Horizontal Sliding Walls
Technical brochure 2021

HSW EASY Safe
FSW EASY Safe
HSW-R
HSW FLEX Therm
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Content
Support and Guide Elements

06 Stacking arrangements
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24 Substructure
Support and Guide Elements
The right stacking arrangement for any situation

Perfect parking every time
Existing structures or unusual layouts often require special solutions, particularly in the design of the stacking area. dormakaba HSW systems can be parked in a range of different positions. The stack of panels can be aligned parallel or square to the frontage, be readily visible for effect or hidden behind columns etc. Another possibility is that of parking the system in line but out of the way, whether behind a wall or in a niche (see also pages 8). The panels can also perform certain functions when the frontage is open, such as providing the sides of internal store windows and showcases, or, if provided with the appropriate printing on the glass, for adding artistic value to a wall. The following pages show some system solutions devised in answer to a wide range of different problems.
**Panels transverse to travel direction**

<table>
<thead>
<tr>
<th>Panels stacked 90° angle transverse to travel direction</th>
<th>Product description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Diagram" /></td>
<td>Standard stacking arrangement. With pivoting end panel, single- or double-action, to use as possible access leaf (left or right, or left and right).</td>
</tr>
<tr>
<td><img src="image2.png" alt="Diagram" /></td>
<td>Niche stacking. With pivoting end panel, single- or double-action, to use as possible access leaf (left or right, or left and right).</td>
</tr>
<tr>
<td><img src="image3.png" alt="Diagram" /></td>
<td>Stacking with reshuffle bypass (without pivoting end panel). Behind wall projection/fixed side panel (Left or right, or left and right).</td>
</tr>
<tr>
<td><img src="image4.png" alt="Diagram" /></td>
<td>Stacking behind pivoting end panel, single-action or double-action (Left or right, or left and right).</td>
</tr>
</tbody>
</table>
**Product description**

<table>
<thead>
<tr>
<th>Stackin</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stacking in a box or niche, behind pivoting end panel, double-action Sliding panels only, around 135° offset (left or right, or left and right).</td>
<td></td>
</tr>
<tr>
<td>Stacking in a box/pocket. For sliding panels or double-action sliding panels (left or right, or left and right).</td>
<td></td>
</tr>
<tr>
<td>Stacking behind column. Stacking legs at 135° angle. With pivoting end panel, double-action, to use as possible access leaf (left or right, or left and right).</td>
<td></td>
</tr>
<tr>
<td>Stacking at acute angle. All panels brought into position with rear track roller.</td>
<td></td>
</tr>
</tbody>
</table>
Panels parallel to travel direction

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

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

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

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

Detail X
Sliding folding panel in closed wall.

Max. system height 3 m

Sliding folding panel ready for sliding into stacking area.

Max. system height 3 m

Fixed panels
Sliding panel 1
Special stacking arrangements

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

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

Stacking in front of 90° wall with reshuffle bypass

Stacking panels of varying width.

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

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

![Diagram of panels stacked 90° angle transverse to travel direction]

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

![Diagram of stacking legs at 135° angle]

\[a = \text{depending on pull handle depth} \]
\[b = 65 \text{ mm for HSW EASY Safe} \]
\[80 \text{ mm for HSW-R} \]
Stacking in a niche, outer stacking leg at 95° angle for small number of panels (up to 6) (left or right, or left and right).

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

\[ B1 = \text{Panel width} - 130 \text{ mm} - (|T1 - 80| \times 0.087) \]

\[
\begin{align*}
    a &= \text{depending on pull handle depth} \\
    b &= 65 \text{ mm for HSW EASY Safe} \\
    &\quad 80 \text{ mm for HSW-R}
\end{align*}
\]

1 = Panel width – 134 mm
The right solution –
HSW FLEX Therm

Existing structures and non-standard designs often require unusual solutions, particularly when it comes to configuring the parking area.

HSW FLEX Therm systems can be combined with stacking tracks of various configurations. The single-panel stack can be parked either parallel or square to the frontage, in a visible area or concealed behind columns or similar. The panels may also be parked in a line, either behind a wall or in a niche.

The parking solutions below show by way of example how such arrangements may be designed to be openly visible or concealed.

Please note during your own planning and design work that large systems with many individual panels will inevitably require a correspondingly generous amount of parking/stacking space.
Parallel parking behind an offset hung end panel
As a possible access point.
Outer stacking leg at an angle of 95° (left or right and left and right).

Parking behind a offset hung end panel
Single-action, as a possible access point (left or right or left and right).

Standard stacking track
With offset hung end panel, single-action, as a possible through-passage panel (left or right or left and right).
Space for your notes
Simple, secure and removable connections

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

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

Improved insulation of the sliding track
HSW FLEX Therm
The insulation of the HSW FLEX Therm sliding track can be improved by attaching an additional plastic profile on the weather side so that the formation of condensation is noticeably reduced.
Single track rail section

Segmented track rail section

Stacking construction

Revision piece
Flexible and stable
Horizontal sliding walls can be constructed in a wide range of different configurations to suit the site of installation, prevailing structural conditions and the planning concept. With dormakaba HSW systems, a variety of designs can be implemented with ease. Straight and segmented track rails can be combined to produce virtually any serpentine shape required. The track rails in the form of hollow sections combine all the virtues of lightweight, 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

Track rail at stacking area

Track rail at assembly frontage

90° T-piece
Straight track rail
For a straight-line system configuration, a drill hole interval of 300 mm in the track rail is sufficient, while the stacking area requires an interval of 100 mm. Where the track assumes an angle of 161 – 179°, the track rail is mitred, while at angles between 90 and 160°, a segment is incorporated. The standard modules available are indicated in the adjacent illustrations.
**Segmented track rail**
With the segmented track rail, it is possible to implement the dormakaba HSW as a polygonal partition or frontage. In so doing, it is essential to note the following requirements:

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

**Curved track rail**
The curved track rail is offered for installing a rounded track rail of a dormakaba HSW system. The following technical conditions are applicable here:

- Only sliding panels can be used in the curved track rail area
- The curved track rail must be foregone in the stacking area
- A top locking device cannot be installed. Each panel gets two front locking devices
- In case of installation in the stacking area, a 100 mm long piece of straight track rail is required
- Tails of the curved installation can be designed with standard modules
- Min. bending radius is 3,500 mm (smaller radius upon request)
- If elliptic system configurations are required, it is decided in each individual case. Drawings are required for this
- Curve start and curve end are principally performed with a 90° saw cut (rotary saw cut)

---

**Maximum length of a single arc section = 2600mm**
(measured outer edge or track)

<table>
<thead>
<tr>
<th>No</th>
<th>Unit</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>01</td>
<td>1</td>
<td>Bended track</td>
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<td>02</td>
<td>5</td>
<td>Adapter plate for substructure (84021200099)</td>
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<tr>
<td>03</td>
<td>10</td>
<td>ISO 4017-M10x20-8.8 verz.</td>
</tr>
<tr>
<td>04</td>
<td>10</td>
<td>ISO 7089-10-200 HV/St. verz.</td>
</tr>
<tr>
<td>05</td>
<td>10</td>
<td>ISO 4035-M10-05 verz.</td>
</tr>
</tbody>
</table>
Space for your notes
Substructure – the system

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 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 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 dormakaba 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 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 fixings and ceiling brackets for bracing and stiffening the construction.
Support and Guide Elements

Substructure

- Standard square section tubes
- Pivot fixing
- Substructure profile
- Upper bolting channel
- Centre channel
- Lateral bolting channel
- M10 threaded rod
- Pivoting angle bracket
- Milled "U" recess
- Fixing plate
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 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 dormakaba 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 2,100 mm 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 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 sub-structure can be requested from dormakaba to supplement the HSW system drawing always supplied with the quotation.
The forces (shown by arrows) that occur during opening and closing of the sliding wall system must be absorbed by appropriately located bracing elements.
Planning details

Calculating the suspension intervals

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

In order to prevent system sway, every second suspension point must be reinforced by a strut. The 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</th>
<th>AM</th>
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</thead>
<tbody>
<tr>
<td>60 kg/m</td>
<td>2,000 mm</td>
</tr>
<tr>
<td>75 kg/m</td>
<td>1,900 mm</td>
</tr>
<tr>
<td>105 kg/m</td>
<td>1,700 mm</td>
</tr>
<tr>
<td>135 kg/m</td>
<td>1,600 mm</td>
</tr>
<tr>
<td>150 kg/m</td>
<td>1,400 mm</td>
</tr>
</tbody>
</table>

F = Force
AM = Distance dimension

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

HSW EASY Safe characteristic values

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

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

Calculation
Load = glazing weight x glazing height + door track weight
= 30 kg/m² x (3.5 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.

Suspension points either side of joints not reinforced by central steel bar
## Variants of connection/details

### Substructure profile

<table>
<thead>
<tr>
<th>Product description</th>
<th>Art. No.</th>
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<tbody>
<tr>
<td>Profile connection with connection lug.</td>
<td>8.15.442.001.40</td>
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</tbody>
</table>

![Diagram of profile connection with connection lug.](image)

<table>
<thead>
<tr>
<th>Wall connection with angled connection lugs.</th>
<th>8.15.442.001.40</th>
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</thead>
<tbody>
<tr>
<td>Bending of connection lug on site according to need.</td>
<td></td>
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</table>

![Diagram of wall connection with angled connection lugs.](image)
<table>
<thead>
<tr>
<th>Product description</th>
<th>Art. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct connection to ceiling</td>
<td>8.15.435.001.40</td>
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<tr>
<td>Welding connection to steel girder</td>
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</tr>
<tr>
<td>Connection opportunities to existing bearing structure like ceilings, balks, steel girder by dint of adapter plate.</td>
<td></td>
</tr>
<tr>
<td>Flexible connection to ceiling</td>
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<tr>
<td>Connection to steel construction</td>
<td>8.40.212.000.99</td>
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<tr>
<td>Adapter plate</td>
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# Component parts, accessories

<table>
<thead>
<tr>
<th>Component Parts</th>
<th>Product Description</th>
<th>Art. No.</th>
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<tbody>
<tr>
<td>01</td>
<td>Pivoting angle bracket</td>
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<tr>
<td>02</td>
<td>Fixing plate</td>
<td>815.434.001.40</td>
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<tr>
<td>03</td>
<td>Pivot fixing</td>
<td>815.436.001.40</td>
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<td>04</td>
<td>Adapter plat</td>
<td>840.212.000.99</td>
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<td>05</td>
<td>Basic substructure profile, stock length 6,000 mm</td>
<td>815.658.000.99</td>
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<td></td>
<td>Fixed length</td>
<td>815.659.000.99</td>
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<th>CSN</th>
<th>Art. No.</th>
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<tbody>
<tr>
<td>A</td>
<td>Threaded rod M10 x 1,000</td>
<td>800.01.470.3.30</td>
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<tr>
<td>B</td>
<td>Hex nut DIN 439-2 M10</td>
<td>800.03.001.3.30</td>
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<td>C</td>
<td>Washer ISO 7089-10</td>
<td>800.04.009.3.30</td>
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<td>D</td>
<td>Hex nut DIN 934-M6</td>
<td>800.03.005.3.30</td>
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<tr>
<td>E</td>
<td>Hex socket screw DIN 933-M6 x 35</td>
<td>800.01.337.3.30</td>
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<td>Telescopic strut top section, square section tube, galvanised steel 20 x 20 x 2</td>
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<td>G</td>
<td>Drilling screw DIN 7504 ST4 8 x 16</td>
<td>800.01.286.3.30</td>
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<tr>
<td>H</td>
<td>Telescopic strut bottom section, square section tube, galvanised steel 25 x 25 x 2</td>
<td>800.16.026.4.32</td>
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<tr>
<td>I</td>
<td>Hex nut DIN 934-M6</td>
<td>800.03.005.3.30</td>
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<tr>
<td>J</td>
<td>Hex socket screw DIN 933-M6 x 40</td>
<td>800.01.319.3.30</td>
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<tr>
<td>K</td>
<td>Self-tapping screw ISO 7049-St4.8 x 13-C-H</td>
<td>800.01.493.3.30</td>
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<tr>
<td>L</td>
<td>Cylinder head screw for fixing track rail to substructure profile DIN 912-M8x25</td>
<td>800.01.018.3.30</td>
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</table>

DIN and standard parts by others or on request.

CSN = Company standard no.
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HSW EASY Safe
Security in use and elegance in design

Outstanding strengths of the HSW EASY Safe system:

• The optional safe use of laminated safety glass increases security and also widens the creative possibilities.

• A visible status display with a clear colour system indicates the status of the top locking device on the single-action sliding panel or double-action sliding panel. This gives a better overview and even more security.

• Double brush seals in the top and bottom door rails, successfully minimize drafts.
**Intelligent solutions for more convenience and security**

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

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

**Less draft for even greater comfort**
Innovative double brush seals in the top and optional in the bottom door rails improve door closure and noticeably minimize the amount of draft. The vertical brush seals, which are also optionally available, can be fitted up to the full height of the panel and give additional draft proofing – for noticeably greater comfort.
Simple locking with hand or foot
Multilock – Three locking possibilities in one component

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

Easy foot-operated opening and closing

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

- Maximum convenience with foot-operated locking options for the face-mounted floor bolt – simple and hassle-free.
Innovative hold for more security
VSG – Improved security with the optional use of laminated safety glass

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

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

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

The inlay can be gradually pressed out using clamping force. The bonding of the glass with the fitting prevents the fitting from slipping out of the glass due to possible decrease in clamping force.
HSW FLEX Therm
Aesthetic elegance offering reliable protection against wind and weather

Whether it’s for a shop window or a business entrance, the new horizontal glass sliding wall system HSW FLEX Therm impresses with its clear, uniform and straightforward design lines.

Yet the internal values are also compelling. In applications on the outside of buildings, the outstanding insulation properties of the profile come to the fore, complying with ENEV as from 2016. Added to this is the fact that the system will match virtually any architectural style, as well as offering a wide range of configuration possibilities. Your benefit: A flexible sliding wall system that is easy to design, with excellent form, function and convenience attributes integrated right from the start.
**High security, rectilinear design**  
A new frame system has been created specifically for the HSW FLEX Therm. Its clear, straightforward design lines, its detailed, sophisticated functionality and the high level of safety and security it offers are benefits that cannot be ignored. Frames without miter cuts ensure uniformity in visual appearance, especially with the functional elements such as the locking mechanisms, multi-point locking systems and door closers concealed within the profiles.

**Optimized thermal separation**  
The HSW FLEX Therm frame profile offers 40% better insulation compared to the predecessor model. Optimized with double rubber lip and brush seals on the inside and outside and with air-filled cavities, its profiles ensure improved thermal separation – from the finished floor right up to the overhead track.

**Thermal protection**  
Heat transition coefficient to EN ISO 10077-1, -2 UD [W/m²K] = 1.8

**Impact load**  
Grade 5 to EN 13049/16361

**Wind resistance:**  
Grade A3 to EN 12211/12210

**Air permeability:**  
Grade 2 to EN 1026/12207

**Durability**  
Grade 3 to EN 1527, corresponding to 25,000 cycles for suspended sliding doors > 100 kg.  
Grade 3 to EN 1191, corresponding to 20,000 cycles for the door function of single-action sliding panels and offset hung end panels

**Sound insulation index**  
Glazing thickness: 44.4 mm  
Evaluated sound insulation index: $R_w = 31.4\, \text{dB}$  
Standard: Airborne sound insulation of a movable glass partition wall acc. to DIN EN ISO 10140
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 dormakaba substructure allows a simple, reliable and secure installation of the entire HSW system.

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

**HSW EASY Safe**
Glass assembly with top and bottom door rail

**HSW Horizontal Sliding Walls, fully framed**
Panels slide individually – stacking track required

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

**HSW EASY Safe**
With the HSW Easy system, the panels create a continuous transparent face completely without side frame elements. Under certain circumstances, an additional wind deflector can, however, be provided at the glass edges as a preferred option.

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

**HSW-R**
The HSW-R sliding glass panel frontage is suitable wherever likely to be exposed to high wind loads – for example, for shop windows and store entrances located in the façade/on the outside of the building. Aluminium alloy frames clamp the glass on all sides, with lateral rubber lip seals and double brush seals top and bottom providing added weather protection.

**HSW FLEX Therm**
The horizontal sliding wall for reliable and secure protection from wind and weather – flexible and energy-efficient. The straightforward lock bar system makes it easy to change the function of the panel with just one hand. All functional elements are invisibly integrated in the new frame system for added aesthetic allure.

<table>
<thead>
<tr>
<th>Use and features</th>
<th>HSW EASY Safe</th>
<th>FSW EASY Safe</th>
<th>HSW-R</th>
<th>HSW FLEX Therm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shop fronts</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Shop fronts with climate barrier function</td>
<td>○</td>
<td>●</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Internal room divider</td>
<td></td>
<td></td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>Glass thicknesses (mm) TSG</td>
<td>10/12/13/15/17/19</td>
<td>10/12/13/15/17/19</td>
<td>8–24(^1)</td>
<td>8–10-49</td>
</tr>
<tr>
<td>Glass thicknesses (mm) Laminated safety glass (comprising TSG sheets)</td>
<td>10.8/12.8/13.5/15/17/19</td>
<td>10.8/12.8/13.5/15/17/19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assembly height (max. mm)</td>
<td>4.000</td>
<td>3.000</td>
<td>3.000</td>
<td>3.500</td>
</tr>
<tr>
<td>Panel width (max. mm)</td>
<td>1.250</td>
<td>1.100</td>
<td>1.100</td>
<td>1.250</td>
</tr>
<tr>
<td>Panel weight (max. kg)</td>
<td>150</td>
<td>80</td>
<td>100</td>
<td>150</td>
</tr>
<tr>
<td>Access panels (pivoting type)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– Pivoting end panel, single-action</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>– Pivoting end panel, double-action</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>– Offset hung end panel</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>– Single-action sliding panel</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>– Double-action sliding panel</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>– Invisibly integrated door closer ITS 96</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

● Standard ○ Optional * Weight dependent on panel fittings \(^1\) also usable for double glazing units.
Panel design

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

• All panel types are provided with a bottom and a top door rail, which hold the glass safely.
• HSW assembly only with sliding panels, pivoting end panels and fixed panels can do without an additional carrier profile. For single- and double-action sliding panels the carrier profile is indispensable. When an assembly incorporates single- or double-action sliding panels then the carrier profile is provided for all panel types.
• The glass panes can have the following glass thicknesses: 10 mm, 10.8 mm, 12 mm, 12.8 mm, 13.5 mm, 15 mm, 17 mm and 19 mm. (tolerance range +/- 0.5 mm)
• When using laminated safety glass the Clamp&Glue technology provides secure hold without the need for glass drilling.
• The top panel profile (either door rail or carrier profile) incorporates a double brush seal as standard. As an option the bottom door rails can have double brush seals as well.
• Excellent draft protection is reached when additional sealing profiles with matching double brushes are used at the vertical glass edges as well.

HSW EASY Safe is certified to have reached the following tests:
• Wind load (Frame bending): EN 12210 Class 1
• Endurance strength: DIN EN 1527 Class 3 and DIN EN 1191 Class 3
• Side impact: DIN EN 13049 Class 5 (highest class)
• Corrosion: DIN EN 1670 Class 4
• EPD (Environmental Product Declaration): ISO 14040
The all-round frames of the individual panels of an HSW-R system offer not only high stability but also effective protection against external influences, with the option of either laminated safety glass (LSG), toughened safety glass (TSG) or double glazing units for the glazing.
HSW EASY Safe – Panel functions

Pivoting end panel, single- or double-action
Non-sliding. Single-action panel with floor pivot and TS 92/TS 73 door closer. Double-action panel with floor pivot or BTS floor spring.

Sliding panel
Basic movable panel without additional function.

Single-action sliding panel
Single-action sliding panel with TS 92 cam-action door closer, operational when frontage closed. (Alternatively with ITS 96.)

Double-action sliding panel
With ITS 96 door closer, operational when frontage closed.

Fixed panel
Fixed panel design matching the design of the sliding panels in the assembly.

<table>
<thead>
<tr>
<th>Max. panel height</th>
<th>4,000 mm</th>
<th>4,000 mm</th>
<th>3,600 mm</th>
<th>3,600 mm</th>
<th>4,000 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. panel width</td>
<td>1,250 mm</td>
<td>1,250 mm</td>
<td>1,250 mm</td>
<td>1,100 mm</td>
<td>1,250 mm</td>
</tr>
<tr>
<td>Max. panel weight</td>
<td>150 kg</td>
<td>150 kg</td>
<td>120 kg**</td>
<td>120 kg**</td>
<td>150 kg</td>
</tr>
</tbody>
</table>

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 125.

** Note: The maximum permissible weight relates to the complete door assembly, including handles.
Door rails and general details

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

**General parts and measurements**
Irrespective of the function of the individual panels, an HSW EASY Safe system comprises the following basic components:

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

02 Track rail

03 Roller carrier

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

05 Carrier profile

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

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

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

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

single- or double-action

Pivoting end panel, single- or double-action, with floor pivot
Non-moving and always equipped with a locking dead-lock and the option for an additional upper locking unit.
Pivoting end panel, single-action
with stop-type end caps top and bottom.
Pivot point variants:
• Floor pivot with round spindle, optional combined with TS 92 overhead door closer*
• BTS 84 for panels up to 100 kg, with optional hold-open at 90° door opening angle
• BTS 80 for panels up to 150 kg with adjustable hold-open device

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

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

Mounting dimensions (in mm)

<table>
<thead>
<tr>
<th></th>
<th>BTS 84</th>
<th>BTS 80</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>108</td>
<td>78</td>
</tr>
<tr>
<td>b</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>c</td>
<td>306</td>
<td>341</td>
</tr>
<tr>
<td>d</td>
<td>51–58</td>
<td>51–57</td>
</tr>
</tbody>
</table>

* Data and features TS 92 see page 55.
Pivoting end panel

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

---

**Additional upper locking bolt**

**New drill hole of pattern**

**End cap with stop (optional)**
<table>
<thead>
<tr>
<th>Data and features</th>
<th>BTS 80</th>
<th>BTS 84</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring strength (EN)</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Standard and external doors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 850 mm</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>≤ 950 mm</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>≤ 1,100 mm</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>≤ 1,400 mm</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Closing speed adjustable by valve</td>
<td>130°–0°</td>
<td>●</td>
</tr>
<tr>
<td>130°–20°</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>175°–0°</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Delayed action (adjustable by valve)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(selectable alternative to the hold-open feature)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Max leaf weight (kg)</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Hold open 90°</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>adjustable</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Dimension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>341</td>
<td>341</td>
</tr>
<tr>
<td>Overall width</td>
<td>78</td>
<td>78</td>
</tr>
<tr>
<td>Height</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Door closer tested to EN 1154</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>
Sliding panel

Basic movable panel without additional function.

The sliding panels are movable. Once in their closed position, they are locked. The locking components provided in the bottom door rail can be face-mounted slide bolts, end-mounted slide bolts, end pin bolts or deadlocks.

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

Bottom door rail with face-mounted slide bolt

Machining of cover profile (face-mounted slide bolt)
Bottom door rail with face-mounted slide bolt on both sides

Machining of cover profile (face-mounted slide bolt)
Single-action sliding panel

with dormakaba TS 92 cam-action door closer

This panel type is installed where doors only need to be opened in one direction, either inward or outward. In both cases, the cam-action door closer is fixed to the internal side of the assembly. If you are considering this panel type, please note our advisories relating to portal systems on page 125.
Standard assembly

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

Optional equipment

top: Additional locking device (upper locking unit) to secure the panel in the area of a reshuffle bypass or for more stability in closed position (Illustration see page 44).
bottom: Second face mounted slide bolt instead of deadlock.

<table>
<thead>
<tr>
<th>Sliding function</th>
<th>locked</th>
<th>locked</th>
<th>open</th>
</tr>
</thead>
<tbody>
<tr>
<td>Door function</td>
<td>open</td>
<td>locked</td>
<td>locked</td>
</tr>
</tbody>
</table>

Data and features: dormakaba TS 92

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

This panel variant is used where the door element is required to only open in one direction, either inward or outward. If you are considering this panel type, please note our advisories relating to portal systems on page 125.

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.
<table>
<thead>
<tr>
<th>Data and features: ITS 96, Gr. 2–4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing strength/size</td>
</tr>
<tr>
<td>Max. panel width</td>
</tr>
<tr>
<td>Max. panel weight</td>
</tr>
<tr>
<td>Closing strength continuously variable</td>
</tr>
<tr>
<td>Closing speed continuously variable</td>
</tr>
<tr>
<td>Latching speed is adjustable from 15°–0°</td>
</tr>
<tr>
<td>Cushioned stay limit mechanically variable</td>
</tr>
<tr>
<td>Max. opening angle</td>
</tr>
<tr>
<td>Hold-open variable</td>
</tr>
<tr>
<td>Weight</td>
</tr>
<tr>
<td>Length</td>
</tr>
<tr>
<td>Overall depth</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Door closer tested according to EN 1154</td>
</tr>
</tbody>
</table>
Double-action sliding panel

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

Being virtually invisible, its presence has no effect on the overall appearance of the partition. In its standard form, ITS 96 is provided with a 90° hold-open. If you are considering this panel type, please note our advisories relating to portal systems on page 125.

Hole of pattern upper locking unit

Upper locking unit

Standard assembly

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

Optional equipment

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

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

**Standard assembly**

*top:* Retaining devices fixed to the track rail.

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

Single action panel, non-sliding, operates independently of the rest of the system. The single action door with offset pivoting arm assembly can be swung around 180°, so leaving the entire operating zone free. A bottom deadlock secures the closed leaf.

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

180° opening angle Offset hung end panel at fixed panel

Max. panel weight 150 kg

Pivoting end panel views as seen from below
Sliding / folding panel

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

Max. panel sizes and weights
- Max. panel width: 2 x 1,000 mm
- Max. system height: 3,000 mm
- Max. panel weight: 2 x 70 kg

Magnetic door holders top and bottom
- X = 110.5 mm (usage end mounted locking bolt)
- X = 280 mm (usage lock module)

End mounted slide bolt

Panel hinge
Space for your notes
FSW EASY Safe – Types and functions

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

FSW folding sliding walls are suitable for linear configurations. With an FSW EASY Safe assembly, you can have either two or four panels (a basic panel and 1 or 3 folding panels) linked together. Where two counter-running (bi-parting) assemblies are installed, it is possible to create frontages with up to eight FSW panels.

As the panels are visually compatible with the HSW EASY Safe pivoting/sliding panels, and both systems use the same track design, shop/store frontages or similar transparent partition systems can be made up of these two different types, with the FSW assembly at the free end or supplemented by a single- or double-action HSW end panel (types 4+5). FSW systems can be designed for either opening direction.

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

<table>
<thead>
<tr>
<th>Max. panel sizes and weights</th>
<th>Basic panel with top pivot and floor pivot</th>
<th>Folding panel with roller carrier and lock bolts top and bottom</th>
<th>Folding panel with roller carrier and lock bolts top and bottom</th>
<th>Basic panel with roller carrier and lock bolts top and bottom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. assembly height</td>
<td>3000 mm</td>
<td>3000 mm</td>
<td>3000 mm</td>
<td>3000 mm</td>
</tr>
<tr>
<td>Max. panel width</td>
<td>1100 mm</td>
<td>1100 mm</td>
<td>1100 mm</td>
<td>1100 mm</td>
</tr>
<tr>
<td>Max. panel weight</td>
<td>80 kg</td>
<td>80 kg</td>
<td>80 kg</td>
<td>80 kg</td>
</tr>
</tbody>
</table>

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

Basic panel

Folding panel

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

01 Track rail (fixed to the substructure)
02 Upper pivot bearing
03 Roller carrier
04 Upper locking bolt
05 Carrier profile

Design without a carrier profile also available – see drawing below
06 Folding hinge
07 Top door rail (consisting of basic profile and covers with lip seal)
08 Bottom door rail (consisting of basic profile and covers with lip seal)
09 Toughened safety glass, or LSG of TSG (when using LSG we recommend the Clamp&Glue technology)
10 Floor pivot bearing
11 Face mounted slide bolt

01 Contact plate
02 Roller carrier with stop device
**Layout variants**

**Type 1**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Product description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>2 panels left, as illustrated</td>
</tr>
<tr>
<td>1b</td>
<td>2 panels right, invers</td>
</tr>
<tr>
<td>1c</td>
<td>4 panels (2 panels left and 2 panels right), bi-parting</td>
</tr>
</tbody>
</table>

**Type 2**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Product description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2a</td>
<td>4 panels left, as illustrated</td>
</tr>
<tr>
<td>2b</td>
<td>4 panels right, invers</td>
</tr>
<tr>
<td>2c</td>
<td>8 panels (2 panels left and 4 panels right), bi-parting</td>
</tr>
</tbody>
</table>

**Type 3**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Product description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3a</td>
<td>6 panels left, as illustrated (4 panels left and 2 panels right)</td>
</tr>
<tr>
<td>3b</td>
<td>6 panels left, invers (2 panels left and 4 panels right)</td>
</tr>
<tr>
<td>3c</td>
<td>8 panels (4 panels left and 4 panels right)</td>
</tr>
</tbody>
</table>

* Minimum structural clearance (e.g. balustrade, railings etc.)
### Type 4

<table>
<thead>
<tr>
<th>Classification</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4a</td>
<td>2 panels left and 1 pivoting end panel, single- or double action, right (as illustrated)</td>
</tr>
<tr>
<td>4b</td>
<td>2 panels right and 1 single- action or double-action end panel left (invers)</td>
</tr>
</tbody>
</table>

![Diagram of Type 4]

### Type 5

<table>
<thead>
<tr>
<th>Classification</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5a</td>
<td>4 panels right and 1 pivoting end panel, single- or double action, right (as illustrated)</td>
</tr>
<tr>
<td>5b</td>
<td>4 panels right and 1 pivoting end panel, single- or double action, left (invers)</td>
</tr>
</tbody>
</table>

![Diagram of Type 5]

* Minimum structural clearance (e.g. balustrade, railings etc.)
FSW EASY Safe C – Types and functions

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

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

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

Max. panel sizes and weights

<table>
<thead>
<tr>
<th></th>
<th>Basic panel with top pivot and floor pivot</th>
<th>Centre panel with roller carrier and lock bolts top and bottom</th>
<th>Centre panel with roller carrier and lock bolts top and bottom</th>
<th>Flap panel unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. assembly height</td>
<td>3000 mm</td>
<td>3000 mm</td>
<td>3000 mm</td>
<td>3000 mm</td>
</tr>
<tr>
<td>Max. panel width</td>
<td>½ panel width + 65mm</td>
<td>1100 mm</td>
<td>1100 mm</td>
<td>1100 mm</td>
</tr>
<tr>
<td>Max. panel weight</td>
<td>80 kg</td>
<td>80 kg</td>
<td>80 kg</td>
<td>80 kg</td>
</tr>
</tbody>
</table>

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

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

01 Track rail (fixed to the substructure)
02 Roller carrier
03 Carrier profile
Top door rail also available in a design without the carrier profile – see drawing below.
04 Bottom door rail consisting of basic profile and covers with lip seal.
05 Magnetic holder top
06 Toughened safety glass, or LSG of TSG (when using LSG we recommend the Clamp&Glue technology)
07 Magnetic holder bottom

Bottom hinge

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

Type C1

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

Type C2

- 1 pivoting access panel (here in narrow design for reasons of symmetry)
- 1-6 centre panels
- 1 basic panel (narrow)
<table>
<thead>
<tr>
<th>Type C3</th>
<th>Product description</th>
</tr>
</thead>
</table>
| ![Image](image1.png) | - 1 basic panel (narrow)  
- 1-5 centre panels  
- 1 dual panel assembly |

<table>
<thead>
<tr>
<th>Type C3, dual assembly (bi-parting)</th>
<th>Product description</th>
</tr>
</thead>
</table>
| ![Image](image2.png) | **Left:**  
- 1 basic panel (narrow)  
- 1-5 centre panels  
- 1 dual panel assembly |

| | **Right:**  
- 1 basic panel (narrow)  
- 1-5 centre panels  
- 1 dual panel assembly |
FSW EASY Safe Cplus – Types and functions

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

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

<table>
<thead>
<tr>
<th>Type Cp 1</th>
<th>Product description</th>
</tr>
</thead>
</table>
| ![Diagram](image1.png) | • 1 basic panel (narrow)  
• 1 dual panel assembly with TS93 G cam-action door closer |

<table>
<thead>
<tr>
<th>Type Cp1 dual assembly (bi-parting)</th>
<th>Product description</th>
</tr>
</thead>
</table>
| ![Diagram](image2.png) | Left:  
• 1 basic panel (narrow)  
• 1 dual panel assembly with TS93 G cam-action door closer  

Right:  
• 1 basic panel (narrow)  
• 1 dual panel assembly with TS93 G cam-action door closer |
### Type Cp 2

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

### Type Cp2, dual assembly (bi-parting)

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

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

### TS 93 technical data and features

<table>
<thead>
<tr>
<th>Feature</th>
<th>EN 2 – 5</th>
<th>EN 5 – 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring strength/Door closer size</td>
<td>Adjustable screw</td>
<td>Adjustable screw</td>
</tr>
<tr>
<td>Adjustable closing force</td>
<td>Adjustable valve</td>
<td>Adjustable valve</td>
</tr>
<tr>
<td>Adjustable closing speed</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Non-handed</td>
<td>Adjustable valve</td>
<td>Adjustable valve</td>
</tr>
<tr>
<td>Adjustable latching action</td>
<td>80° – 120°</td>
<td>75° – 150°</td>
</tr>
<tr>
<td>Adjustable backcheck</td>
<td>75° – 150°</td>
<td>75° – 150°</td>
</tr>
<tr>
<td>Weight</td>
<td>3.5 kg</td>
<td>5.2 kg</td>
</tr>
<tr>
<td>Length</td>
<td>275 mm</td>
<td>285 mm</td>
</tr>
<tr>
<td>Installation depth</td>
<td>53 mm</td>
<td>62 mm</td>
</tr>
<tr>
<td>Height</td>
<td>60 mm</td>
<td>71 mm</td>
</tr>
</tbody>
</table>
HWS-R – Types and functions

**Horizontal sliding walls, framed all round for toughened safety glass, laminated safety glass or double glazed units**

Resistant to mechanical stress, protect 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. Optionally prepared for single pane toughened safety glass (TSG) or laminated safety glass (LSG), insulating glass/ double glazing or special glass. Frame profiles for 8 to 24 mm. Other glass thicknesses on application.

<table>
<thead>
<tr>
<th>Max. panel sizes and weights</th>
<th>Pivoting end panel, single- or double-action</th>
<th>Sliding panel</th>
<th>Pivoting end panel, When frontage closed with integrated concealed door closer type ITS 96, Size 3–6, operational. Minimal panel width 870 mm.</th>
<th>Double-action sliding panel*</th>
<th>When frontage closed with integrated concealed door closer type ITS 96, Size 3–6; operational. Minimal panel width 870 mm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. system height</td>
<td>3,000 mm</td>
<td>3,000 mm</td>
<td>3,000 mm</td>
<td>3,000 mm</td>
<td></td>
</tr>
<tr>
<td>Max. panel width</td>
<td>1,100 mm</td>
<td>1,100 mm</td>
<td>1,100 mm</td>
<td>1,100 mm</td>
<td></td>
</tr>
<tr>
<td>Max. panel weight</td>
<td>100 kg</td>
<td>100 kg</td>
<td>100 kg</td>
<td>100 kg</td>
<td></td>
</tr>
</tbody>
</table>

*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 125.
Irrespective of the function of the individual panels, an HSW-R system comprises the following components:

01 Installation-efficient dormakaba substructure to accommodate track rail mounting requirements (optional)

02 Track rail (for bolting to the substructure)

03 Carrier

04 Suspension assembly

05 Adapter frame

06 Glazing frame profile, horizontal

07 Glass clamping bar

08 Glazing frame profile, vertical

09 Toughened safety glass, laminated safety glass or double glazing units (by others)

10 Bottom frame profile.
Single/double-action panels

Pivoting end panel, single- or double-action, with floor pivot
Non-moving and always equipped with bottom deadbolt with the option of a top bolt or side action deadlock. Single-action or double-action options.
Pivoting end panel, single-action
with stop plates at the top bolt.
Assembly types:
• Floor pivot with round spindle
• As above, but with 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

Pivoting end panel, double-action
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

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

<table>
<thead>
<tr>
<th>Mounting dimensions (mm)</th>
<th>BTS 80</th>
<th>BTS 84</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>78</td>
<td>108</td>
</tr>
<tr>
<td>b</td>
<td>60</td>
<td>40</td>
</tr>
<tr>
<td>c</td>
<td>341</td>
<td>306</td>
</tr>
<tr>
<td>d</td>
<td>51–57</td>
<td>51–58</td>
</tr>
</tbody>
</table>
Pivoting end panel, single-action

with dormakaba TS 73 overhead door closer and additional locking device and door stop

with dormakaba TS 92 overhead door closer and additional locking device
### Additional locking device

![Diagram of additional locking device](image)

<table>
<thead>
<tr>
<th>Data and features</th>
<th>dormakaba TS 73 V</th>
<th>dormakaba TS 92</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing strength/size</td>
<td>EN 2 – 4</td>
<td>EN 2 – 4</td>
</tr>
<tr>
<td>Closing strength, variable</td>
<td>via adjusting screw and arm hinge</td>
<td>via adjusting screw and arm hinge</td>
</tr>
<tr>
<td>Closing speed adjustment</td>
<td>via valve</td>
<td>via valve</td>
</tr>
<tr>
<td>Non-handed</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Latching speed adjustment</td>
<td>via arm</td>
<td>via arm</td>
</tr>
<tr>
<td>Cushioned stay limit adjustment</td>
<td>75°–180°</td>
<td>80°–120°</td>
</tr>
<tr>
<td>Hold-open adjustment</td>
<td>75°–160°</td>
<td>75°–150°</td>
</tr>
<tr>
<td>Weight</td>
<td>1.8 kg</td>
<td>1.9 kg</td>
</tr>
<tr>
<td>Length</td>
<td>233 mm</td>
<td>281 mm</td>
</tr>
<tr>
<td>Overall depth</td>
<td>42.50 mm</td>
<td>47 mm</td>
</tr>
<tr>
<td>Height</td>
<td>60 mm</td>
<td>65 mm</td>
</tr>
</tbody>
</table>
**Sliding panels and connections**

**Fixed when partition is closed.**
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.

---

**Fixing the panel in the strike plate**

---

**Fixing the panel in eccentric bushing**

---
**Sliding panel to panel connections**

- Panel width
- Glass width = Panel width – 75 mm

**Panel to wall connection**

- Wall connection profile with brush profile
- Sliding panel

**Brush profile**

- Single-action Sliding panel

- Abutment with articulated joint

- Brush profile

- Sliding panel / pivoting end panel
Single-action sliding panel

with integrated dormakaba 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

Locking device
Double-action sliding panel

with integrated dormakaba ITS 96 concealed door closer, size 3–6

Double-action sliding panels with 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 125.
HSW FLEX Therm – Easy to slide, easy to lock with just a flick of the wrist

The quality of a sliding door system is also exemplified by the manual devices that get used on a daily basis – for opening and closing, for locking, and for effortless sliding and parking of the individual panels. With HSW FLEX Therm, switch-over between the pivoting and sliding function is by means of a simple bolt operation.

The HSW FLEX Therm sliding elements are available in widths up to 1,250 mm per panel and for system heights up to 3,500 mm, with a maximum permissible panel weight of 150 kg.

01 All the sliding panels of a system can be parked at any point inside or outside the system frontage. The panels run on proven, low-friction roller carriers that are ideally matched to the track system.

02 The basic elements of each system are the sliding panels whereby the switchover between stationary location and sliding function is performed by means of a simple bolt actuator positioned either at foot height (06) or – as an option – at lock bar height (07).

03 With the single-action sliding panels, it is possible to provide single and double doors at certain points along the configuration. The switchover from the sliding to the door function is carried out with a simple manual operation of the lock bar (05).

04 Fixed panels and offset hung end panels offer same design. Each system can be augmented by any number of stationary elements such as side screens or offset hung end panels as required.

05 A simple lock bar for switching from the sliding to the door function of single-action sliding panels
06 End-mounted floor bolts at foot operating height for fixing the sliding panels in their end positions.

07 Optional flush bolts at handle height for fixing the sliding panels in their end positions.
Concealed door closer ITS 96
All the single-action sliding panels are equipped with the ITS96 door closer integrated in the door profile and featuring a mechanical hold-open.

Swivel-type steel hook bolts
protected against drill and saw attack by an auxiliary bolt.

Selector in the door rebate for implementing the door functions in the case of the MULTIBLINDO easy.
Doors with multiple security – and high utility values

Integrated door closers and multi-point locking are invisibly combined in the elegant frame profile.

The MULTIBLINDO classic multi-point locking system comes as standard in the form of a three-point or four-point arrangement, depending on the system height. In the locked condition, swivel-type steel hook bolts with auxiliary bolt secure the door against unauthorized access. The swivel-type bolts of specialty steel are protected against drill and saw attack. As an option, the doors may also be equipped with the MULTIBLINDO easy multi-point locking system, a further upgrade that offers additional, practical door functions, making it the ideal complementary system for public-access applications. The functions are readily selectable at the locking mechanism, as indicated by the illustration and description below.

Also emergency exits and panic exits are according to DIN standards feasible. The connection of MULTIBLINDO Easy Exit lock with the corresponding OGRO handles fulfils the requirements according to DIN EN 179 and the use of the PRO Exit Push bars fulfils the prerequisites according to DIN EN 1125 at the offset hung end panels.

Door functions
MULTIBLINDO easy

**Selector position 0**
Increased security (night-time mode). The door is secured by the multi-point lock.

![View from the inside](image1)

![View from the outside](image2)

**Selector position 1**
The door can only be opened from the inside.

![View from the inside](image3)

![View from the outside](image4)

**Selector position 2**
Public-access function. The door can be opened from the inside and the outside.

![View from the inside](image5)

![View from the outside](image6)
Possible system configurations – as varied as your requirements

Architecture is, by its very nature, versatile and frequently demanding. Whether applied to an existing building or in the form of an unusual system, HSW FLEX Therm will adapt to virtually any spatial requirements and design grids that you wish to impose.

The maximum element width of 1,250 mm and heights up to 3,500 mm make the sliding door system extremely flexible. It should, however, be borne in mind that single-action sliding panels must remain within a maximum height of 3,000 mm and a maximum weight per individual element of 150 kg.

The examples that follow offer a selection of common system configurations, although there are many other options available.
Straight run

System with round segmentation implemented with standard profiles

System configuration with 90° angles

System configuration with 135° angles
**System height**

Particular attention must be given to the system height. Adherence to the specified design dimensions must be ensured during installation, e.g. by providing a 1 meter datum in the vicinity of the planned system that the installers are able to use without hindrance.

The system height is always measured from the finished floor level (FFL) to the top edge of the track.

**Tolerances**

The roller assembly can be adjusted following installation for vertical compensation amounting to +/- 4 mm. The gap width in the horizontal direction can be adjusted by 5 mm (-2 mm / +3 mm) for each sliding panel by means of rubber bumpers.

First panel as an offset hung end panel (OHEP)
Non-sliding, e.g. as a side entrance for when the system is closed. For details, see page 22.
# Panel types and equipment

The various panel types and panel designs can be combined together in one and the same system. The clear and uniform design lines remain constant across the entire system width.

<table>
<thead>
<tr>
<th>Panel Type</th>
<th>Max. panel width</th>
<th>Max. panel height</th>
<th>Max. panel weight incl. glass</th>
<th>Max. Glass thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-action sliding panel (SASP)</td>
<td>1,250 mm</td>
<td>3,500 mm</td>
<td>150 kg</td>
<td>49 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First panel as a sliding panel for a bypass system</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sliding panel without additional functions (SP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed panel (FP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Care must be taken to ensure that no single-action sliding panel is attached to a first panel or is connected to a sliding panel with a bypass stacking track (or at the earliest from position 3).
Offset hung end panels
System termination at parking locations

01 Surface-mounted door closer TS 93 with mechanical hold-open device
02 Lever handle
03 Multi-point locking

Example of a stacking track closed off by an offset hung end panel

The non-sliding offset hung end panel is mounted separately from the rest of the system at the wall abutment profile, either on the inside or the outside. It can be swung open, depending on the connection situation, on 90° to 180° to release the entire panel assembly for sliding in and out. The offset hung end panel can also be used as a side entrance.

Standard design
- MULTIBLINDO classic mortise lock with 3-point locking. From a panel height of 2,500 mm with 4-point locking as a combination of hook and pin locks
- Lever handle (for details, see page 119)

Dimensions
- Panel width of 400 - 1,250 mm
- Panel height of 2,000 - 3,500 mm
- Panel height of 150 kg
- Glass thickness 8 mm, 10 - 49 mm

Optional equipment
- Surface-mounted door closer TS 93 with mechanical hold-open
- Pull handles and push bars (for details, see page 110)
- MULTIBLINDO easy mortise lock with selectable automatic locking action and practical door functions (for details, see page 118). Suitable for both knob or pull handle outside and lever handle inside.

Additional equipment:
- Mortise lock MULTI BLINDO easy Exit with emergency or panic exit approval
Sliding panels as bypass panels
All panels concealed in a parking niche

04
MULTIBLINDO classic
Multipoint locking system

Example of parking situations with bypass panels

If no panels are to be visible when the frontage is open, a bypass arrangement can be provided in the track to link the frontage to the parking area. The first panel (sliding panel) is opened and closed using the multipoint locking system engaging in the wall abutment profile. The panels that make up the system may, for example, be parked in a niche or along a wall.

Standard design
- MULTIBLINDO classic mortise lock with 3-point locking. From a panel height of 2,500 mm with 4-point locking as a combination of hook and pin locks
- 2 x Manet door knobs, single-sided inward opening

Dimensions
- Panel width of 600 - 1,250 mm
- Panel height of 2,000 - 3,500 mm
- Panel weight incl. glass 150 kg
- Glass thickness 8 mm, 10 - 49 mm
### Sliding panels

**Super-easy to operate**

**A**
- **Flush bolt** at handle height (approx. 900 mm) for securing the sliding panels at their end positions.

**B**
- **End-mounted floor bolt** at foot operating height for fixing the sliding panels in their end positions.

In the closed condition, the sliding panels are held in position by locks engaging in floor keeps. The switchover between stationary and sliding merely requires operation of the bolts in the form of either the flush type (A) or the end-mounted type (B).

**Standard design**
- Latching by means of end-mounted floor bolts which are foot operated, or by tilting-type flush bolts at handle height

**Dimensions**
- Panel width of 400 - 1,250 mm
- Panel height of 2,000 - 3,500 mm
- Panel weight incl. glass 150 kg
- Glass thickness 8 mm, 10 - 49 mm

The profile flanges may point inwards or outwards.
Single-action sliding panels
Sliding doors released with flick of the wrist

Single-action sliding panels may be designed as either single or double doors. If they are double doors, it has to be remembered that these have to be designed with alternate handings. The switchover from sliding to door function requires just a quick operation of the lock bar.

Standard design
• MULTIBLINDO classic mortise lock with 3-point locking. From a panel height of 2,500 mm with 4-point locking as a combination of hook and pin locks
• Lever handle
• Integrated door closer ITS 96 EN 3-6 with mechanical hold-open, barrier-free to DIN 18040, easy opening in accordance with DIN SPEC 1104, adjustable closing force, closing speed and latching action
• Lock bar operation at handle height

Dimensions
• Panel width of 950 - 1,250 mm
• Panel height of 2,000 - 3,000 mm
• Panel weight incl. glass 150 kg
• Glass thickness 8 mm, 10 - 49 mm

Optional equipment
• Pull handle
• MULTIBLINDO easy mortise lock with selectable automatic locking action and three practical door functions (for details, see page 119). Suitable for use of knob or pull handle outside and lever handle inside.

Note: The hardware sets for the various applications can be found in the HSW price list.
System termination
with wall abutment profile and fixed side screen

Wall abutment profile

The HSW FLEX Therm locks onto a wall abutment profile, at either end of the system. On the parking area side, this is connected to the offset hung end panel or contained in the wall abutment for bypass stacking.

The profile flange can be mounted both on the inside and the outside.

Fixed side screen as the last panel

A fixed side screen can be provided in any size with the same visual appearance as the sliding panels. Instead of the bottom brush seals, a base profile is used. The fixed panel is connected to the wall via the wall abutment profile. Fixed side screens can also be combined with an offset hung end panel.
Any type of glass can be used. The glass thickness of 8 mm up to and including 49 mm can be used. Care must be taken to ensure that the total weight of the panels does not exceed 150 kg. The total weight includes the frame weight from these tables, the weight of the glass and of the controls or handle bars.

### Weights for offset hung end panels, sliding panels and fixed panels without glass, without accessories in kg.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Height</th>
<th>Width</th>
<th>2.000</th>
<th>2.100</th>
<th>2.200</th>
<th>2.300</th>
<th>2.400</th>
<th>2.500</th>
<th>2.600</th>
<th>2.700</th>
<th>2.800</th>
<th>2.900</th>
<th>3.000</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>850</td>
<td>1.000</td>
<td>1.050</td>
<td>1.100</td>
<td>1.150</td>
<td>1.200</td>
<td>1.250</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Weights for single-action sliding panels without glass, without accessories in kg.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Height</th>
<th>Width</th>
<th>2.000</th>
<th>2.100</th>
<th>2.200</th>
<th>2.300</th>
<th>2.400</th>
<th>2.500</th>
<th>2.600</th>
<th>2.700</th>
<th>2.800</th>
<th>2.900</th>
<th>3.000</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>850</td>
<td>1.000</td>
<td>1.050</td>
<td>1.100</td>
<td>1.150</td>
<td>1.200</td>
<td>1.250</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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Accessories

100 Vertical seals – Overview

102 Vertical sealing profiles – General preparation

103 Vertical sealing profiles – Panel types

110 Handle bars, door knobs and recessed pull grips
Accessories
Vertical seals – overview

With regards to material, fixing and the grade of draft-proofing different solutions are available.

**Retrofittable seals**

The plastics profiles shown below provide an unobtrusive and retrofittable solution for draft protection at the glass edges.

---

**Product description**

**h-profile**

Push on clear plastic for 10 and 12 mm glass thickness (not for pivoting end panel, double-action, or double-action sliding panels).

**Glass joint gasket**

Milky transparent rubber, self adhesive for 10–19 mm glass thickness.
Vertical sealing profiles with brushes

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

**Product description**

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

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

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

**Product description**

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

**Art. No.**

8.40.070.000.99
Vertical sealing profiles – 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. In case the panels incorporate a carrier profile a proper section of the double brush sealing profile is fixed to the carrier profile by a fixing cartridge. Prior to machining the sealing profile at the top for the exact length from the bottom to the top door rail, first hang the panels from the track rail and align. After the installation the vertical seal profiles need to be fixed with permanently elastic glue.

Single-End-/Double-Action Panels

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

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

Sliding panels

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

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

Installation instructions

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Fixed panels

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

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

Installation instructions

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

The pull handle/knob system is designed for glass of 8, 10 and 12 mm thickness.

The pull handles can be fixed to both sliding and pivoting (swing) doors on one face using the appropriate connectors or on both faces by through-bolting (back-to-back arrangement).

Due to a flat structure recessed pull grips are also suitable for sliding doors.

The single-point fixings and through bolts are included as standard equipment in the scope of supply.

The pull handles can be fitted horizontally, vertically or in a handrail arrangement.
Accessories
Handle bars, door knobs, recessed pull grips and brush seals

Conversion sets for back to back pull handles for timber doors resp. other glass thicknesses see unter "Spacing adjustment for pull handles and door knobs", page 113.

<table>
<thead>
<tr>
<th>Product description</th>
<th>Glass thickness</th>
<th>Art. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair of handle bars satin stainless steel</td>
<td>8/10/12 mm</td>
<td></td>
</tr>
<tr>
<td>length 350 mm, 2 fixing points, weight in kg</td>
<td>1.254</td>
<td>21.267*</td>
</tr>
<tr>
<td>material 1.4305 do., material 1.4404</td>
<td></td>
<td>21.247</td>
</tr>
<tr>
<td>Pair of handle bars aluminum</td>
<td>8/10/12 mm</td>
<td></td>
</tr>
<tr>
<td>length 350 mm, 2 fixing points, weight in kg</td>
<td>1.326</td>
<td>03.400</td>
</tr>
<tr>
<td>material aluminum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pair of handle bars satin stainless steel</td>
<td>8/10/12 mm</td>
<td></td>
</tr>
<tr>
<td>length 720 mm, 2 fixing points, weight in kg</td>
<td>1.947</td>
<td>21.270*</td>
</tr>
<tr>
<td>material 1.4305 do., material 1.4404</td>
<td></td>
<td>21.250</td>
</tr>
<tr>
<td>Pair of handle bars aluminum</td>
<td>8/10/12 mm</td>
<td></td>
</tr>
<tr>
<td>length 720 mm, 2 fixing points, weight in kg</td>
<td>2.423</td>
<td>03.402</td>
</tr>
<tr>
<td>material aluminum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pair of handle bars satin stainless steel</td>
<td>8/10/12 mm</td>
<td></td>
</tr>
<tr>
<td>length 1,240 mm, 3 fixing points, weight in kg</td>
<td>3.400</td>
<td>21.273*</td>
</tr>
<tr>
<td>material 1.4305 do., material 1.4404</td>
<td></td>
<td>21.253</td>
</tr>
<tr>
<td>Pair of handle bars satin stainless steel</td>
<td>8/10/12 mm</td>
<td></td>
</tr>
<tr>
<td>length 1,760 mm, 4 fixing points, weight in kg</td>
<td>5.000</td>
<td>21.276*</td>
</tr>
<tr>
<td>material 1.4305 do., material 1.4404</td>
<td></td>
<td>21.256</td>
</tr>
</tbody>
</table>

* Conversion sets for back to back pull handles for timber doors resp. other glass thicknesses see unter “Spacing adjustment for pull handles and door knobs”, page 113.
## Pull handles single

<table>
<thead>
<tr>
<th>Product description</th>
<th>Glass thickness</th>
<th>Art. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pull handles with single-point fixings, countersunk</td>
<td>8/10/12 mm</td>
<td></td>
</tr>
<tr>
<td>Edelstahl</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pull handle 350 mm with 2 fixings, material 1.4305 do., AISI 316L</td>
<td></td>
<td>29.268</td>
</tr>
<tr>
<td>Pull handle 720 mm with 2 fixings, material 1.4305 do., AISI 316L</td>
<td></td>
<td>29.269</td>
</tr>
<tr>
<td>Pull handle 1,240 mm with 3 fixings, material 1.4305 do., AISI 316L</td>
<td></td>
<td>29.271</td>
</tr>
<tr>
<td>Pull handle 1,760 mm with 4 fixings, material 1.4305 do., AISI 316L</td>
<td></td>
<td>29.272</td>
</tr>
<tr>
<td>Pull handle 1,760 mm with 4 fixings, material 1.4305 do., AISI 316L</td>
<td></td>
<td>29.277</td>
</tr>
<tr>
<td>Pull handle 1,760 mm with 4 fixings, material 1.4305 do., AISI 316L</td>
<td></td>
<td>29.278</td>
</tr>
</tbody>
</table>

| Pull handles with single-point fixings, clamping disc                                | 8/10/12 mm     |         |
| Pull handle 350 mm with 2 fixings, material 1.4305 do., AISI 316L                    |                | 21.240  |
| Pull handle 720 mm with 2 fixings, material 1.4305 do., AISI 316L                    |                | 21.241  |
| Pull handle 1,240 mm with 3 fixings, material 1.4305 do., AISI 316L                  |                | 21.242  |
| Pull handle 1,760 mm with 4 fixings, material 1.4305 do., AISI 316L                  |                | 21.243  |
| Pull handle 1,760 mm with 4 fixings, material 1.4305 do., AISI 316L                  |                | 21.243  |

### Complete with single-point fixings

- **Glass thickness**
- **Countersunk bore on pull handle and door knob, one side fixing**
- **Cylindrical bore on pair of pull handles and door knobs, back-to-back**
## Spacing adjustment for pull handles and door knobs

<table>
<thead>
<tr>
<th>Product description</th>
<th>Door thickness</th>
<th>Art. No.</th>
</tr>
</thead>
</table>
| **Conversion set 1 for glass doors,**  
  pair of pull handles / knob back-to-back | 13.5 – 21.5 mm | 21.285 |
| without distance washer | 13.5 mm |
| with 1 distance washer | 15 mm |
| with 2 distance washers | 17.5 mm |
| with 3 distance washers | 19 mm |
| with 4 distance washers | 21.5 mm |
| **Conversion set 2 for timber doors,**  
  pair of pull handles / knob back-to-back | 20 – 40 mm | 21.286 |
| without distance washer | 20 mm |
| with 1 distance washer | 25 mm |
| with 2 distance washers | 30 mm |
| with 3 distance washers | 35 mm |
| with 4 distance washers | 40 mm |
| **Conversion set 3 for glass / timber doors**,  
  pair of pull handles / knob back-to-back, countersunk | 15 - 40 mm glass / timber thickness | 21.287 |
| **Conversion set 4 for glass / timber doors**,  
  pair of pull handles / knob back-to-back, clamping disc | 15 - 40 mm glass / timber thickness | 21.288 |
| **Conversion set 5 for glass doors**,  
  recessed pull grip | 13.5 - 21.5 mm glass thickness | 21.295 |
| **Conversion set 6 for timber doors**,  
  recessed pull grip | 20 - 40 mm timber thickness | 21.296 |
| **Conversion set 7 for glass / timber doors**,  
  for pull handles fixed on both sides to pull handle fixed on one side, countersunk | 8 - 40 mm glass / timber thickness  
  1 set per pull handle fixing | 21.297 |
| **Conversion set 8 for glass / timber doors**,  
  for pull handles fixed on both sides to pull handle fixed on one side, clamping disc | 8 - 40 mm glass / timber thickness  
  1 set per pull handle fixing | 21.298 |

*Not suitable for Arcos pull handles 26.500 / 26.510*
## Pair of pull handles

<table>
<thead>
<tr>
<th>Product description</th>
<th>Glass thickness</th>
<th>Art. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair of stainless steel handlebars, lockable on both sides, prepared for standard PZ, length 1200 mm, incl. floor socket</td>
<td>8 - 17.5 mm</td>
<td>21.580</td>
</tr>
<tr>
<td>Pair of stainless steel handlebars, lockable on one side, prepared for standard PZ, length 1200 mm, incl. floor socket</td>
<td>8 - 17.5 mm</td>
<td>21.581</td>
</tr>
</tbody>
</table>

Further information, e.g. the required profile cylinder length, can be found in our detail on sheets 29-115 to 29-116.
Arcos pull handle

### Product description

<table>
<thead>
<tr>
<th>Arcos pair of pull handle</th>
<th>Glass thickness</th>
<th>Art. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>incl. connecting bolt</td>
<td>8/10/12 mm</td>
<td></td>
</tr>
<tr>
<td>Aluminium, stainless steel look</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pull handle 350 mm with 2 fixings</td>
<td>26.500</td>
<td></td>
</tr>
<tr>
<td>Pull handle 750 mm with 2 fixings</td>
<td>26.510</td>
<td></td>
</tr>
</tbody>
</table>

### Additional Information

- **Bushing**: 
- **Grub screw**: 
- ** Connecting bolt**: 
- **85 ~65 mm**
- **398/824 mm**
- **750 / 350 mm drill hole center distance**
- **Glass thickness**: 21 mm
- **ø16**:
- **80 mm**
- **Cylindrical bore**: 40 mm
- **ø10**: 12 mm

Handle bars, door knobs, recessed pull grips and brush seals
## Handle bars

<table>
<thead>
<tr>
<th>Product description</th>
<th>Art. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pull handle &quot;Quadrat&quot;</strong></td>
<td></td>
</tr>
<tr>
<td>Glas thickness 6 - 10 mm</td>
<td></td>
</tr>
<tr>
<td>with 2 fixings Ø 12 mm</td>
<td></td>
</tr>
<tr>
<td>Length 300 mm</td>
<td>75.084</td>
</tr>
<tr>
<td>Length 500 mm</td>
<td>75.085</td>
</tr>
</tbody>
</table>

![Diagram of handle bars](image-url)
# Recessed pull grips and door knobs

<table>
<thead>
<tr>
<th>Product description</th>
<th>Glass thickness</th>
<th>Art. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recessed pull grip</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø 50 mm</td>
<td>8/10/12 mm</td>
<td>21.290</td>
</tr>
<tr>
<td><strong>Recessed pull grip</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø 60 mm</td>
<td>8/10/12 mm</td>
<td>21.291</td>
</tr>
<tr>
<td><strong>Recessed pull grip with grip hole</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø 60 mm</td>
<td>8 mm</td>
<td>21.292</td>
</tr>
<tr>
<td></td>
<td>10 mm</td>
<td>21.293</td>
</tr>
<tr>
<td></td>
<td>12 mm</td>
<td>21.294</td>
</tr>
<tr>
<td><strong>Recessed pull grip</strong></td>
<td></td>
<td>07.200</td>
</tr>
<tr>
<td>aluminum to be glued onto the glass</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight in kg:</td>
<td></td>
<td>0.072</td>
</tr>
<tr>
<td><strong>Door knob, aluminum</strong></td>
<td></td>
<td>07.201</td>
</tr>
<tr>
<td>Weight in kg:</td>
<td></td>
<td>0.400</td>
</tr>
<tr>
<td><strong>Door knob one side fixing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8/10/12 mm</td>
<td>21.422</td>
<td></td>
</tr>
<tr>
<td><strong>Door knob with single-point fixing, countersunk</strong></td>
<td>21.426</td>
<td></td>
</tr>
<tr>
<td><strong>Door knob with single-point fixings, clamping disc</strong></td>
<td>21.423</td>
<td></td>
</tr>
<tr>
<td><strong>Door knob back-to-back</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8/10/12 mm</td>
<td>21.423</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** To ensure better load transmission, please use a pull handle in conjunction with the DORMOTION damping unit.
Accessories HSW FLEX Therm

Lateral multipoint locking

**Product description**

**MULTIBINDO classic**
Mortise lock with 3- or 4-point locking, hook bolt with bolt, operation with Euro profile cylinder. With reversible and adjustable latch. The latch can be exchanged for a roller latch or locking cap.

**MULTIBINDO easy**
Mortise lock with activatable self-locking and three practical door functions. Suitable for the use of knob or handle bar outside and Lever handle inside.

**MULTIBINDO easy exit**
Mortise lock with activatable self-locking and three practical door functions. Suitable for use with knob or handle bar on the outside and Lever handle inside. Catch and bolt are retrieved with the panic lever or the emergency handle.

**Surface-mounted door closer TS 93 with snap-in locking**
- For barrier-free doors according to DIN 18040
- Easy door opening according to DIN SPEC 1104
- EASY OPEN technology
- Standard delayed closing and soft-closing action
# Handles / Knobs

## Product description

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>OGRO 8115V</td>
<td>Stainless steel&lt;br&gt;Aluminium&lt;br&gt;EN 1634-1: Fire resistance tests for doors&lt;br&gt;DIN 18273: Door handle sets for fire and smoke protection doors</td>
<td><img src="image.png" alt="Diagram of OGRO 8115V" /></td>
</tr>
<tr>
<td>OGRO 8116V</td>
<td>Stainless steel&lt;br&gt;Aluminium&lt;br&gt;EN 1634-1: Fire resistance tests for doors&lt;br&gt;DIN 18273: Door handle sets for fire and smoke protection doors&lt;br&gt;EN 179: Emergency exit locks with lever handle, certified according to EN 179 for escape and rescue routes</td>
<td><img src="image.png" alt="Diagram of OGRO 8116V" /></td>
</tr>
<tr>
<td>OGRO 8906V</td>
<td>Stainless steel&lt;br&gt;Braille (optional) for the assigned material type&lt;br&gt;EN 1634-1: Fire resistance tests for doors&lt;br&gt;DIN 18273: Door handle sets for fire and smoke protection doors</td>
<td><img src="image.png" alt="Diagram of OGRO 8906V" /></td>
</tr>
<tr>
<td>OGRO 8907V</td>
<td>Stainless steel&lt;br&gt;Braille (optional) for the assigned material type&lt;br&gt;EN 1634-1: Fire resistance tests for doors&lt;br&gt;DIN 18273: Door handle sets for fire and smoke protection doors&lt;br&gt;EN 179: Emergency exit locks with lever handle, certified according to EN 179 for escape and rescue routes</td>
<td><img src="image.png" alt="Diagram of OGRO 8907V" /></td>
</tr>
<tr>
<td>OGRO 8025V</td>
<td>Stainless steel&lt;br&gt;Aluminium&lt;br&gt;EN 1634-1: Fire resistance tests for doors&lt;br&gt;DIN 18273: Door handle sets for fire and smoke protection doors</td>
<td><img src="image.png" alt="Diagram of OGRO 8025V" /></td>
</tr>
</tbody>
</table>

**Note:** The hardware sets for the various applications can be found in the HSW price list.
Handle bars

- **OGRO 6621** with retention springing
- **OGRO 6679**
- **OGRO 6611** with retention springing
- **OGRO 6676**

**TG 9116**

<table>
<thead>
<tr>
<th>Version</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>300</td>
</tr>
<tr>
<td>2</td>
<td>400</td>
</tr>
<tr>
<td>3</td>
<td>600</td>
</tr>
</tbody>
</table>

**TG 9117**

**TG 9377**

3rd spacer Li ≥ 1,600
Space for your notes
Content

General Information

124 Measuring up
125 General information
127 Safety-related information
General Information
Measuring up

Important site measurements

[Diagram showing measurements such as height of structural ceiling, substructure height, track, clear opening height, top surface of structural floor, finished floor, stacking area depths, and system front = system width.]
Notes on portal systems

Maintenance recommendation for high-frequency HSW systems

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

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

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

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

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

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

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

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

Typical manufacturing flow marks appear when anodising the milled area of the track rail modules. As an alternative to the anodized EV 1 surface finish, we therefore offer modules and track rails in all lengths in a powder-coated version similar to EV 1 for visual reasons.

<table>
<thead>
<tr>
<th>Finishes</th>
<th>dormakaba No.</th>
<th>Sim. to Eloxal I</th>
<th>Sim. to Eloxal II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AL mill finish (Aluminium R 600)</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AL silver EV1 anodized (similar Eloxal I EV1 / Eloxal II C 0)</td>
<td>101</td>
<td>EV1</td>
<td>C 0</td>
</tr>
<tr>
<td>AL similar satin stainless steel anodized</td>
<td>107</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AL similar satin stainless steel anodized (for profile material) (similar Eloxal II C 31)</td>
<td>113</td>
<td>C 31</td>
<td></td>
</tr>
<tr>
<td>AL special color anodized</td>
<td>199</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Powder coated colours</th>
<th>dormakaba No.</th>
<th>Sim. to HEWI-No.</th>
<th>Sim. to RAL</th>
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<tbody>
<tr>
<td>AL traffic white powder coated</td>
<td>300</td>
<td>99</td>
<td>9016</td>
</tr>
<tr>
<td>AL special color powder coated (Standard powder according to RAL)</td>
<td>399</td>
<td></td>
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<table>
<thead>
<tr>
<th>Special colour</th>
<th>dormakaba No.</th>
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<tbody>
<tr>
<td>Satin stainless steel (Niro S 700 ST)</td>
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<tr>
<th>Finishes HSW EASY Safe</th>
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<tr>
<td>Aluminium</td>
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<tr>
<td>AL mill finish (Aluminium R 600)</td>
<td>100</td>
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<tr>
<td>AL silver anodized (Silver N 600 ST) (compatible with finish 114)</td>
<td>150</td>
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<tr>
<td>AL niro anodized (Niro N 700)</td>
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</tr>
<tr>
<td>AL special color anodized</td>
<td>199</td>
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<tr>
<th>Coloured coatings</th>
<th>dormakaba No.</th>
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<tbody>
<tr>
<td>AL black powder coated (Black P 190 SG)</td>
<td>304</td>
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<tr>
<td>AL similar EV1 powder coated (Silver P 600 SG)</td>
<td>318</td>
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<tr>
<td>AL white powder coated (White P 100 SG)</td>
<td>350</td>
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<tr>
<td>AL high weather resistant powder coated (Color P WR)</td>
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<tr>
<td>AL special color powder coated (Standard powder according to RAL)</td>
<td>399</td>
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</table>
Important safety-related information for the mounting and use of dormakaba glass fittings. (Follow these instructions in addition to the mounting and operating instructions in order to avoid damage of product and damage to person or property.)

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

### General information
1. dormakaba recommends the use of TSG-H (heat-stored tempered safety glass) according to DIN EN 12150-1.
2. dormakaba glass fittings are not suitable for outdoor installation.
3. dormakaba glass fittings are not suitable for rooms where chemicals (e.g. chlorine) are used, e.g. swimming pools, saunas and brine baths.
4. Sliding panels must not be moved faster than at walking speed and must be stopped by hand before reaching the end position will be.
5. Pivoting panels must not be thrown too hard. If there is a risk of over-turning, this must be prevented by a door stop.

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

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

### General care instructions
The surface finishes of the fittings are not maintenance-free and should be cleaned according to their material and design.
- For metallic surfaces (anodised finishes, stainless steel) please use appropriate cleaning agents without abrasive additives only.
- For varnished surfaces please use appropriate solvent-free cleaning agents only.
- Brass surfaces (without surface protection) have to be treated with an appropriate maintenance agent on occasion, to avoid tarnishing.

For practical planning, please use our drawings dormakaba "The Detail".

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

Subject to change without notice.
Our products

Interior Glass Systems
System solutions made from glass for a wide range of everyday and office applications

Mechanical Key Systems
Systems that enable access rights and key control to all rooms within the premises

Lodging Systems
Hotel locks and locking systems as well as access management solutions for holiday homes

Electronic Access & Data
Electronic access control and workforce management for efficient access management, security and data collection

Entrance Systems
Automated access solutions for convenient access to buildings

Door Hardware
Solutions for residential or commercial projects

Safe Locks
Security locks for preventing unauthorized access to goods, valuables, information or hazardous substances

Services
Tailor-made services and customized maintenance for long-term functional integrity of access and security solutions