Horizontal sliding walls

HSW-ES (EASY Safe)
HSW-GP
HSW-R
Horizontal sliding walls

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HSW
Transparent versatility

Horizontal sliding walls are used in a wide range of project types for both interior and exterior applications. These partitions can be designed with flexibility to suit the installation site, structural conditions, and design concept. They can satisfy a broad spectrum of requirements in relation to styling, material and finish (color), and can also be equipped with individually fabricated panels to perform special functions. Utilization of the dormakaba substructure ensures flexible planning for all system variants and provides simple installation, maximum reliability, and outstanding safety of the entire system.

<table>
<thead>
<tr>
<th>HSW Horizontal Sliding Walls, with rails or frameless</th>
<th>Panels slide individually—stacking track required. Glass door must use top and bottom rail (HSW-ES), or full glass/no rails (HSW-GP).</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HSW-ES</strong> Glass assembly with top and bottom door rail</td>
<td></td>
</tr>
<tr>
<td><strong>HSW-GP</strong> Glass assembly with single-point fixings</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HSW Horizontal Sliding Walls, fully framed</th>
<th>Panels slide individually—stacking track required.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HSW-R</strong> Fully framed panels for tempered monolithic, tempered laminate, or tempered double glazing.</td>
<td></td>
</tr>
</tbody>
</table>

**Note**
For exterior fully framed stile and rail horizontal sliding walls, see HSW-FT (Flex Therm) technical literature.
# HSW

## Product overview

### HSW-ES
With the HSW-ES system, panels create a continuous clear view without vertical stiles. An additional sealing profile can be ordered as an option to be applied to the glass panel vertical edges, acting as a thin vertical stile.

### HSW-GP
HSW-GP systems utilize single-point fixings to hold the glass in combination with the conventional track rail profile. With its high-quality stainless steel components and flush single-point fixings, the HSW-GP design perfectly complements contemporary architecture.

### HSW-R
The HSW-R sliding glass panel frontage is suitable for applications likely to be exposed to high wind loads—for example, shop windows and store entrances located in the façade or on a building exterior. Aluminum alloy frames clamp the glass on all sides, with lateral rubber lip seals and double brush seals top and bottom to provide added weather protection.

### Use and features

<table>
<thead>
<tr>
<th></th>
<th>HSW-ES</th>
<th>HSW-GP</th>
<th>HSW-R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail storefronts</td>
<td>●</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>Retail storefronts with climate barrier function</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Interior room divider</td>
<td>●</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>Glass thicknesses in inches (mm)</td>
<td>3/8&quot;, 1/2&quot;, 0.512&quot;, 5/8&quot;, 3/4&quot; (10, 12, 13, 16, 19)</td>
<td>3/8&quot;, 1/2&quot; (10/12)</td>
<td>5/16&quot; – 7/8&quot; (8 – 22)²</td>
</tr>
<tr>
<td>Glass thicknesses in inches (mm)</td>
<td>9/16&quot;, 11/16&quot; (13.5, 16.17)</td>
<td>9/16&quot; (13.5)</td>
<td></td>
</tr>
<tr>
<td>Assembly height [max. inches (mm)]</td>
<td>132&quot; (3350) using 3/4&quot; (19) thick glass</td>
<td>120&quot; (3048) using 3/4&quot; (19) thick glass</td>
<td>120&quot; (3048) using</td>
</tr>
<tr>
<td>Panel width [max. inches (mm)]</td>
<td>49-7/32&quot; (1250)</td>
<td>47-1/4&quot; (1200)</td>
<td>43-5/16&quot; (1100)</td>
</tr>
<tr>
<td>Panel weight [max. lb (kg)]</td>
<td>330 lb (150 kg)</td>
<td>220 lb (100 kg)</td>
<td>220 lb (100 kg)</td>
</tr>
</tbody>
</table>

### Access panels (pivoting type)

- Pivoting end panel, single-acting
  - Pivoting end panel, double-acting
  - Offset hung end panel
  - Single-acting sliding panel
  - Double-acting sliding panel
  - Concealed integrated door closer ITS 96

¹ Weight dependent on panel fittings  
² Also usable for double glazing units

● Standard ○ Optional
HSW
Panel design

**HSW-ES panel features**

- All panel types are provided with a top and bottom door rail, which safely holds the glass panel.
- The glass panes can have the following glass thicknesses: 3/8", 1/2", 0.512", 19/32", 11/16", 3/4" (10, 12, 13, 15, 17, 19), with a tolerance range of ±0.0312 (±.793mm).
- For tempered laminated glass, the Clamp&Glue technology provides secure hold without the need for glass preparations.
- The top panel profile incorporates a double brush seal as standard. Double brush seals for bottom door rails are optional.
- Excellent draft protection is realized when additional sealing profiles with matching double brushes are used at the vertical glass edges.

HSW-ES is certified to the following European DIN standards:
- Wind load (frame bending): EN 12210 Class 1
- Endurance strength: DIN EN 1527 Class 2 and DIN EN 1191 Class 3
- Side impact: DIN EN 13049 Class 5 (highest class)
- Corrosion: DIN EN 1670 Class 4
- EPD (Environmental Product Declaration): ISO 14040
HSW
Panel design

**HSW-GP**
Frameless all-glass system with single-point fixings

**HSW-R**
Fully framed stile and rail panels

**HSW-GP panel features**
In the all-glass version HSW-GP, panels form a continuous, transparent view, with the use of single-point fixings, creating a fine, elegant appearance.

**HSW-R panel features**
The fully framed individual panels of the HSW-R system offer not only high stability but also effective protection against external influences such as wind, weather, or air handling systems. Glass options include tempered laminated glass (TLG), tempered monolithic glass (TMG), or insulated glass units.
dormakaba

Horizontal sliding walls
Stacking
The right stacking arrangement for any situation

Perfect parking every time
Existing structures or unusual layouts often require special solutions, particularly in the design of the stacking area. dormakaba HSW systems can be parked in a range of different positions. The stack of panels can be aligned parallel or perpendicular to the frontage, be readily visible for effect or hidden behind columns. Another possibility is to park the system in line but out of the way behind a wall or in a garage (see pages 10–16).

The panels can also perform certain functions when the frontage is open, such as acting as the internal store window and glass showcase, in addition to providing an area for decorative printing on the glass for artistic value, branding, or advertising. The following pages demonstrate some system solutions available for solving a range of application challenges.
Stacking
Panels perpendicular to travel direction

Panels stacked 90° angle perpendicular to travel direction

<table>
<thead>
<tr>
<th>Product description</th>
</tr>
</thead>
</table>
| **Standard stacking arrangement.**
  With pivoting end panel, single- or double-acting, to use as possible access panel (left or right, or left and right). |
| **Garage stacking.**
  With pivoting end panel, single- or double-acting, to use as possible access panel (left or right, or left and right). |
| **Stacking in a box/pocket.**
  For sliding panels or double-acting sliding panels (left or right, or left and right). |
| **Stacking behind column.**
  Stacking legs at 135° angle.
  With pivoting end panel, double-acting, to use as possible access panel (left or right, or left and right). |
Stacking

Panels parallel to travel direction

Panels stacked parallel to travel direction

<table>
<thead>
<tr>
<th>Product description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stacking in a garage, outer stacking leg at 95° angle</strong></td>
</tr>
<tr>
<td>for small number of panels (up to 6) (left or right, or left and right).</td>
</tr>
<tr>
<td><strong>Stacking legs at 135° angle</strong></td>
</tr>
<tr>
<td>(left or right, or left and right).</td>
</tr>
<tr>
<td><strong>Stacking legs at 90° angle</strong></td>
</tr>
<tr>
<td>for large number of panels (more than 6) (left or right, or left and right).</td>
</tr>
<tr>
<td><strong>Stacking behind pivoting end panel</strong></td>
</tr>
<tr>
<td>Outer stacking leg at 95° (left or right, or left and right).</td>
</tr>
</tbody>
</table>
Stacking
Special stacking arrangements

Stacking in front of 90° wall with reshuffle bypass.

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

Stacking arrangement calculations

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

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

\[ a = \text{depending on pull handle depth} \]
\[ b = 2-9/16" (65) \text{ for HSW-ES} \]
\[ 3-5/32" (80) \text{ for HSW-R} \]

HSW-GP cannot be configured with a 95° angled leg.
# Stacking

## Stacking arrangement calculations

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

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

\[ a = \text{depending on pull handle depth} \]
\[ b = 2-9/16” (65) \text{ for HSW-ES} \]
\[ 3-5/32” (80) \text{ for HSW-R} \]

\[ B_1 = \text{Panel width} - 5-1/8” (130) - ([T_1 - 3-5/32” (80)] \times 0.087) \]

HSW-GP cannot be configured with a 95° angled leg.
Connections
Simple, secure, and removable connections

**Easy and secure track and module connection.**
Fast, easy, flexible installation of track rail and parking modules. The special HSW track rail design with two parallel channels at the top (suitable for M 10 screws) simplifies the work on site.

- The single track sections and module connection profiles are connected to each other by special clamp inserts fitted in the provided channels, delivering secure connection.
- If size adjustments are necessary, track can be cut on site.
- In the lower part of the track rails, additional pins provide smooth and even surface for the roller carriers.
- Stacking construction is fitted together and connected to the frontage track rail in the same way.
- As an option, parts of the stacking construction can be delivered pre-assembled.
- Track segments or joints are configured and supplied using miter cuts and welded connections. The adjacent track rail section can be easily assembled in a straight line by use of clamp inserts and pins. Welding may be recommended to increase roller life, depending on daily intended usage.

**Single track rail section**

**Stacking construction**

**Segmented track rail section**
Connections
Track rails

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

Track rails

135° T-piece

90° L-piece

Module 07/09 for 90°/95° angle

Module 06 for 45° angle

Module 04/05 for 90° angle left/right

Straight track rail

For a straight-line system configuration, a drill hole interval of 11-13/16" (300) in the track rail is sufficient, while the stacking area requires an interval of 3-15/16" (100). Where the track assumes an angle of 161° – 179°, the track rail is mitred, while at angles between 90° and 160°, a segment is incorporated. The standard modules available are indicated in the adjacent illustrations.

Segmented track rail

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

- The panel width and segment chord length must be properly coordinated.
- Segment panels are provided at the bottom with locks or face-mounted floor bolts.
- It is important to ensure that the opening sweep of single-acting and double-acting panels do not give the opportunity for collisions.
Solutions
Installing a horizontal sliding wall system invariably requires a certain set of structural conditions to be established. Prior to installation, the system must be accurately and precisely configured and aligned vertically, in addition to detailing a structurally sound and secure location for substructure.

Because dormakaba 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 integration within the ceiling. The structural planning process may require hiring a structural engineer to perform calculations relative to the individual current building design, to assist in determining the ideal location within a facility as applicable or not, and to aid in identifying if or what additional structural components may be required for the location chosen. The dormakaba technical service department will assist the architect, designer and/or structural engineer through this process while designing the system, substructure, and location.

The new dormakaba substructure system is a modular construction designed to significantly reduce on-site installation cost and time. The modular HSW design offers the 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 dormakaba 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 fittings and ceiling brackets for bracing and stiffening the construction.
**Substructure**

**The system**

### Safety and flexibility

The dormakaba 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 debris and metal shavings from the track rails is 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 dormakaba system to be utilized for additional customer-specific applications.

The substructure profile is suspended from threaded rods. The rods 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 3-15/16” (100) 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 82-11/16” (2100) between two suspension points.

The center channel can be fitted with two flat aluminum bars to provide additional rigidity in the area of butt joints between profiles. This makes it possible to replace the requirement for the dual suspension arrangement with one suspension point either side of the joint. This design provides considerable flexibility to accommodate existing ceiling components overhead.

Once the substructure has been installed, the HSW system is vertically aligned and fixed by bolts through pre-drilled holes in the track, and threaded into the existing spline in bottom center of the sub-structure. Subsequent adjustments, e.g. after the building has settled, 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 stabilize 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 dormakaba substructure is precisely matched to the modules of the dormakaba 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 dormakaba to supplement the HSW system drawing always supplied with the quotation.
Substructure
Planning details

Calculating the suspension intervals

With a maximum load (panel weight) of 330 lb/ft (150 kg/m) and a permitted deflection of the substructure with track of 1/16” (2), the interval between two suspension points must be no greater than 57-3/32” (1450). The table below shows other values for different loads.

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

Illustrative example of load values

<table>
<thead>
<tr>
<th>F (lb/ft)</th>
<th>AM</th>
</tr>
</thead>
<tbody>
<tr>
<td>132 (60)</td>
<td>80-3/4” (2050)</td>
</tr>
<tr>
<td>165 (75)</td>
<td>74-13/16” (1900)</td>
</tr>
<tr>
<td>198 (90)</td>
<td>68-29/32” (1750)</td>
</tr>
<tr>
<td>231 (105)</td>
<td>68-29/32” (1750)</td>
</tr>
<tr>
<td>264 (120)</td>
<td>63” (1600)</td>
</tr>
<tr>
<td>297 (135)</td>
<td>63” (1600)</td>
</tr>
<tr>
<td>330 (150)</td>
<td>57-3/32” (1450)</td>
</tr>
</tbody>
</table>

F = Force  
AM = Distance dimension

Force example:  
The distance dimension of 73.08 lb/ft (108.98 kg/m) + 67-5/16” (1710) (can be linearly interpolated)

Example system  
HSW-ES system in stainless steel  
System height: 137-3/4” (3500)  
Glazing thickness: 1/2” (12)

HSW-ES characteristic values

Formula for calculating the:
- Glazing height  
  = system height – 12-5/32” (309)  
  = panel height – 7-19/32” (193)
- Glazing weight
  Glass 3/8” (10) = 5.11 lb/sq. ft (25 kg/sq. m)  
  Glass 1/2” (12) = 6.4 lb/sq. ft (32 kg/sq. m)
- Door rail weight
  Aluminum = 8.047 lb/ft (12 kg/m)  
  Brass = 9.72 lb/ft (14.5 kg/m)  
  Stainl. steel = 8.88 lb/ft (13.25 kg/m)

Calculation

Load  
= glazing weight x glazing height + door rail weight

= 6.14 lb/sq. ft (30 kg/sq. m) x (137-3/4” [3500] – 12-5/32” [309])  
+ 8.88 lb/ft (13.25 kg/m)

= 6.14 lb/sq. ft (30 kg/sq. m) x 125-5/8” (3191)  
+ 8.88 lb/ft (13.25 kg/m)

= 73.08 lb/ft (108.98 kg/m)
The construction of the stacking area, assembled from substructure and track rail modules, provides a good illustration of how this robust system can be utilized. 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 always coincide with continuous material.

Provided that the track rails are adequately bolted to the substructure, gaps of up to 15-3/4” (400) 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.
## Substructure
### Connection details

### Substructure profile

<table>
<thead>
<tr>
<th>Product description</th>
<th>Ref. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profile connection with connection lug.</td>
<td>815.442.001.40</td>
</tr>
<tr>
<td>Wall connection with angled connection lugs.</td>
<td>815.442.001.40</td>
</tr>
<tr>
<td>Bending of connection lug on site according to need.</td>
<td></td>
</tr>
</tbody>
</table>

### Product description

- **Direct connection to ceiling**
- **Welding connection to steel**
- **Flexible connection to ceiling**
- **Connection to steel construction**
- **Adapter plate**

Existing bearing structure such as ceiling, bulkhead, steel girder by addition of adapter plate.

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>815.435.001.40</td>
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<tr>
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<tr>
<td>815.435.001.40</td>
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</tbody>
</table>
**Substructure**

**Component parts, accessories**

<table>
<thead>
<tr>
<th>Component parts</th>
<th>Product description</th>
<th>Ref. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Pivoting angle bracket</td>
<td>815.437.001.40</td>
</tr>
<tr>
<td>02</td>
<td>Fixing plate</td>
<td>815.434.001.40</td>
</tr>
<tr>
<td>03</td>
<td>Pivot fixing</td>
<td>815.436.001.40</td>
</tr>
<tr>
<td>04</td>
<td>Adapter plat</td>
<td>815.435.001.40</td>
</tr>
<tr>
<td>05</td>
<td>Basic substructure profile, stock length 120&quot; (3000)</td>
<td>815.658.000.99</td>
</tr>
<tr>
<td></td>
<td>Fixed length</td>
<td>815.659.000.99</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component parts</th>
<th>CSN</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Threaded rod M10 x 39-3/8&quot; (1000)</td>
</tr>
<tr>
<td>B</td>
<td>Hex nut DIN 439-2 M10</td>
</tr>
<tr>
<td>C</td>
<td>Washer ISO 7089-10</td>
</tr>
<tr>
<td>D</td>
<td>Hex nut DIN 934-M6</td>
</tr>
<tr>
<td>E</td>
<td>Hex socket screw DIN 933-M6 x 1-3/8&quot; (35)</td>
</tr>
<tr>
<td>F</td>
<td>Telescopic strut top section, square section tube, galvanised steel 25/32&quot; x 25/32&quot; x 1/16&quot; (20 x 20 x 2)</td>
</tr>
<tr>
<td>G</td>
<td>Drilling screw DIN 7504 ST4 5/16&quot; x 5/8&quot; (8 x 16)</td>
</tr>
<tr>
<td>H</td>
<td>Telescopic strut bottom section, square section tube, galvanised steel 1&quot; x 1&quot; x 1/16&quot; (25 x 25 x 2)</td>
</tr>
<tr>
<td>I</td>
<td>Hex nut DIN 934-M6</td>
</tr>
<tr>
<td>J</td>
<td>Hex socket screw DIN 933-M6 x 40</td>
</tr>
<tr>
<td>K</td>
<td>Self-tapping screw ISO 7049-St4 0.189&quot;x 0.512&quot; (4.8x13)-C-H</td>
</tr>
<tr>
<td>L</td>
<td>Cylindrical head screw for fixing track rail to substructure profile DIN 912-M8 x 25</td>
</tr>
</tbody>
</table>

DIN and standard parts by others or on request
CSN = Company standard no.
HSW-ES
Security in use and elegance in design

Outstanding strengths of the HSW-ES system

• The optional use of tempered laminated glass increases the creative possibilities for panel design and branding, in addition to potentially adding sound dampening improvements.

• A visible status display color system indicates the status of the top locking device (red/locked, green/unlocked) on the single-acting sliding panel or double-acting sliding panel. This gives clear status of the security of the door panel.

• Double brush seals in the top and bottom door rails successfully minimize drafts.

Intelligent solutions for more convenience and security
More clarity and easier locking thanks to status display

Locking status at a glance
Security and convenience in one—the top door locking device indicates the locking status of the door panel on the status display.

Less draft for even greater comfort
Innovative double brush seals in the top and bottom door rails improve door control and noticeably minimize the amount of draft. The optional vertical brush seals can be fitted up to the full height of the panel to give additional draft proofing for noticeably greater comfort.
HSW-ES

Multilock—Simple locking with hand or foot; three locking possibilities in one component

The new Multilock system opens up a new world of simplicity
The Multilock can be installed in the bottom door rail, combining three options for secure locking: front locking device, side locking device or mortise lock.

Easy foot-operated latching and unlatching
The Multilock’s foot-operated floor bolt provides for maximum convenience – simple and hassle-free.

Innovative holding power
TLG—Improved holding power with tempered laminated glass

Hassle-free installation with the new Clamp&Glue technology
The mounting process with HSW-ES is incredibly simple. The special adhesive is fed through an injection hole to the adhesive channel where it spreads out evenly. After a drying time of just 20 minutes the panel can then be installed.

Attractive added value
• Tempered laminated glass makes the application of HSW-ES not only attractive, but also more secure.
• The innovative Clamp&Glue technology enables easy bonding and ensures fittings and glass are held firmly in place.
• Special inner layers in the tempered laminated glass offer design freedom such as UV protection, potential noise reduction, and privacy.
## Panel functions

<table>
<thead>
<tr>
<th></th>
<th>Pivoting end panel, single- or double-acting</th>
<th>Sliding panel</th>
<th>Double-acting sliding panel*</th>
<th>Fixed panel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-sliding.</td>
<td>Basic movable panel without additional function.</td>
<td>With ITS 96 door closer, operational when frontage closed.***</td>
<td>Fixed panel design matching the design of the sliding panels in the assembly.</td>
</tr>
<tr>
<td></td>
<td>Single-acting panel with floor pivot and TS 92 door closer.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Double-acting panel with floor pivot or BTS floor closer.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Max. panel height | 157-1/2" (4000) max height with 3/4" glass is 132" | 157-1/2" (4000) max height with 3/4" glass is 132" | 141-3/4" (3600) max height with 3/4" glass is 132" | 157-1/2" (4000) |
| Max. panel width  | 49.25" (1250)                                      | 49.25" (1250)                                      | 49.25" (1250)                                      | 49.25" (1250) |
| Max. panel weight | 330 lb (150 kg)                                    | 330 lb (150 kg)                                    | 264 lb (120 kg)**                                 | 330 lb (150 kg) |

The individual panels can vary in widths. Maximum width should not exceed 115% of the smallest panel width.

* For single-acting sliding panel, consider notes relative to portal system. See page 73.

** Note: The maximum permissible weight relates to the complete door assembly, including glass, hardware, and rails.

*** Minimum panel width for use with ITS closer is 34-1/2" (880).
HSW-ES

Door rails and general details

**Bottom locking devices**
All illustrated combinations are also available as mirror image from what is shown.

**General parts and measurements**

Regardless of the function of each of the individual panels, an HSW-ES system comprises the following basic components:

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

**02**
Track rail.

**03**
Roller carrier.

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

**05**
Carrier profile.

**06**
Top door rail and comprising base profiles with cover profiles and end caps.

**07**
Rubber seal (bridges gap between cover profile and glass panel).

**08**
Tempered monolithic glass or tempered laminated glass 3/8”–3/4” (10–19) (by others).

**09**
Bottom door rail, comprising base profiles with cover profiles and end caps.
**HSW-ES**

**Pivoting end panel**

**Single- or double-acting**

Pivoting end panel, single- or double-acting, with floor pivot

Non-moving and always equipped with a locking deadlock and an option for an additional upper locking unit.

Pivoting end panel, single-acting

with stop-type end caps top and bottom.

Pivot point variants:

- Floor pivot with round spindle
- BTS 75V for panels up to 260 lb (118 kg), with optional hold-open at 90° door opening angle
- BTS 80 for panels up to 330 lb (150 kg) with adjustable hold-open device

Pivoting end panel, double-acting

Pivot point variants:

- Floor pivot with round spindle
- BTS 75V for panels up to 260 lb (118 kg), with optional hold-open at 90° door opening angle
- BTS 80 for panels up to 330 lb (150 kg) with adjustable hold-open device

Pivoting end panel, single- or double-acting, with floor closer

* Data and features TS 92 – see page 34

**Mounting dimensions in inches (mm)**

<table>
<thead>
<tr>
<th></th>
<th>BTS 75V</th>
<th>BTS 80</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>3-1/4” (82)</td>
<td>3-1/16” (78)</td>
</tr>
<tr>
<td>b</td>
<td>2” (51)</td>
<td>2-3/8” (60)</td>
</tr>
<tr>
<td>c</td>
<td>11-1/4” (285)</td>
<td>13-3/16” (341)</td>
</tr>
<tr>
<td>d</td>
<td>1-13/32”–1-13/16” (36–46)</td>
<td>2”–2-1/4” (51–57)</td>
</tr>
</tbody>
</table>
HSW-ES
Pivoting end panel

Single- or double-acting, with additional upper locking bolt

![Diagram of HSW-ES pivoting end panel](image)

Additional upper locking bolt  New drill hole of pattern  End cap with stop (optional)

<table>
<thead>
<tr>
<th>Data and features</th>
<th>BTS 80</th>
<th>BTS 75V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring strength (ANSI)</td>
<td>≤ 33-15/32&quot; (850)</td>
<td>3</td>
</tr>
<tr>
<td>≤ 37-13/32&quot; (950)</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>≤ 43-5/16&quot; (1100)</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>≤ 55-1/8&quot; (1400)</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Interior and exterior doors</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>Closing speed adjustable by valve</td>
<td>175°–0°</td>
<td>●</td>
</tr>
<tr>
<td>Delayed action (adjustable by valve)</td>
<td>(selectable alternative to allow more time to egress/ingress)</td>
<td>●</td>
</tr>
<tr>
<td>Max panel weight in lb (kg)</td>
<td>330 lb (150 kg)</td>
<td>330 lb (150 kg)</td>
</tr>
<tr>
<td>Hold open</td>
<td></td>
<td>Standard adjustable range 75°–175°</td>
</tr>
<tr>
<td>Dimension</td>
<td>Length</td>
<td>13-3/16&quot; (341)</td>
</tr>
<tr>
<td>Overall width</td>
<td>3-1/16&quot; (78)</td>
<td>3-1/16&quot; (78)</td>
</tr>
<tr>
<td>Height</td>
<td>2-3/8&quot; (60)</td>
<td>2-3/8&quot; (60)</td>
</tr>
<tr>
<td>Floor closer certified to BHMA/ANSI A156.4</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>
The sliding panels are movable. Once in their closed position, they are locked. The locking components provided in the bottom door rail can be face-mounted slide bolts, end-mounted slide bolts, end pin bolts or deadlocks.

The structure of the bottom door rail applies to single-acting/double-acting sliding panel.
HSW-ES
Sliding panel

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

Machining of cover profile (face-mounted slide bolt)
**HSW-ES**

**Single-acting sliding panel**

With integrated door closer
**ITS 96 (SZ 1–3)**

The single-acting sliding panel with integrated ITS 96 is used where the door panel is only required to open in one direction, either in or out. If you are considering this panel type, please note our recommendations relating to portal systems on page 73.

**Standard assembly**

- **top:** Pivot bearing, ITS 96 with slide channel, one locking device.
- **bottom:** Face-mounted slide bolt as pivot (released for sliding function), deadlock.

**Optional equipment**

- **top:** Additional locking device (upper locking bolt) to secure the panel in the area of a reshuffle bypass or for more stability in closed position.
- **bottom:** Second face mounted slide bolt instead of deadlock.

**Data and features: ITS 96 (SZ 1–3)**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing strength/size</td>
<td>Spring size 1–3+</td>
</tr>
<tr>
<td>Max. panel width</td>
<td>49.25&quot; (1250)</td>
</tr>
<tr>
<td>Max. panel weight</td>
<td>264 lb (120 kg)</td>
</tr>
<tr>
<td>Closing strength adjustable</td>
<td>Adjusting screw</td>
</tr>
<tr>
<td>Closing speed adjustment</td>
<td>Independent valve</td>
</tr>
<tr>
<td>Latch speed is adjustable from 15°–0°</td>
<td>Independent valve</td>
</tr>
<tr>
<td>Cushion bumper adjustment</td>
<td>yes</td>
</tr>
<tr>
<td>Max. opening angle</td>
<td>– 120°</td>
</tr>
<tr>
<td>Hold-open variable</td>
<td>yes (auxiliary door stop required)</td>
</tr>
<tr>
<td>Weight</td>
<td>2.86 lb (1.3 kg)</td>
</tr>
<tr>
<td>Length</td>
<td>10-29/32&quot; (277)</td>
</tr>
<tr>
<td>Overall depth</td>
<td>1-1/4&quot; (32)</td>
</tr>
<tr>
<td>Height</td>
<td>1-21/32&quot; (42)</td>
</tr>
</tbody>
</table>
The ITS 96 integrated with this double-acting sliding panel is virtually invisible and does not affect the partition’s overall appearance. In its standard form, ITS 96 is provided with a 90° hold-open. If you are considering this panel type, please note our advisories relating to portal systems on page 73.
HSW-ES
Double-acting sliding panel

With integrated dormakaba door closer ITS 96, SZ 1–3

Additional upper lock
The additional upper locking bolt is used for single-acting or double-acting sliding panels as an optional addition to the upper locking unit at the other end of the door. In some cases it is recommended for additional stabilization of the carrier profile.
The fixed panel is a non-moving side panel, independent of the rest of the system. The fixed side panels are the same basic design as the sliding panels and continue the appearance of the movable frontage without any optical break. If required, the retaining devices at the top can be replaced by a carrier system to convert into a sliding panel.

**Standard assembly**
- **top**: Retaining devices mounted to the track rail.
- **bottom**: Spacer profile fixed to the floor, access for mounted end pin of the adjacent panel.
HSW-GP
Panels and functions

Fully glazed sliding walls, using point fixings hung in standard track rail.

HSW-GP systems feature glass panels with single-point fixings in combination with a conventional track rail profile. The design features a high-grade stainless steel finish and distinctive flush-mounted or clamping disc attachments, coordinating perfectly with contemporary architecture. Standard glass thicknesses are 3/8” (10) and 1/2” (12). Contact the technical department for other potential glass thickness options.

Max. panel sizes and weights

<table>
<thead>
<tr>
<th>Max. system height</th>
<th>Pivoting end panel, single- or double-acting</th>
<th>Sliding panel</th>
<th>Pivoting end panel, single- or double-acting</th>
<th>Fixed panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. system height</td>
<td>118-1/8” (3000) *</td>
<td>118-1/8” (3000)</td>
<td>118-1/8” (3000) *</td>
<td>118-1/8” (3000)</td>
</tr>
<tr>
<td>Max. panel width</td>
<td>47-1/4” (1200)</td>
<td>47-1/4” (1200)</td>
<td>47-1/4” (1200)</td>
<td>47-1/4” (1200)</td>
</tr>
<tr>
<td>Max. panel weight</td>
<td>220 lb (100 kg)</td>
<td>220 lb (100 kg)</td>
<td>220 lb (100 kg)</td>
<td>220 lb (100 kg)</td>
</tr>
</tbody>
</table>

The track roller position cannot vary. The width of all panels in the system must be uniform.

* From a panel height of 98-7/16" (2500), we recommend a continuous pivot rod extending over the full height of the panel.

From a panel height of 106-9/32" (2700), we recommend a fifth single-point fixing.
**HSW-GP**

**System design**

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

01
Optional installation-efficient dormakaba substructure to accommodate track rail mounting requirements.

02
Track rail (for bolting to the substructure).

03
Roller.

04
Roller bolt.

05
Strap with single-point fixings.

06
Tempered monolithic or tempered laminated glass (by others).

07
Bottom strap with end-mounted pin.

08
Bottom strap with face-mounted slide bolt.
HSW-GP
Types and glass preparation

Pivoting end panel, single- or double-acting, with pivot rod

Glass preparation

Glas preparation

Glass bore dimensions for pull handle/back-to-back pull handles

Glazing height = Total height – 4-31/32” (126)

Counter sunk bores for single-point fixings

Counter sunk bores

Glass bore dimensions for pull handle/back-to-back pull handles

Glazing height = Total height – 4-31/32” (126)

Counter sunk bores for single-point fixings

Counter sunk bores

Visible corner notch

Glass preparation

Pivoting end panel, single- or double-acting

Glass bore dimensions for pull handle/back-to-back pull handles

Glazing width

Counter sunk bores for single-point fixings

Counter sunk bores

Glass bore dimensions for pull handle/back-to-back pull handles

Glazing height = Total height – 4-31/32” (126)

Counter sunk bores for single-point fixings

Counter sunk bores

Visible corner notch

Glass preparation
**HSW-R**

**Types and functions**

Horizontal sliding walls, fully framed for tempered monolithic, tempered laminated, or tempered double glazed units.

Resistant to mechanical stress and protects against the influences of the weather, heat loss, and drafts thanks to sturdy profile frames with brush seals top and bottom and laterally arranged rubber lip seals.

Panel options include tempered monolithic (TMG), tempered laminated (TLG), or tempered double glazed insulated glass. Rail options can accommodate glass thicknesses from 5/16" to 7/8" (8 to 22).

<table>
<thead>
<tr>
<th>Max. panel sizes and weights</th>
<th>Pivoting end panel, single- or double-acting</th>
<th>Sliding panel</th>
<th>Pivoting end panel, When frontage closed with integrated concealed door closer type ITS 96, ANSI Size 2–5 (EN 3–6) operational. Minimal panel width 870 mm.</th>
<th>Double-acting sliding panel*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Max. system height</strong></td>
<td>118-1/8&quot; (3000)*</td>
<td>118-1/8&quot; (3000)</td>
<td>118-1/8&quot; (3000)*</td>
<td>118-1/8&quot; (3000)</td>
</tr>
<tr>
<td><strong>Max. panel width</strong></td>
<td>43-5/16&quot; (1100)</td>
<td>43-5/16&quot; (1100)</td>
<td>43-5/16&quot; (1100)</td>
<td>43-5/16&quot; (1100)</td>
</tr>
<tr>
<td><strong>Max. panel weight</strong></td>
<td>220 lb (100 kg)</td>
<td>220 lb (100 kg)</td>
<td>220 lb (100 kg)</td>
<td>220 lb (100 kg)</td>
</tr>
</tbody>
</table>

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

* For these panel types please see recommendations on portal systems on page 73.
HSH-R
System design

General parts and measurements

<table>
<thead>
<tr>
<th>Number</th>
<th>Component Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Optional installation-efficient dormakaba substructure to accommodate track rail mounting requirements.</td>
</tr>
<tr>
<td>02</td>
<td>Track rail (for bolting to the substructure).</td>
</tr>
<tr>
<td>03</td>
<td>Carrier</td>
</tr>
<tr>
<td>04</td>
<td>Suspension assembly</td>
</tr>
<tr>
<td>05</td>
<td>Adapter frame</td>
</tr>
<tr>
<td>06</td>
<td>Glazing frame profile, horizontal</td>
</tr>
<tr>
<td>07</td>
<td>Glass clamping bar</td>
</tr>
<tr>
<td>08</td>
<td>Glazing frame profile, vertical</td>
</tr>
<tr>
<td>09</td>
<td>Tempered monolithic, tempered laminated, or tempered double glazed insulated units (by others).</td>
</tr>
<tr>
<td>10</td>
<td>Bottom frame profile</td>
</tr>
</tbody>
</table>

Regardless of the function of the individual panels, an HSH-R system comprises the following components:
HSW-R
Single-/double-acting sliding panels

Pivoting end panel, single- or double-acting, with floor pivot
Fixed panel, always equipped with bottom deadbolt with the option of a top bolt or side action deadlock. Single-acting or double-acting options.

Pivoting end panel, single-acting with stop plates at the top bolt
Assembly types:
• Floor pivot with round spindle.
• As above, but with dormakaba TS 92 surface door closer.
• BTS 75V for panels up to 260 lb (118 kg), with optional hold-open at 90° door opening angle.
• BTS 80 for panels of 220–330 lb (100–150 kg), provided with hold-open as standard.

Pivoting end panel, double-acting
Assembly types:
• Floor pivot with round spindle.
• BTS 75V for panels up to 260 lb (118 kg), with optional hold-open at 90° or 150° door opening angle.
• BTS 80 for panels of 220–330 lb (100–150 kg), provided with hold-open as standard.

Pivoting end panel, single- or double-acting, with floor closer

Mounting dimensions in inches (mm)

<table>
<thead>
<tr>
<th></th>
<th>BTS 80</th>
<th>BTS 75V</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>3-1/16&quot; (78)</td>
<td>3-1/4&quot; (82)</td>
</tr>
<tr>
<td>b</td>
<td>2-3/8&quot; (60)</td>
<td>2&quot; (51)</td>
</tr>
<tr>
<td>c</td>
<td>13-3/16&quot; (341)</td>
<td>11-1/4&quot; (285)</td>
</tr>
<tr>
<td>d</td>
<td>2&quot;–2-1/4&quot; (51–57)</td>
<td>1-13/32&quot;–1-13/16&quot; (36–46)</td>
</tr>
</tbody>
</table>
HSW-R
Pivoting end panel, single-acting

With TS 92 surface door closer and additional locking device

### Additional locking device

<table>
<thead>
<tr>
<th>Data and features</th>
<th>TS 92</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing strength/size</td>
<td>EN 2–4*</td>
</tr>
<tr>
<td>Closing strength, variable</td>
<td>Independent adjusting screw and arm pivot</td>
</tr>
<tr>
<td>Closing speed adjustment</td>
<td>Independent valve</td>
</tr>
<tr>
<td>Non-handed</td>
<td>*</td>
</tr>
<tr>
<td>Latching speed adjustment</td>
<td>Arm location</td>
</tr>
<tr>
<td>Cushion bumper adjustment range</td>
<td>80°–120°</td>
</tr>
<tr>
<td>Hold-open adjustment</td>
<td>75°–150°</td>
</tr>
<tr>
<td>Weight</td>
<td>4.18 lb (1.9 kg)</td>
</tr>
<tr>
<td>Length</td>
<td>11-1/16&quot; (281)</td>
</tr>
<tr>
<td>Overall depth</td>
<td>1-7/8&quot; (47)</td>
</tr>
<tr>
<td>Height</td>
<td>2-9/16&quot; (65)</td>
</tr>
</tbody>
</table>

*Sizing functions similar to ANSI size 1 – 3+
Fixed when partition is closed.
When the sliding panels are in their closed position, they are locked down by face-mounted floor bolts or deadlocks in the bottom rail.
HWS-R
Single-acting sliding panel

With integrated dormakaba
ITS 96 concealed door closer,
size ANSI 2–5 (EN 3–6)

Single-acting sliding panels are
used where passdoors only
need to open in one direction.
They can be configured for
opening to the interior or
exterior.

Standard assembly
- top: Pivot bearing, ITS 96,
  size ANSI 2–5 (EN 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

Locking device
Double-acting sliding panels with dormakaba ITS 96 (size ANSI 2–5 [EN 3–6]) door closers are easy to install and operate. 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 recommendations for portal systems on page 73.
Accessories – vertical seals

Overview

Options available for seals and gasketing relative to mounting type, material, and solutions.

Retrofittable seals
Plastics profiles shown below provide an unobtrusive and retrofittable solution for draft protection at the glass edges.

Product description

**Glass joint gasket**
Milky transparent rubber, self adhesive for 3/8” – 3/4” (10 – 19) glass thickness.
Accessories – vertical seals

Vertical sealing profiles with brushes

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

General preparation

Product description

Profile machining
For end-mounted and face-mounted slide bolts supplied by dormakaba

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

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

Product description

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

Ref. No.

840.070.000.99
Accessories – vertical seals

Panel types

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

Single-End-/Double-acting Panels
As-delivered condition of the vertical sealing profiles:
Cut lengths supplied from factory
= System height = 3-9/16" (90)

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

Panel types

Sliding panels

As-delivered condition of the vertical sealing profiles:
Cut lengths supplied from factory
= System height – 3-9/16" (90)

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

Installation instructions

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

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

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

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

As-delivered condition of the vertical sealing profiles: Cut lengths supplied from factory = System height – 3-9/16” (90)

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

Panel types

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

As delivered condition of the vertical sealing profiles:
Cut lengths supplied from factory = System height – 3-9/16" (90)

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

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

Panel types

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

As delivered condition of the vertical sealing profiles:
Cut lengths supplied from factory = System height – 3-17/32” (90)
Holes and recesses are pre-machined in the profile for the bottom door rail only. Any further machining work required for connection to the top door rail has to be performed on site.

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

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

Fixed panels

As delivered condition of the vertical sealing profiles:
Cut lengths supplied from factory
= System height – 3-9/16" (90)

Holes and recesses are pre-machined in the profile for the bottom door rail only. Any further machining work required for connection to the top door rail has to be performed on site.
Accessories
Pulls/handles, knobs & recessed pulls

Pulls and handles are designed for glass of 5/16”, 3/8”, and 1/2” (8, 10, and 12) thickness. Pulls/handles can be mounted to both sliding and pivoting doors on one face (single-sided) using the appropriate connectors or on both faces (back-to-back) by through bolting.

Designed with a flat mounting surface, pulls are suitable for sliding doors. Single point fittings and through bolts are included as standard equipment as identified in the current price book. The pull handles can be mounted horizontally, vertically, or in a handrail arrangement.

Pulls
TG 138 locking and non-locking ladder pulls

Lockable stainless steel pull handles with rim cylinder and thumbturn

For elegant and secure glass entrances, dormakaba offers the **TG 138 locking and non-locking ladder pulls**—a pair of tubular lockable pull handles with a small format interchangeable (SFIC) cylinder on the secure side and a thumbturn on the non-secure side of the door. Made from the highest quality, Grade 316L stainless steel, TG 138 locking ladder pulls are perfect for the toughest interior/exterior environments. Four stocked lengths are available: 49” (1245), 60” (1524), 72” (1829), and 84” (2134) with custom sizes available for quote upon request.

Mounting packs are available for tempered glass doors and for aluminum, wood, PVC, and mixed material doors from 3/8” to 1-3/4” (10 to 44). Contact the factory if mounting packs are required for thicker doors.

Matching non-locking ladder pulls are stocked in all four standard sizes, or custom sizes are available for quote upon request.

Lockable pull handles feature a patented anti-break-in technology and steel dead bolt locking on the interior or opposite of the cylinder side of the opening. The default cylinder is a Small Format Interchangeable Core (SFIC) less core (00). Other cylinder and keying options are available. A dust proof strike is included.
Accessories – Pulls

TG 138 locking and non-locking ladder pulls

49" (1245) TG 138 locking and non-locking ladder pulls

Locking ladder pull details

Non-locking ladder pull details

Locking ladder pull glass cutout template

Non-locking ladder pull glass cutout template

Note: Use this cutout preparation for 49" (1254) single-sided locking ladder pull with cylinder or thumbturn.
Accessories – Pulls
TG 138 locking and non-locking ladder pulls

60" (1524) TG 138 locking and non-locking ladder pulls

Locking ladder pull details

Non-locking ladder pull details

Locking ladder pull glass cutout template

Non-locking ladder pull glass cutout template

A = 60" (1524)
B = 35-7/16" (900)
C = 6-7/8" (175)

*OR Ø3/4" (Ø19) WITH ADAPTER ORDERED SEPARATELY
Accessories – Pulls

TG 138 locking and non-locking ladder pulls

72” (1829) TG 138 locking and non-locking ladder pulls

Locking ladder pull details

Non-locking ladder pull details

Locking ladder pull glass cutout template

Non-locking ladder pull glass cutout template
Accessories – Pulls
TG 138 locking and non-locking ladder pulls

84" (2134) TG 138 locking and non-locking ladder pulls

Locking ladder pull details

Non-locking ladder pull details

Locking ladder pull glass cutout template

Non-locking ladder pull glass cutout template

A = 38-3/4" (984)
B = 35-7/16" (900)
C = 6-7/8" (175)

*OR Ø3/4“ (Ø19) WITH ADAPTER ORDERED SEPARATELY
## Accessories – Pulls

**TG 138 locking and non-locking ladder pulls**

### Mounting pack options

<table>
<thead>
<tr>
<th>Option</th>
<th>Ref. #</th>
<th>Description</th>
<th>Door thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>926.891</td>
<td>Adaptor, .75 adaptor allows Non-locking Pull to install in Locking Post Prep</td>
<td></td>
</tr>
<tr>
<td></td>
<td>926.937</td>
<td>Strike, Dustproof, Standard</td>
<td></td>
</tr>
<tr>
<td></td>
<td>926.890</td>
<td>Mounting Pack, Back-to-back Lock Post, Non-locking Posts</td>
<td>1-3/4” (44)</td>
</tr>
<tr>
<td></td>
<td>926.911</td>
<td>Mounting Pack, Back-to-back, Locking</td>
<td>3/4” (19)</td>
</tr>
</tbody>
</table>
## Accessories – Pulls
### TG 138 locking and non-locking ladder pulls

### Mounting pack options

<table>
<thead>
<tr>
<th>Option</th>
<th>Ref. #</th>
<th>Description</th>
<th>Door thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>926.910</td>
<td>Mounting Pack, SNG Blind, 3 each in pack (Will not project through door)</td>
<td>min. 1-3/4” (44)</td>
</tr>
<tr>
<td></td>
<td>926.938</td>
<td>Locking Mechanism only</td>
<td>1/2” (13)</td>
</tr>
<tr>
<td></td>
<td>926.939</td>
<td>Washer Pack</td>
<td>–</td>
</tr>
</tbody>
</table>
Accessories – Handles
TG 9387 pull handle with straight supports

TG 9387 handles are available in two variations of custom lengths:

A. Specify Li only = (specify Li only then \( La = Li \times 1.6 \)) \( [La = \text{overall length}, \{Li = \text{center to center of post}\}] \).

B. Specify Li and La desired.

Stock TG 9387 handles are also available in the six specifications shown at right and below.

Note: All TG 9387 handles above can be ordered as B2B (back to back) sets or SNG (single) for one side only.

<table>
<thead>
<tr>
<th>ØG</th>
<th>1&quot; (25)</th>
<th>1-1/4&quot; (32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ØS</td>
<td>23/32&quot; (18)</td>
<td>1-1/32&quot; (26)</td>
</tr>
<tr>
<td>H</td>
<td>2-15/16&quot; (75)</td>
<td>3-11/32&quot; (85)</td>
</tr>
<tr>
<td>3 fittings required</td>
<td>59-1/16&quot; (1500)</td>
<td>74-13/16&quot; (1900)</td>
</tr>
</tbody>
</table>

### Service Items

<table>
<thead>
<tr>
<th>Service Item*</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Service insert" /></td>
<td>Service inserts, reduces post thread from 5/16&quot; (8) to 1/4&quot; (6), used for every mounting post. Bulk pack of 6. Ref. # 905.390</td>
</tr>
<tr>
<td><img src="image" alt="Service mounting pack" /></td>
<td>Service mounting pack with finished mounting ROSE used for SNG GLASS mount 3/8&quot; – 3/4&quot; (10 – 19). Bulk pack of 6. Ref. # 905.387</td>
</tr>
<tr>
<td><img src="image" alt="Service mounting pack" /></td>
<td>Service mounting pack used for BACK-TO-BACK GLASS mount 3/8&quot; – 3/4&quot; (10 – 19). Bulk pack of 6. Ref. # 905.385</td>
</tr>
<tr>
<td><img src="image" alt="Service mounting pack" /></td>
<td>Service mounting pack with finished mounting ROSE used for SNG WOOD mount 1-3/8&quot; – 2&quot; (40 – 51). Bulk pack of 6. Ref. # 905.388</td>
</tr>
<tr>
<td><img src="image" alt="Service mounting pack" /></td>
<td>Service mounting pack used for BACK-TO-BACK WOOD mount 1-3/8&quot; – 2&quot; (40 – 51). Bulk pack of 6. Ref. # 905.386</td>
</tr>
<tr>
<td><img src="image" alt="Service mounting pack" /></td>
<td>Service mounting pack with BLIND (concealed) fasteners, used for SNG WOOD mount ≥ 1-3/8&quot; (40). Bulk pack of 6. Ref. # 905.389</td>
</tr>
</tbody>
</table>

* Service items for stock TG 9387 handles only; specify appropriate mounting option when ordering.
Accessories – Handles

**MANET handles**

**MANET handles, single side**

Single side with clamping disk single point mounting for 3/8" (10) and 1/2" (12) glass. 316L stainless steel base material.

**MANET handles, single side**

13-3/4" (350) O.A.
2-hole mounting for 3/8" (10) and 1/2" (12) glass thickness
Ref. # 821.240

**MANET handles, single side**

28-3/8" (720) O.A.
2-hole mounting for 3/8" (10) and 1/2" (12) glass thickness
Ref. # 821.241

**MANET handles, single side**

48-13/16" (1240) O.A.
3-hole mounting for 3/8" (10) and 1/2" (12) glass thickness
Ref. # 821.242

**MANET handles, single side**

69-5/16" (1760) O.A.
4-hole mounting for 3/8" (10) and 1/2" (12) glass thickness
Ref. # 821.243

**MANET handles, back-to-back**

13-3/4" (350) O.A.
2-hole mounting for 3/8" (10) and 1/2" (12) glass thickness
Ref. # 821.267

**MANET handles, back-to-back**

28-3/8" (720) O.A.
2-hole mounting for 3/8" (10) and 1/2" (12) glass thickness
Ref. # 821.270

**MANET handles, back-to-back**

48-13/16" (1240) O.A.
3-hole mounting for 3/8" (10) and 1/2" (12) glass thickness
Ref. # 821.273

**MANET handles, back-to-back**

69-5/16" (1760) O.A.
4-hole mounting for 3/8" (10) and 1/2" (12) glass thickness
Ref. # 821.276
## Accessories – Handles

**MANET – glass preparation**

### MANET handles, glass hole details

- **Single point mounting with clamping disk**
  - Handle length: 11-1/2" (348)
  - Glass hole: Ø7/8" (Ø22)
  - Min. ca. 2-9/16" (65)

- **Back-to-back mounting with connecting bolt**
  - Handle length: 11-1/2" (348)
  - Glass hole: Ø1-3/16" (Ø30)
  - Min. ca. 2-9/16" (65)

### MANET handles, glass fabrication

- **20-1/2" (520)**
  - Glass fabrication:
    - Ø1-1/16" (Ø26)
    - Ø1-3/16" (Ø30)

- **Handle lengths**
  - 28-3/8" (720)
  - 48-13/16" (1240)
  - 69-5/16" (1760)
Accessories – Handles

ARCOS handles

ARCOS handle details

ARCOS Handles
13-3/4” (350) C to C
2-hole fixing for 3/8” (10)
1/2” (12) glass thickness
Ref. # 826.500

ARCOS Handles
29-1/2” (750) C to C
2-hole fixing for 3/8” (10)
1/2” (12) glass thickness
Ref. # 826.510

ARCOS glass fabrication
Accessories – Handles

BEYOND handles

BEYOND handle details

<table>
<thead>
<tr>
<th>Length (L)</th>
<th>Ref. #</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-3/4&quot; (450)</td>
<td>830.300</td>
</tr>
<tr>
<td>23-5/8&quot; (600)</td>
<td>830.305</td>
</tr>
<tr>
<td>35-7/16&quot; (900)</td>
<td>830.310</td>
</tr>
</tbody>
</table>

BEYOND handle
for 3/8" (10) and 1/2" (12) glass, two-hole attachment.

Available finish
(670) Similar to Satin Stainless finish.
Accessories – Pulls

Economy pull handles (solid and tubular)

10” (254) handles

Handles, back-to-back pulls tube, 10” (254)
Ref. # 926.001 (solid)
Ref. # 926.601 (tubular)

Handles, single side tube 10” (254)
Ref. # 926.012 (solid)
Ref. # 926.612 (tubular)

12” (305) handles

Handles, back-to-back pulls tube, 12” (305)
Ref. # 926.004 (solid)
Ref. # 926.604 (tubular)

Handles, single side solid tube 12” (305)
Ref. # 926.016 (solid)
Ref. # 926.616 (tubular)

Offset back-to-back handle – 10” (254)

Handles, back-to-back offset tube, 10” (254) offset
Ref. # 926.622 (tubular)

Offset back-to-back handle – 12” (305)

Handles, back-to-back offset tube, 12” (305) offset
Ref. # 926.009 (solid)
Ref. # 926.609 (tubular)
Accessories – Pulls
Economy pull handles (solid and tubular)

Handles, push/pull, back-to-back tube, 10” (254) × 27-3/4” (705)
Ref. # 926.002 (solid)
Ref. # 926.602 (tubular)

Handles, push/pull, back-to-back tube, 12” (305) × 27-3/4” (705)
Ref. # 926.005 (solid)
Ref. # 926.605 (tubular)

Flush pull aluminum, to be glued onto the glass — requires glass cut
Ref. # 907.200

Flush pull and glass knob

Flush pull aluminum, to be glued onto the glass — requires glass cut
Ref. # 907.200

Glass knob Ø1-15/32” (Ø37), projection 1-1/4” (32), glass prep: drill 3/8” or 1/2” (10 or 12) Ø hole for 3/8” or 1/2” (10 or 12) glass thickness
Ref. # 906.999
### Measuring up

**Important site measurements**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height of structural ceiling</td>
<td>構造天井の高さ</td>
</tr>
<tr>
<td>Substructure height</td>
<td>基礎構造高さ</td>
</tr>
<tr>
<td>Height of suspended ceiling</td>
<td>普通天井の高さ</td>
</tr>
<tr>
<td>HSW system height</td>
<td>HSWシステムの高さ</td>
</tr>
<tr>
<td>1-meter datum line (site reference dimension)</td>
<td>1メートル基準線（サイト参照寸法）</td>
</tr>
<tr>
<td>Top surface of structural floor</td>
<td>構造床の上平面</td>
</tr>
<tr>
<td>FFL Top surface of finished floor</td>
<td>FFL最終床面</td>
</tr>
<tr>
<td>Clear width (finished wall)</td>
<td>明るい幅（完成壁）</td>
</tr>
<tr>
<td>Wall frontage/closed wall system</td>
<td>壁面積/閉鎖式壁システム</td>
</tr>
<tr>
<td>Stacking area depths</td>
<td>収納エリア深さ</td>
</tr>
<tr>
<td>Stacking area width</td>
<td>収納エリア幅</td>
</tr>
<tr>
<td>Reshuffle bypass</td>
<td>リシュールバイパス</td>
</tr>
</tbody>
</table>

![Diagram of site measurements](image-url)
Notes on portal systems
Maintenance recommendation for high-frequency HSW systems

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

Use caution when choosing double acting sliding panels for main entrances (i.e. shopping malls or similar HSW applications). These are subjected to very high daily traffic volumes and usage frequency rates.

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

High-frequency portal systems such as described can reach high cycles after just a few months. Consequently, dormakaba recommends that such units be regularly maintained. The higher the usage levels, the more frequently the equipment should be serviced by either the installation firm or a similarly specialized glazier or facilities contractor.

In addition to any door closer that may be installed, a suitable limiting stop (to be provided on site) is required as protection for single-acting and double-acting sliding panels. In public and high frequency entrance systems, door closers are suitable as limiting stops. Proper auxiliary limiting stops must be installed to protect and prevent risk of injury to pedestrians or damage to door closer, door and frame, and other hardware.
Finishes
Aluminum and powder coat

Deviations in color due to production procedures and/or organic (living) finishes cannot be totally excluded.

HSW systems surface finishes contain multiple different component base materials.

FSW (folding sliding walls) systems, for example, include hinges with base metal aluminum, while the standard surface finish for brush profiles and end covers is black anodized (711). Some HSW/FSW system components have optional anodized or powder-coated finishes to resemble the ordered surface finish. The standard surface of upper locking units and upper locking bolts is a powder-coated RAL color.

Typical manufacturing flow marks appear when anodizing the milled area of the track rail modules. As an alternative to the anodized 628 surface finish, we offer modules and track rails in all lengths in a powder-coated version similar to 628 for visual reasons.

<table>
<thead>
<tr>
<th>Finishes</th>
<th>dormakaba USA</th>
<th>dormakaba Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AL mill finish (Aluminum R 600)</td>
<td>719</td>
<td>100</td>
</tr>
<tr>
<td>AL Clear Silver anodized</td>
<td>628</td>
<td>101/150</td>
</tr>
<tr>
<td>AL similar satin stainless steel anodized</td>
<td>670</td>
<td>107/113</td>
</tr>
<tr>
<td>AL special color anodized</td>
<td>199</td>
<td>199</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Powder coat finishes</th>
<th>dormakaba USA</th>
<th>dormakaba Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL traffic white powder coated</td>
<td>714</td>
<td>RAL 9016</td>
</tr>
<tr>
<td>AL special color powder coated (Standard powder according to RAL)</td>
<td>399</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Finishes HSW-ES</th>
<th>dormakaba No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td></td>
</tr>
<tr>
<td>AL mill finish</td>
<td>719</td>
</tr>
<tr>
<td>AL silver anodized</td>
<td>628</td>
</tr>
<tr>
<td>AL niro anodized (Niro N 700)</td>
<td>670</td>
</tr>
<tr>
<td>AL special color anodized</td>
<td>199</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Powder coat finishes</th>
<th>dormakaba No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL black powder coated (Black P 190 SG)</td>
<td>693</td>
</tr>
<tr>
<td>AL high weather resistant powder coated (Color P WR, supplied by Germany only)</td>
<td>398</td>
</tr>
<tr>
<td>AL special color powder coated (Standard powder according to RAL)</td>
<td>399</td>
</tr>
</tbody>
</table>
Safely

Important safety-related information for the mounting and use of dormakaba glass fittings

Follow these instructions in addition to the mounting and operating instructions in order to avoid damage of product and damage to person or property.

**Important:** All users must be informed about relevant points mentioned in this safety-related information and the mounting and operating instructions!

**General information**
- dormakaba requires use of tempered laminated or tempered monolithic glass.
- dormakaba glass hardware is not suitable for harsh environment; for example, applications where chemicals (e.g. chlorine) are used such as indoor swimming pools, saunas, or salt-water pools.
- Never move sliding panels faster than walking speed and always stop the door manually before it reaches end position.
- Do not slide doors with excessive force. Ensure proper installation of limiting stop to prevent door from opening too far.
- Do not swing doors with excessive force. Install limiting stop to prevent door from opening too far.

**Requirements for glass panel**
- Never use glass with conchoidal fractures and/or damaged edges.

**Safety instructions**
- Installation requires two people.
- Always wear protective clothing.
- Only properly qualified and specially trained staff are authorized to mount dormakaba glass hardware.
- Due to crushing hazards and possible injury caused by breakage of glass during mounting, corresponding protective clothing (especially gloves and protective goggles) is required.
- Never clamp metal fitting hardware directly to glass surface.

**For practical planning, please refer to dormakaba technical drawings.**

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

Subject to change without notice.