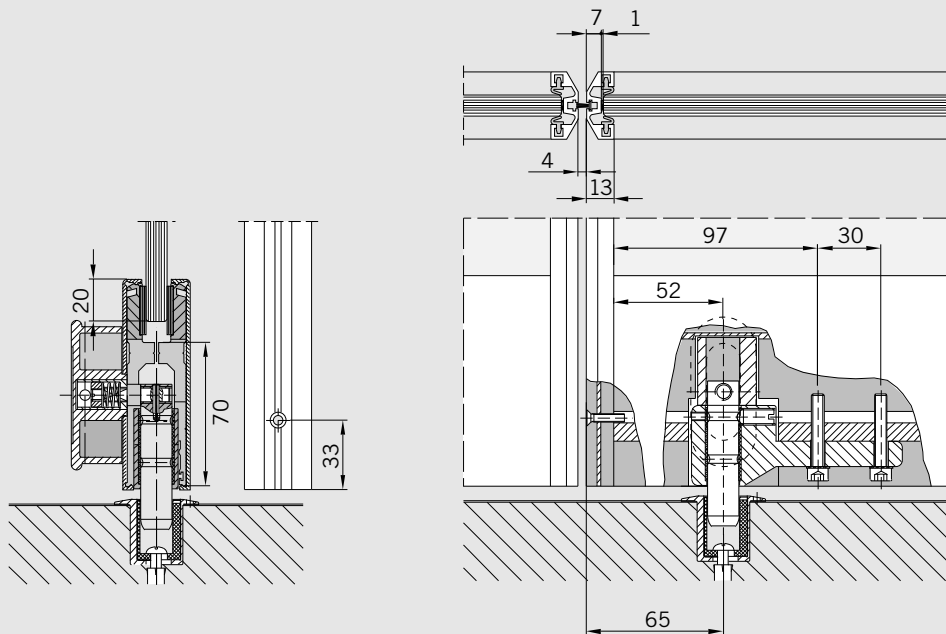
This is performed by DORMA-Glas for the end-mounted and face-mounted slide bolts.



Fineline seal with end-mounted slide bolt



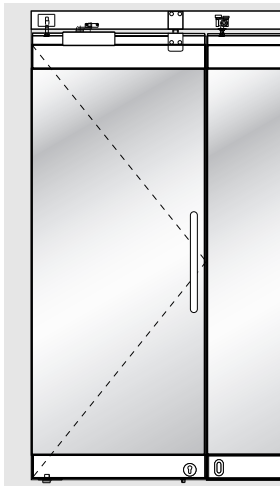
Fineline seal with face-mounted slide bolt



Line Seal

Single action or double action end panels

Non-moving and always equipped with a bottom deadbolt with the option of an additional top bolt or side-action deadlock. Can be designed as a single action or double action door.



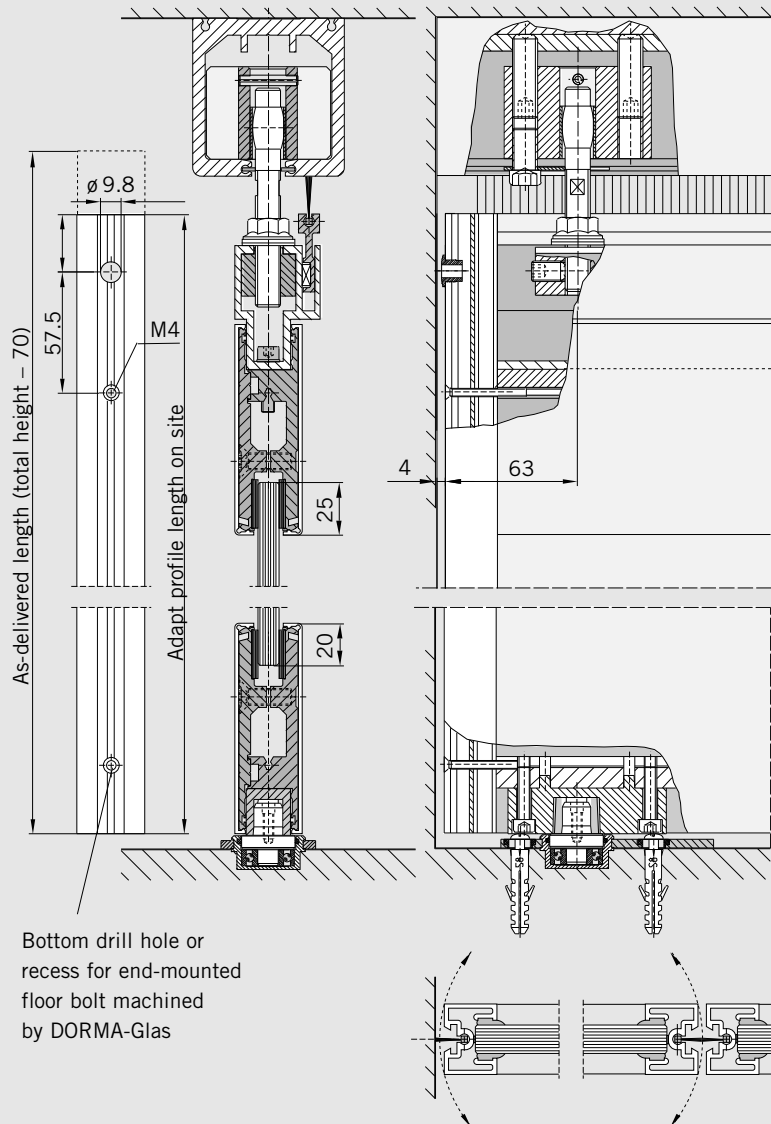
Calculation of the glass width
= Panel width – 30 mm

As-delivered condition:

Cut lengths supplied from factory
= Partition height – 70 mm
Holes and recesses are pre-machined in the profile for the bottom glazing rail only.

Any further machining work required for connection to the top glazing rail has to be performed on site.

Single action or double action end panel with floor pivot



Bottom drill hole or recess for end-mounted floor bolt machined by DORMA-Glas

Installation instructions

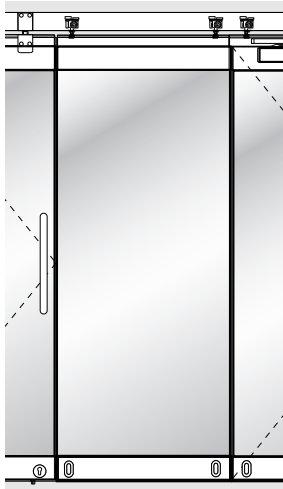
When fitting the glazing rails, please ensure that the glass protrusion is even over the full length.

Prior to profile machining, first hang the panels from the overhead track and then align

Sliding panel

Fixed when the frontage or partition is closed.

The sliding panels are the moving elements. Once in their closed position, they are locked down. The components available for this are provided in the bottom glazing rail in the form of face-mounted floor bolts, end-mounted floor bolts, end pin bolts or deadlocks.

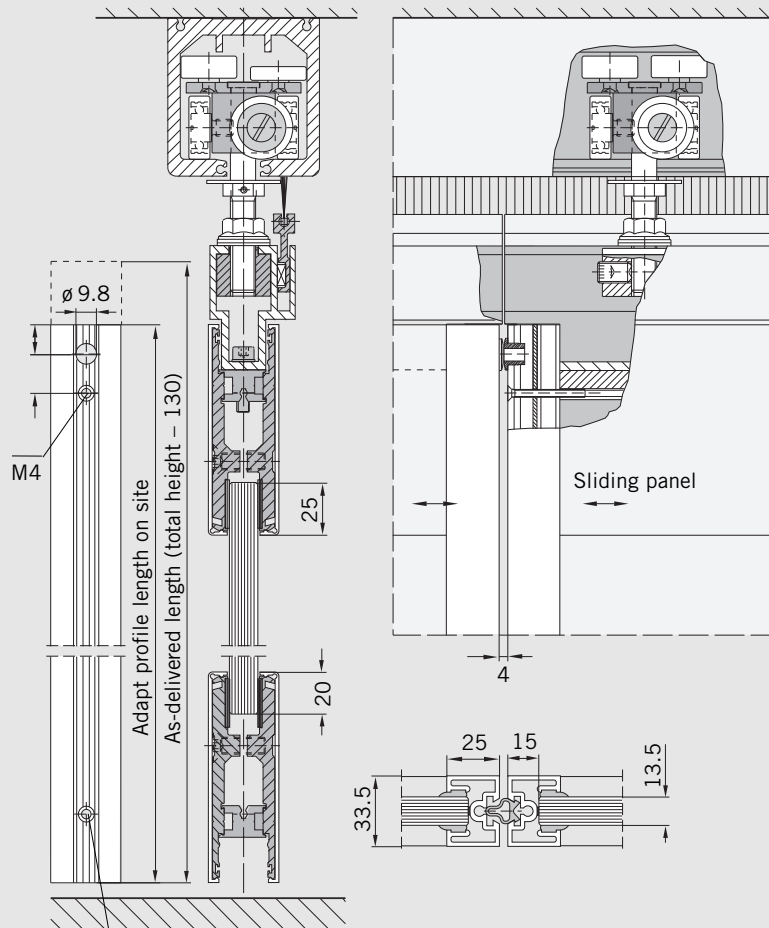


Calculation of the glass width
= Panel width – 30 mm

As-delivered condition:

Cut lengths supplied from factory
= Partition height – 130 mm
Holes and recesses are pre-machined in the profile for the bottom glazing rail only.
Any further machining work required for connection to the top glazing rail has to be performed on site.

Sliding panel



Bottom drill hole or recess for end-mounted floor bolt machined by DORMA-Glas

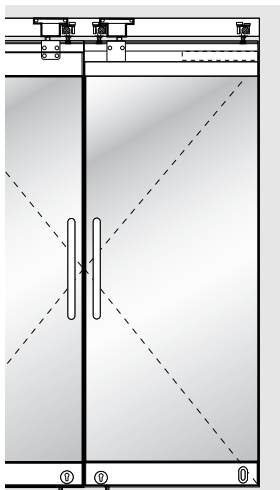
Installation instructions

When fitting the glazing rails, please ensure that the glass protrusion is even over the full length.

Prior to profile machining, first hang the panels from the overhead track and then align.

Double action sliding panel

Double action panel with RTS transom-concealed door closer for door access when frontage or partition closed.



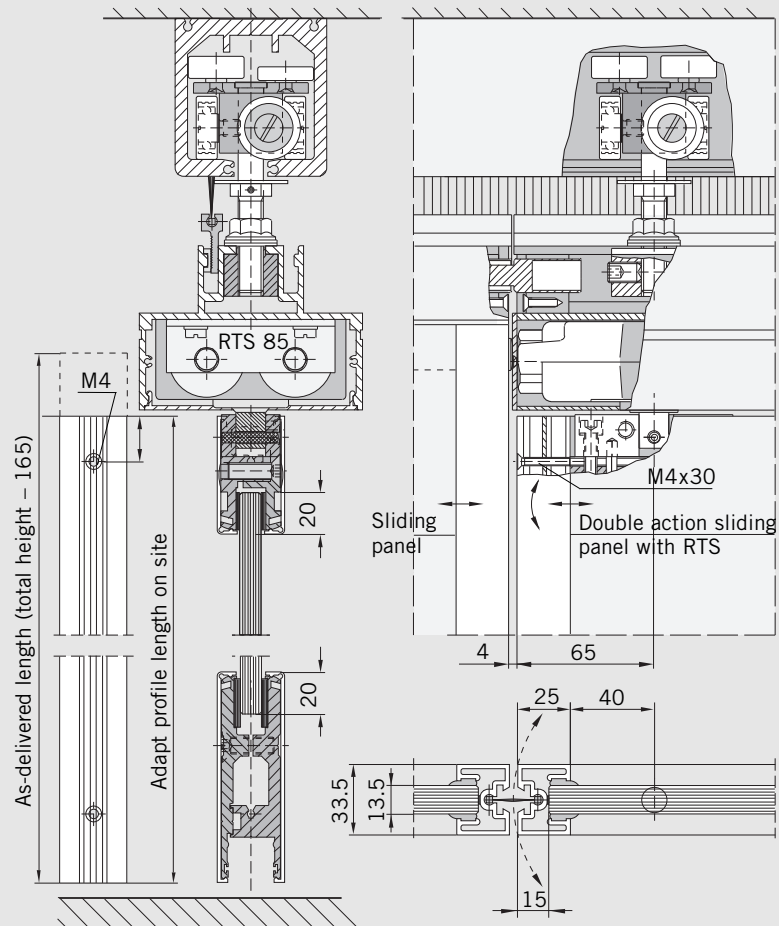
Calculation of the glass width
= Panel width – 30 mm

As-delivered condition:

Cut lengths supplied from factory
= Partition height – 165 mm
Holes and recesses are pre-machined in the profile for the bottom glazing rail only.

Any further machining work required for connection to the top glazing rail has to be performed on site.

Double action sliding panel



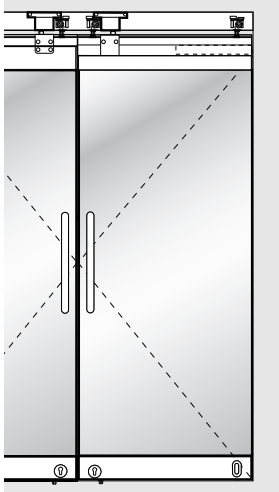
Installation instructions

When fitting the glazing rails, please ensure that the glass protrusion is even over the full length.

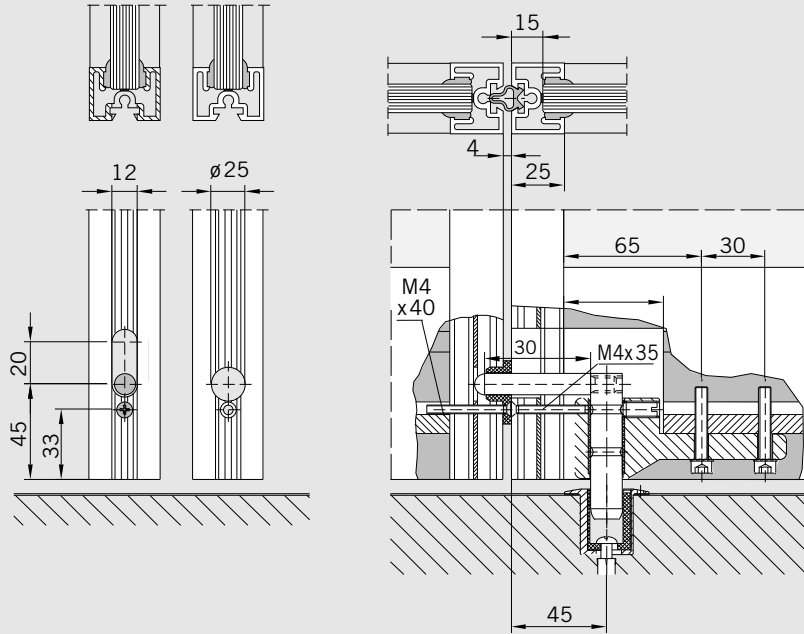
Prior to profile machining, first hang the panels from the overhead track and then align.

Profile machining

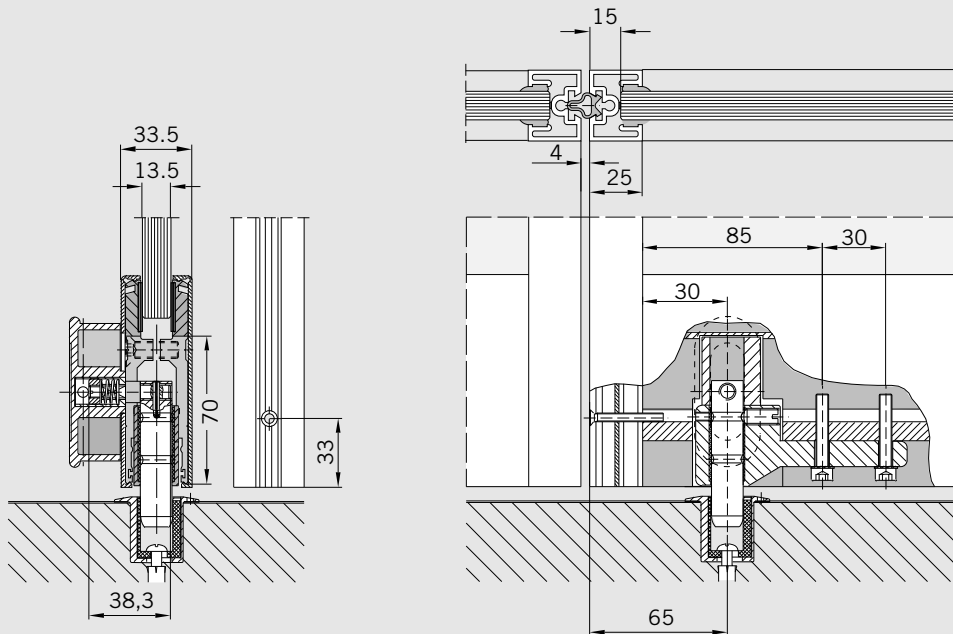
This is performed by DORMA-Glas for the end-mounted and face-mounted slide bolts.



Line seal with end-mounted slide bolt

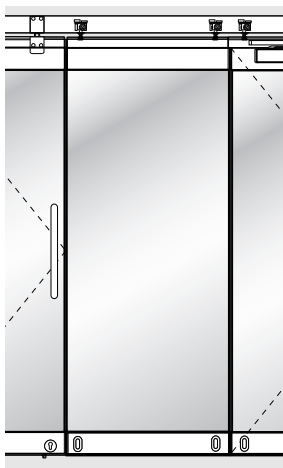


Line seal with end-mounted slide bolt



Floor Track for sliding panels

A floor track in the form of a stainless steel channel section (U-profile) is also available as an option. This can be used for HSW-G and HSW-R sliding panels irrespective of the partition layout. In special cases and after technical clarification, it may also be used with HSW-GP sliding panels. For this, the end-mounted floor bolt usually applied for straight-line partition configurations is replaced by a combination of guide pin and end pin. The guide pin must be vertically below the track roller and is adjustable in the range ± 10 mm. For abutment to single action/double action end panels and also in the case of angled configurations, a face-mounted floor bolt is replaced by a bottom deadlock.

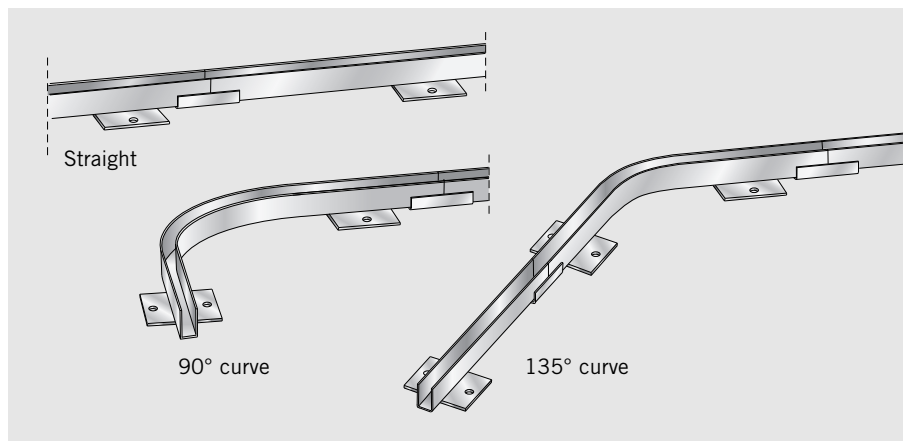
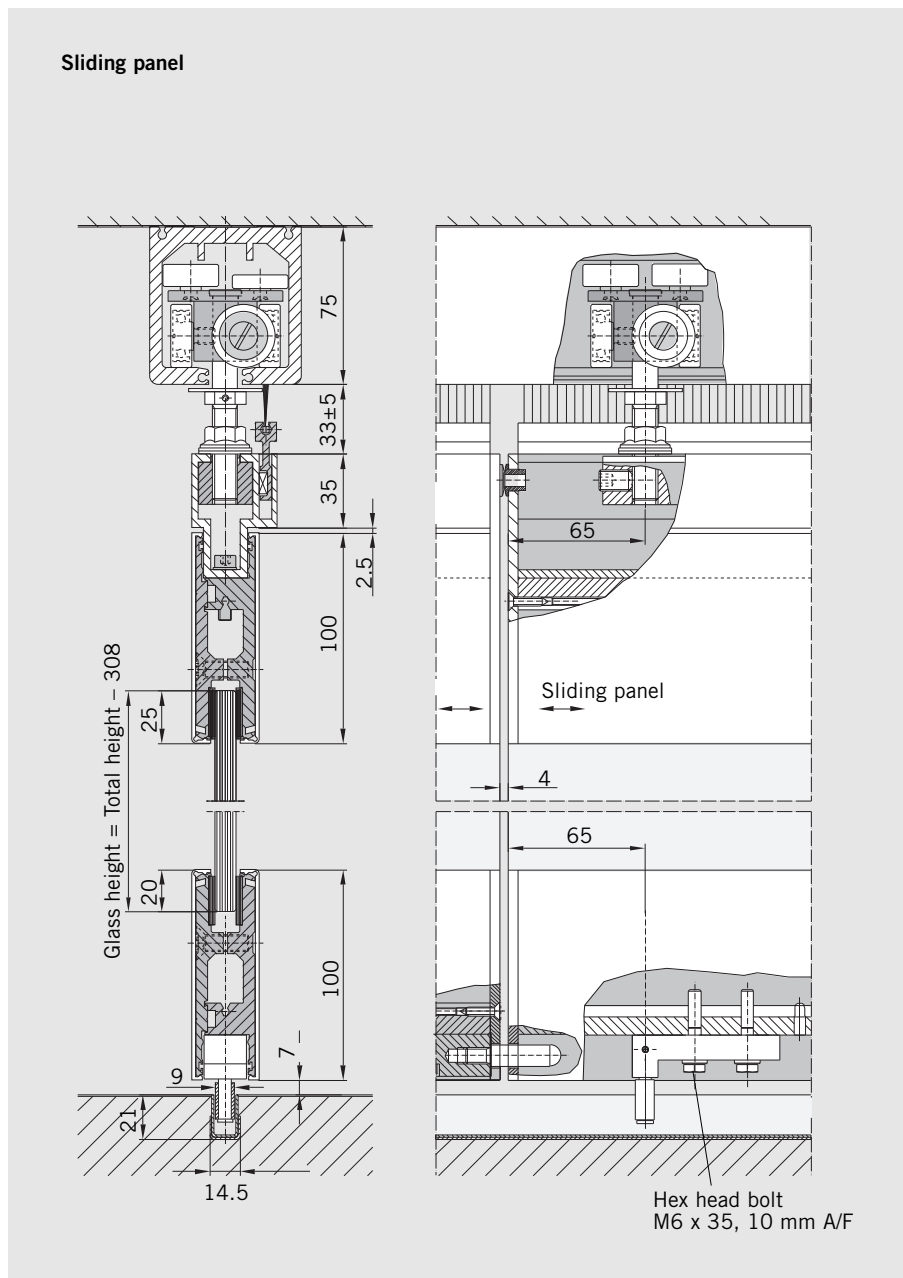


The floor track is available in three designs:

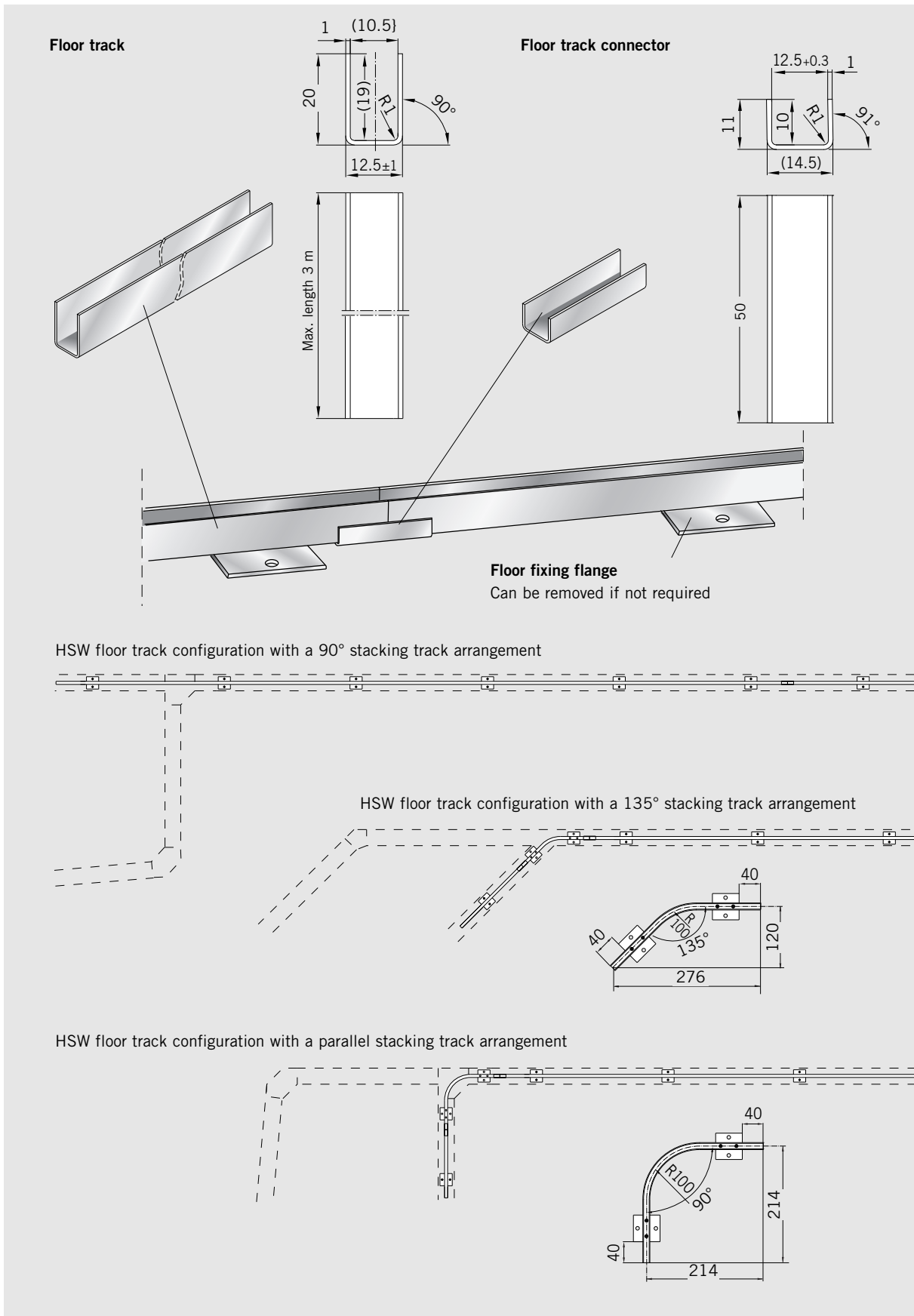
- Straight
- 90° curve
- 135° curve

The individual track sections are abutted and fixed in place by means of a stainless steel connector.

In its as-delivered condition, the floor track comes with a welded flange for fixing to the unfinished floor. This can be removed if not required.

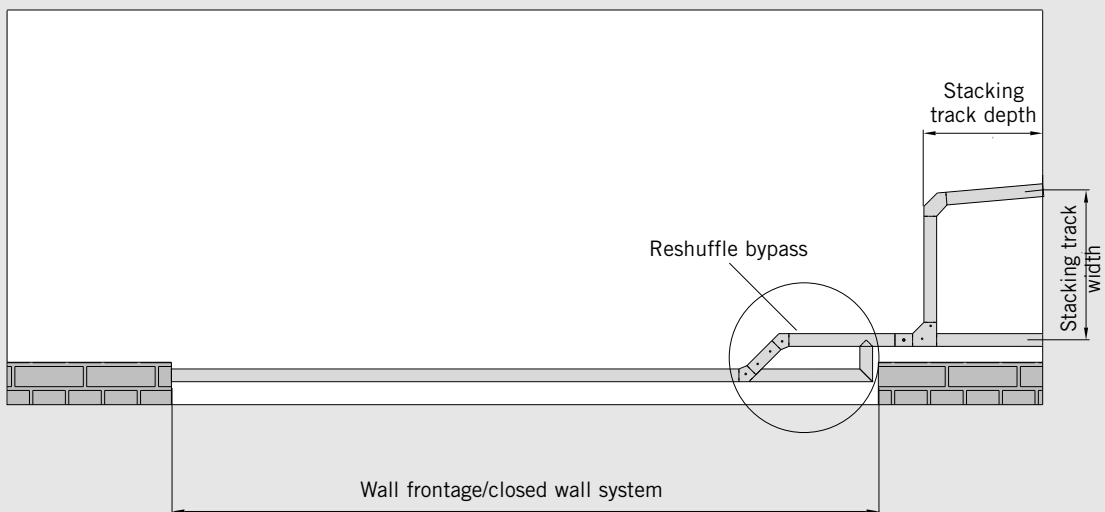
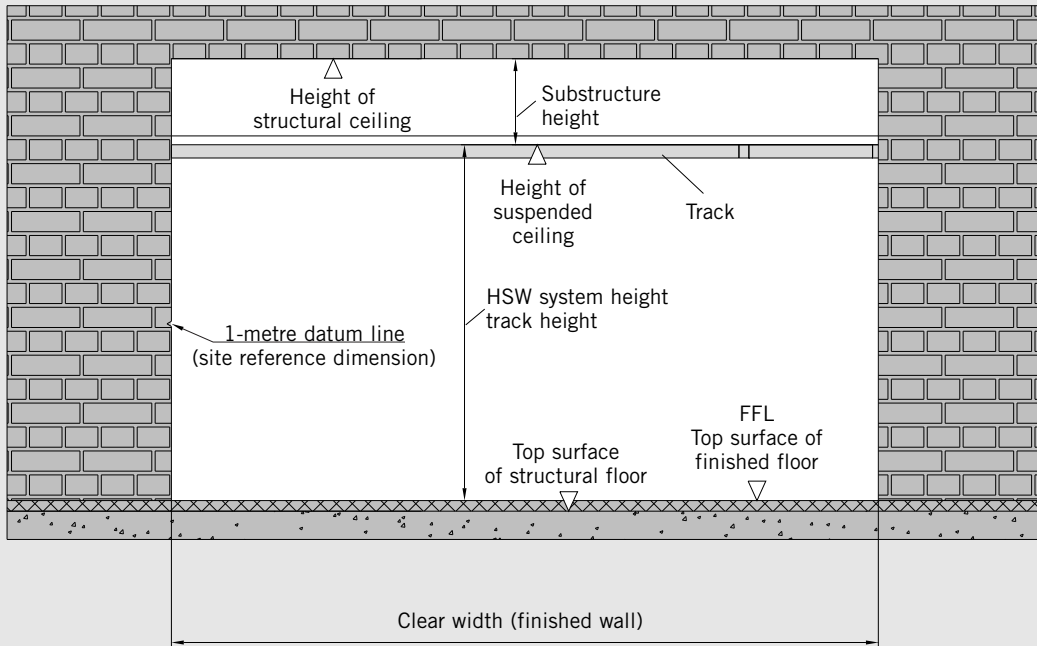


Floor track – Stacking track detail



Measuring up

Important site measurements



Notes on portal systems

Maintenance recommendation for high-frequency HSW systems

Horizontal glass walls 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. shopping malls or 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 DORMA-Glas 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, DORMA-Glas 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.

Planning tools



For planning of intelligent glass solutions we offer you several planning tools which allow you to create secure and professional solutions for any kinds of glass doors and toughend glass assemblies.

The planning tools DGES and MANET COMPACT enable you to prepare designs and cost calculations quickly, reliably and professionally. The software provides you with all necessary documentation such as dimensioned technical drawings, glass sizes and preparation measures.

Your benefits:

- Easy to operate
- Professional and error-free preparation of offers
- Rapid response to incoming requests for quotations
- Highly reduced planning costs for time and money savings

DGES Fittings

(for internal doors and toughend glass assemblies),
 DGES HSW (for horizontal sliding walls),
 DGES Showers (for glass shower cubicles),
 MANET COMPACT planning tool
 (for MANET pivoting and sliding doors),

Finishes

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

HSW systems with surface finishes 502, 503, 700 and 701 contain different component materials.

In the case of FSW (folding/sliding) systems, for example, the folding hinges are always of aluminium, while the standard surface finish for brush profiles and end covers is black anodised (E6/C35). These various components and also the top locks can also optionally be anodised or powder-coated so that they resemble the ordered surface finish.

Owing to the use of different materials and processes, variations can occur in the appearance of the surface finishes and colours.

Finishes

Aluminium	DORMA-Glas No.	similar Eloxal I	similar Eloxal II
Alumin. mill finish	100		
Alumin. silver	101	EV1	C 0
Alumin. similar satin stainl. steel	107		
Alumin. similar satin stainl. steel (for profile material)	113		C 31
Special anodised	199		
Coated colours	DORMA-Glas No.	similar HEWI-Nr.	similar RAL
Alumin. white	300	99	9016
Special coated colour	399		
Stainless steel	DORMA-Glas No.		
Satin stainless steel	700		
Polished stainless steel	701		

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.



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