FACT BOOK

ComfortDrive
–
Fully Automatic
Partition Operating System

Contents:

1 Introduction

The newly developed ComfortDrive operating system heralds a new era for fully automated partitions. It is destined to completely replace the existing EM operating system and is to be employed for all the operable partitions and movable walls supplied by the DORMA Group worldwide. The following descriptions and explanations relate to the operating system as applied to the sound-insulated MOVEO and exemplified glass partition systems.

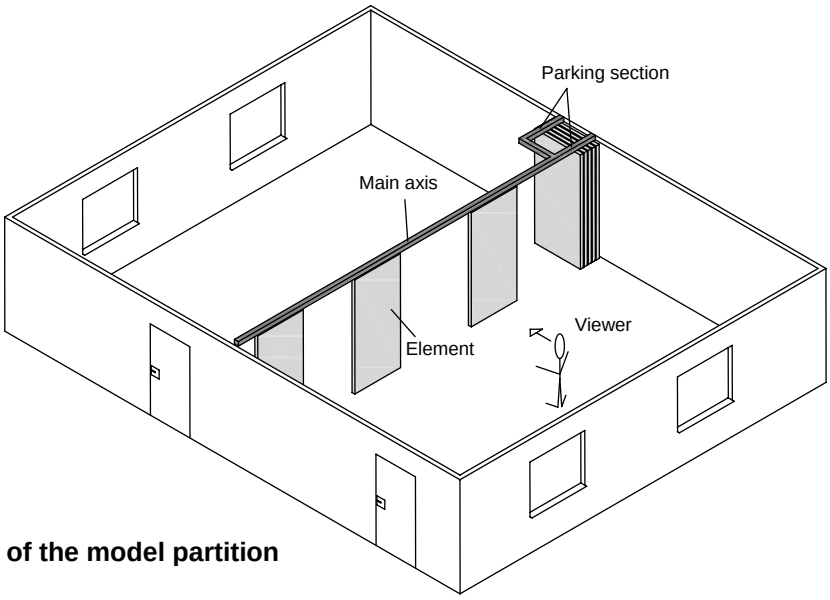
2 Description of partitions

2.1 Standard partition example

In the following, frequent use will be made of diagrams and pictorial representations of a partition to illustrate the descriptions. To simplify matters, a model partition is defined for use as a standard example. The various illustrations of the partitions serve the purpose of general functional descriptions and do not constitute a detailed design analysis of the individual elements.

2.1.1 Perspective view

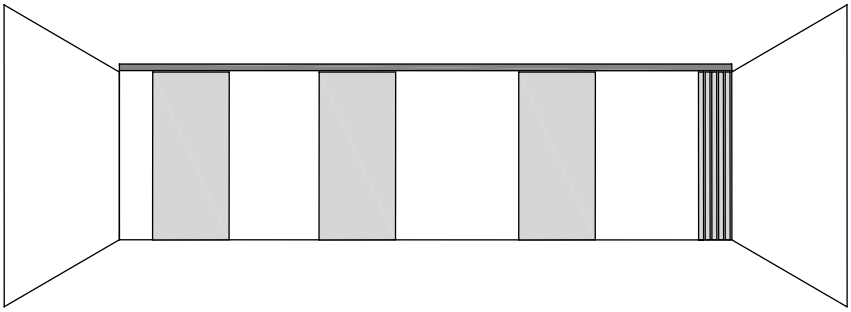
The model partition consists of 8 “elements” with a simple “parking section” (stacking track) and a straight “main axis”.



Perspective view of the model partition

2.1.2 Viewed elevation

The illustrations are always shown from the perspective of the “viewer” in a simplified direct side elevation.

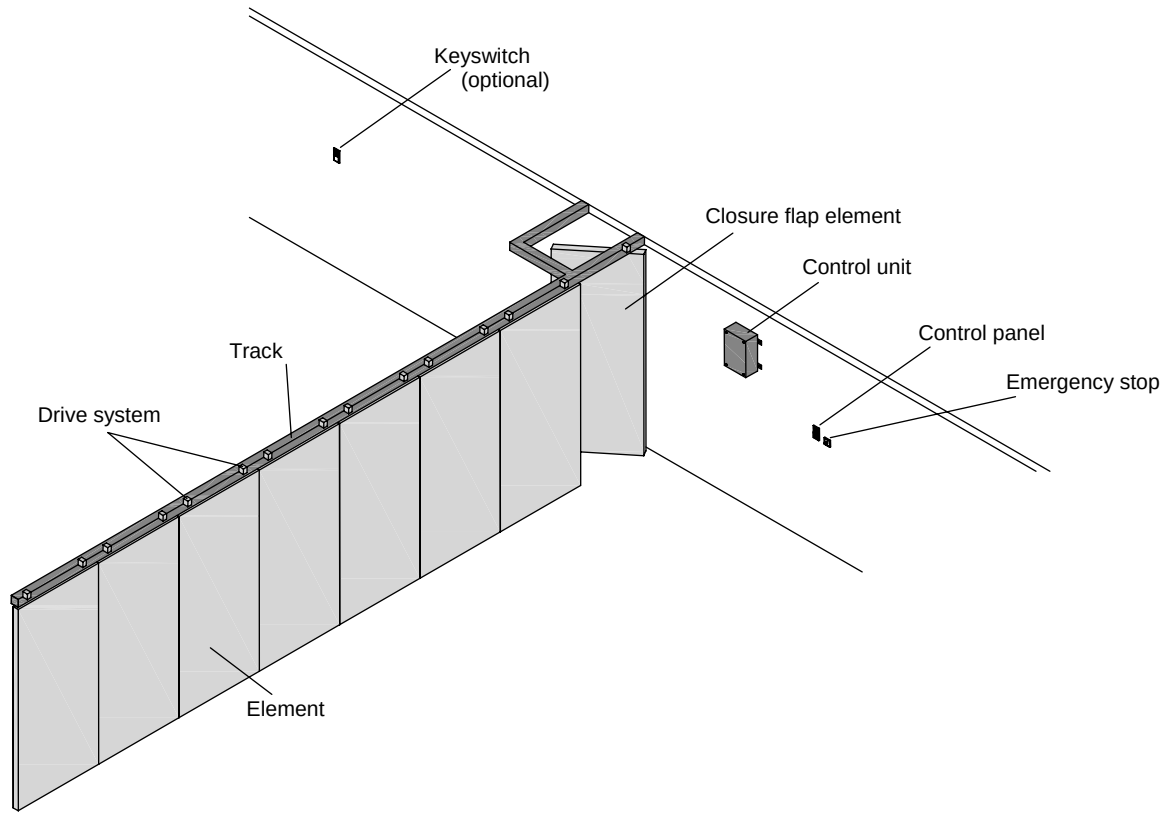


Side elevation of model partition

3 “ComfortDrive” partition system

3.1 General

With the “ComfortDrive” fully automatic partition system, it is possible to operate both glass elements and sound-insulating elements. It is the most convenient system for partition applications. All the functions are executed fully automatically and can be activated at the push of a button. Any faults or malfunctions are shown on a display, and in the event of a power failure, the partition can be manually operated.
The “ComfortDrive” exhibits an intelligent drive system which operates the elements fully automatically and takes them to their predefined positions. The system is governed by an automatic control system which receives its commands either from a control panel or from an optional keyswitch. The control system is connected via busbars integrated in the track to the individual drive units of the elements. Moreover, additional modules may be provided in a system as shown below in the form of the closure flap. These modules have functions different from those of the other elements and therefore constitute a special product group. The emergency stop unit is the safety switch which, when operated, immediately disconnects the system from the power supply.



3.2 Technical data and control functions

3.2.1 Sound-insulating partitions

Technical data	ComfortDrive	Old system
	MOVEO	**Variflex-EM**
Track width	98 mm	212 mm
Operator assembly width (with sound baffle)	154 mm	260 mm (asymmetrical track division)
Operator height	241 mm	235/252 mm
Max. length of a control section	50 m	~12 m
Max. number of elements	30	10
Element width	600 – 1,250 mm	600 – 1,250 mm
Max. element height	9,000 mm	4,000 mm
Max. element weight	500 kg	400 kg
Radius (change of direction)	150 mm	150 mm
Hold-open time for personnel passage	Adjustable	0 - 60 s
Travel speed	Dynamic up to 250 mm/s	80 - 160 mm/s (creep speed 50 - 80 mm/s)
Force limitation	150 N	150 N
Parameter configuration	Via laptop	Via control panel
Power input, stand-by mode	20 W	20 W
Max. power input (20 elements)	1,000 W	400 W
Electro-mechanical locking	As required	As required
Manual unlocking	Standard	Standard
TÜV type test	Yes	
Line fuse	16 A	16 A
Power supply voltage	230 VAC	230 VAC
Power supply in operator	36 VDC	24 VDC
Class of protection	III	IP 20

Control functions	COMFORTDRIVE
	MOVEO
Functions selectable via control panel	Yes
OPEN – STOP – CLOSED	Yes
Partial opening	Optional
Partial closure	Optional
Personnel opening	Optional
Gapped position (elements with interme-diate clearances)	Optional
Keyswitch for personnel opening	Optional
Emergency power module	Optional
Floating contact	Yes
Bus interface	Yes
Output of status signals	Yes

3.2.2 Glass partition

Technical data	ComfortDrive	Old system
	HSW	**Varitrans-/HSW-EM**
Track width	98 mm	140 mm (asymmetrical track division)
Operator height	238 mm	165 mm
Max. length of a control section	50 m	40 m
Max. number of elements	30	~25 - 30
Element width	600 – 1,500 mm	600 – 1,500 mm
Max. element height	4,000 mm	4,000 mm
Max. element weight	250 kg	250 kg
Radius (change of direction)	150 mm	150 mm
Track configuration	Straight and segmented	Straight
	Curved (min. radius 3m)	Curved
Hold-open time for personnel passage	Adjustable	0-60 s
Travel speed	Dynamic up to 250 mm/s	80-160 mm/s (creep speed 50-80 mm/s)
Force limitation	150 N	150 N
Parameter configuration	Via laptop	Via control panel
Power input, stand-by mode	20 W	20 W
Max. power input (20 elements)	1.000 W	400 W
Electro-mechanical locking	Standard	Standard
Manual unlocking	Standard	Standard
TÜV type test	Yes	Yes
Line fuse	16 A	16 A
Power supply voltage	230 VAC	230 VAC
Power supply in operator	36 VDC	24 VDC
Class of protection	III	IP 20

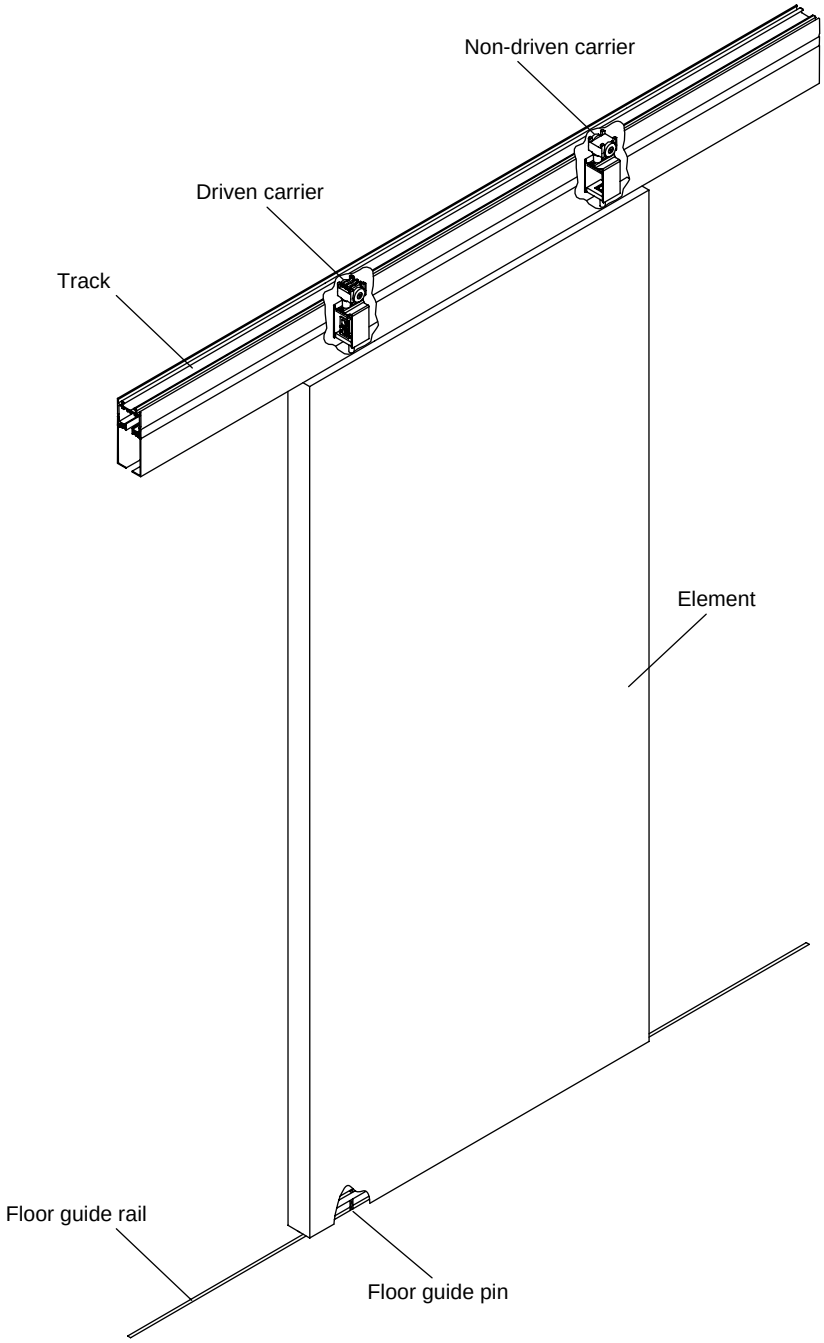
Control functions	ComfortDrive
	HSW
Functions selectable via control panel	Yes
OPEN – STOP – CLOSED	Yes
Partial opening	Optional
Partial closure	Optional
Personnel opening	Optional
Gapped position (elements with interme-diate clearances)	Optional
Keyswitch for personnel opening	Optional
Emergency power module	Optional
Floating contact	Yes
Bus interface	Yes
Output of status signals	Yes

3.3 System components

3.3.1 Operating system

3.3.1.1 Principle

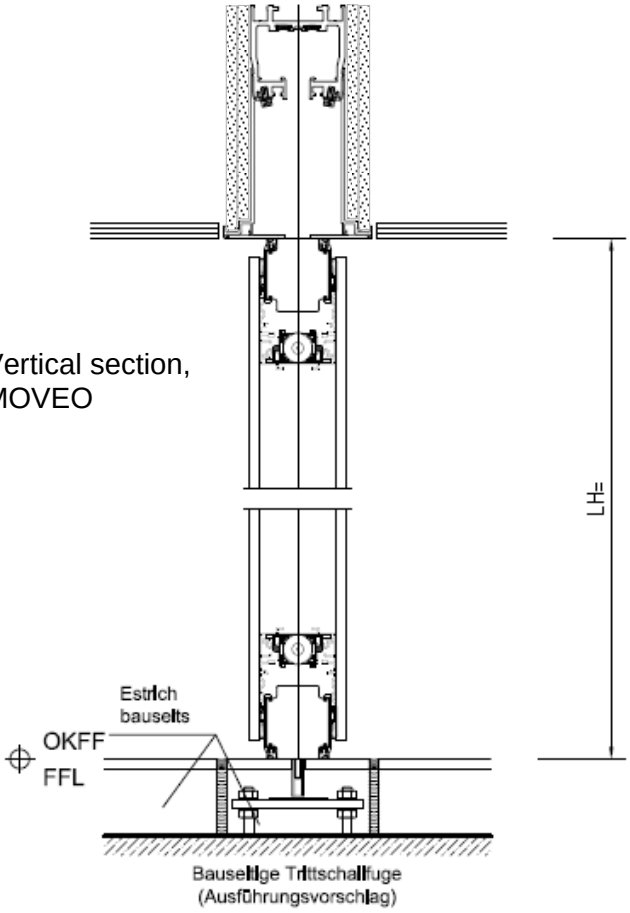
The following illustrations show a simplified view of the sub-assemblies of the operating system related to an individual element. The element is suspended from the track by means of a driven carrier and a non-driven carrier. The two carriers (trolleys) are designed so that they are located and guided by their rollers (wheels) in the track, enabling the element to be slid along. The rollers of the driven carrier are operated by a motor to automatically move the element. Located vertically and centrally below the track runs a narrow floor guide rail. Each sliding element has a floor guide pin which is located within the narrow slot of this rail recessed in the floor. The route along which the element can be moved is determined by the configuration of the overhead track and the floor guide rail.



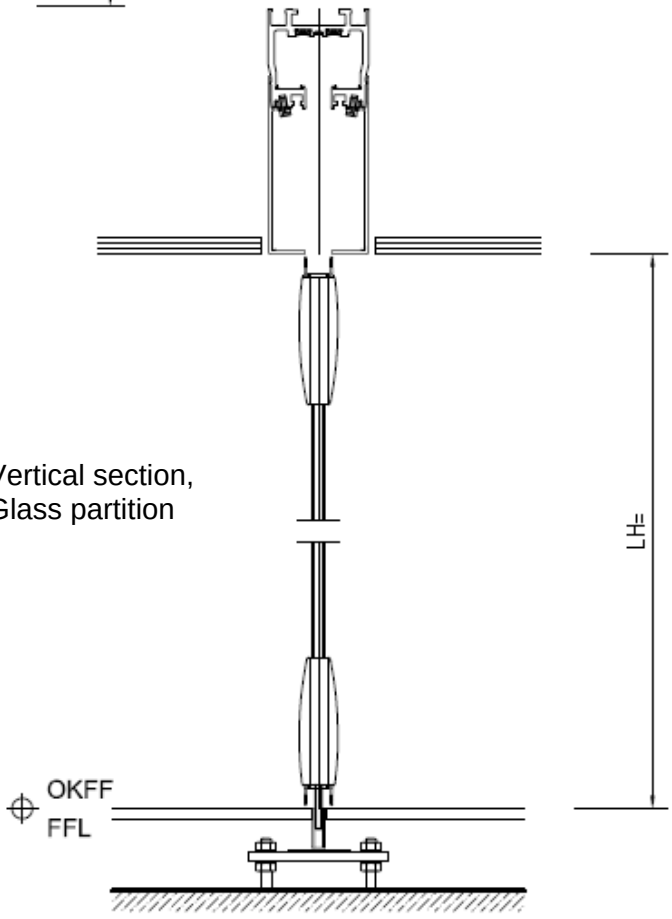
3.3.1.2 Vertical sections

Example illustrations based on a sound-insulating MOVEO partition and a glass partition.

Vertical section,
MOVEO

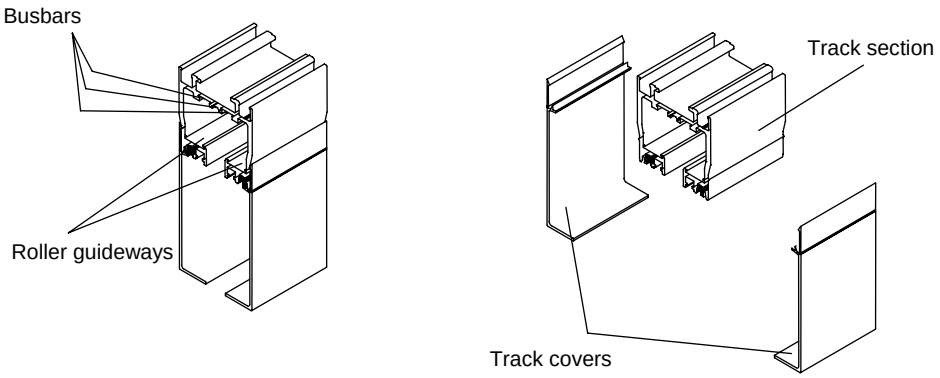


Vertical section,
Glass partition

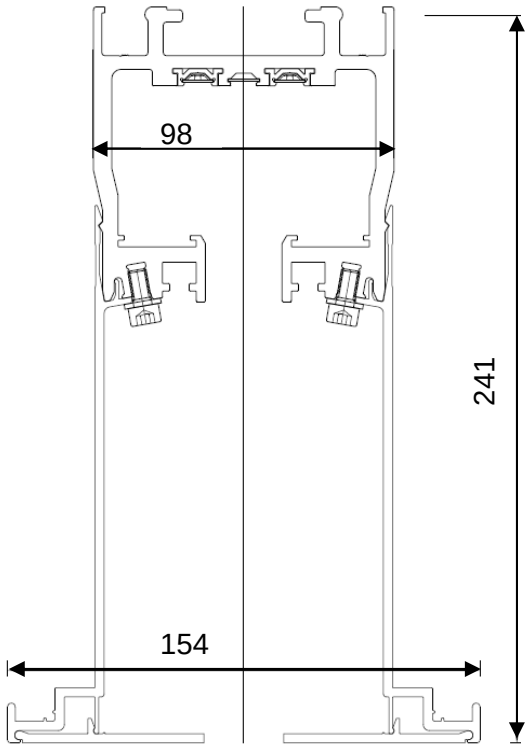


3.3.2 Track

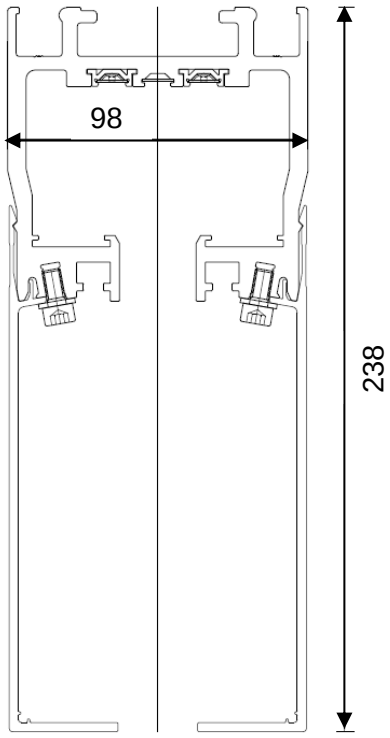
The track comprises a sectional aluminium rail of sturdy construction for high load capacity, combined with two rail covers which are secured to the section sides. Located in the track section are two roller guideways for the carriers. Three busbars for power and data transmission are also integrated in the track system.



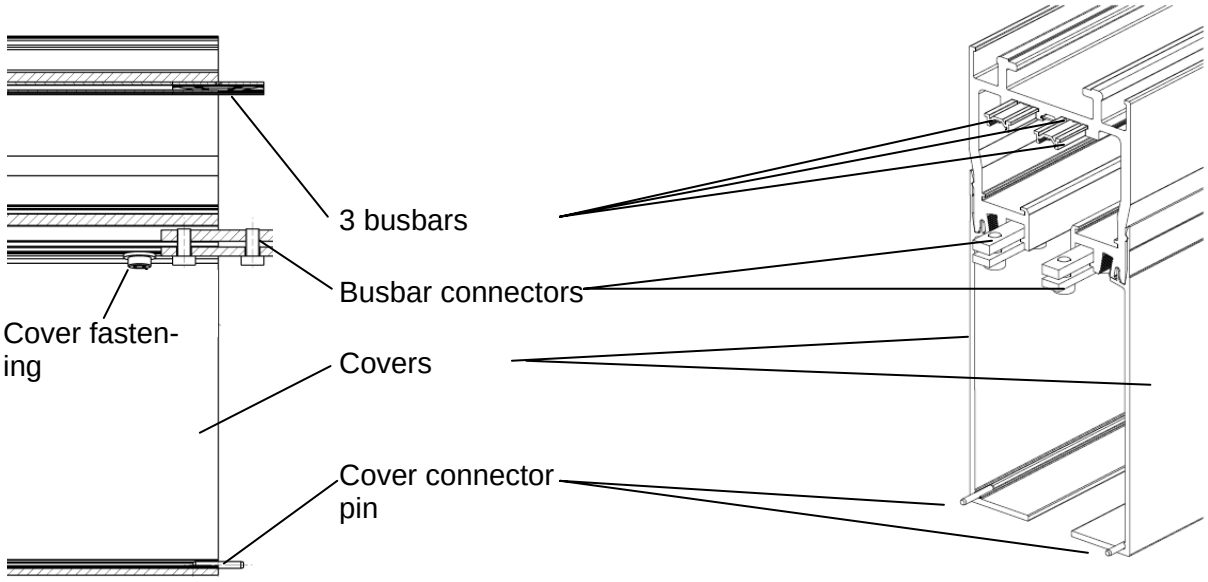
Load capacity of the track: up to 500 kg per element

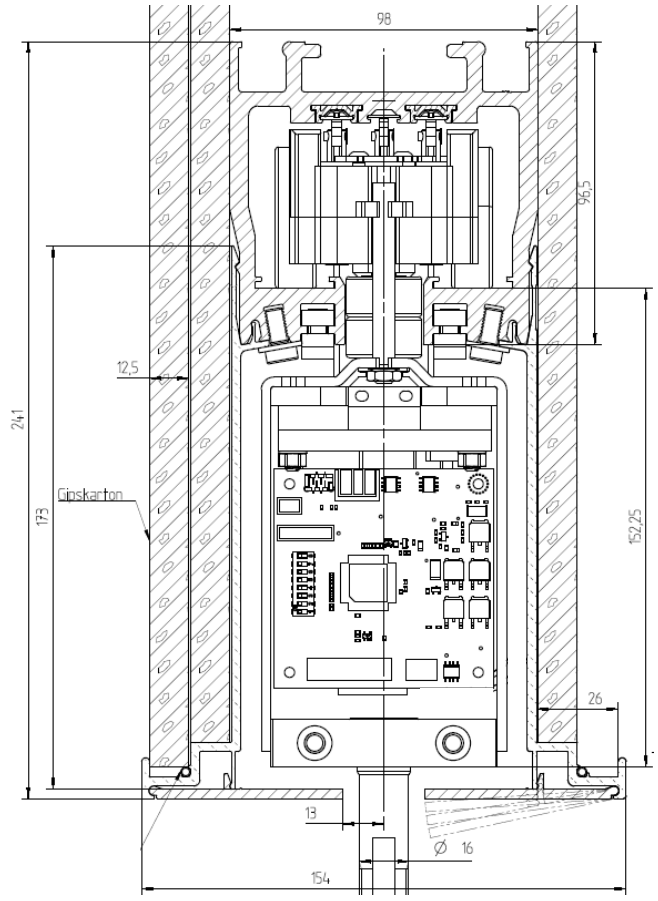


Designed for sound-insulating partition (track with side covers for sound baffle integration)



Glass partition design (track with side covers)





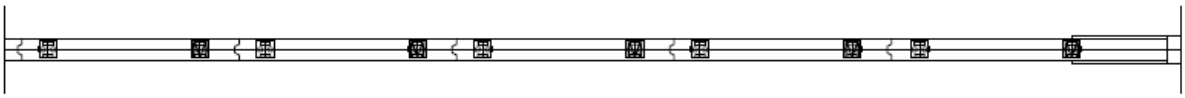
Example illustration for a sound-insulating partition with driven carrier

Track with side covers and lateral sound baffle (single-wall and double-wall versions both illustrated)

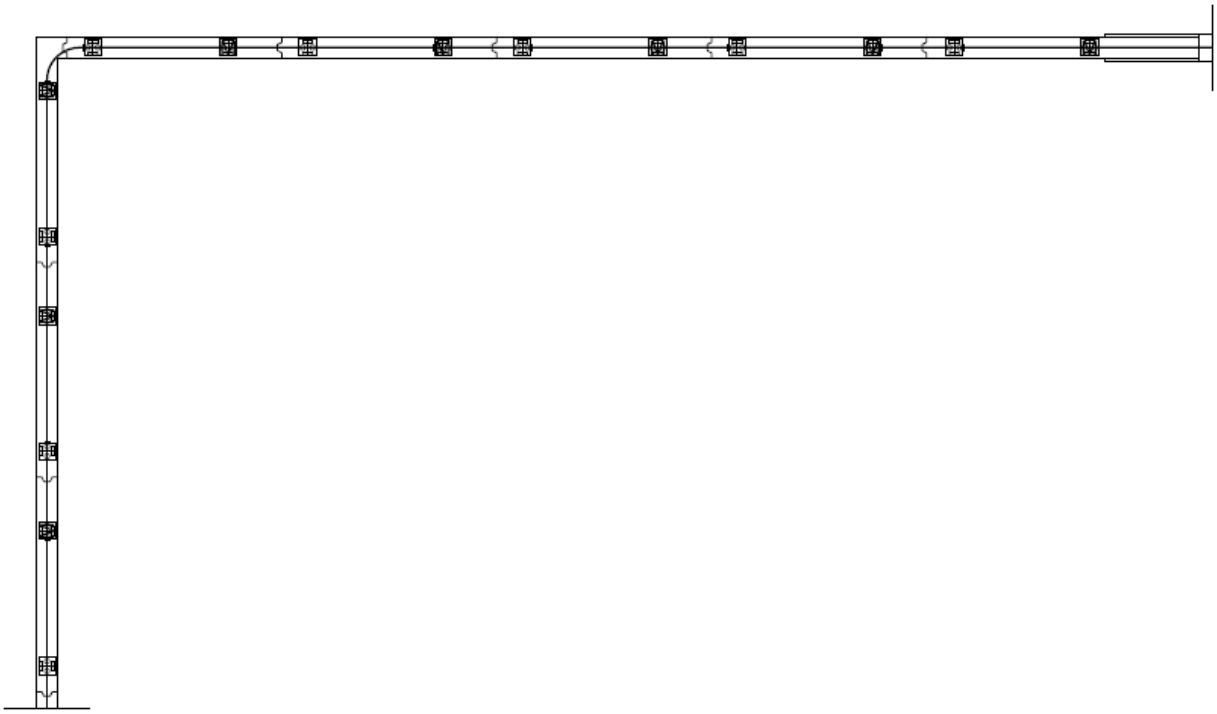
3.3.3 Track configurations

The track configurations can take on various forms and can also be adapted to different project-specific applications. In addition to straight-line runs, layouts with 90° corners and angles from 91 – 179° can all be implemented.

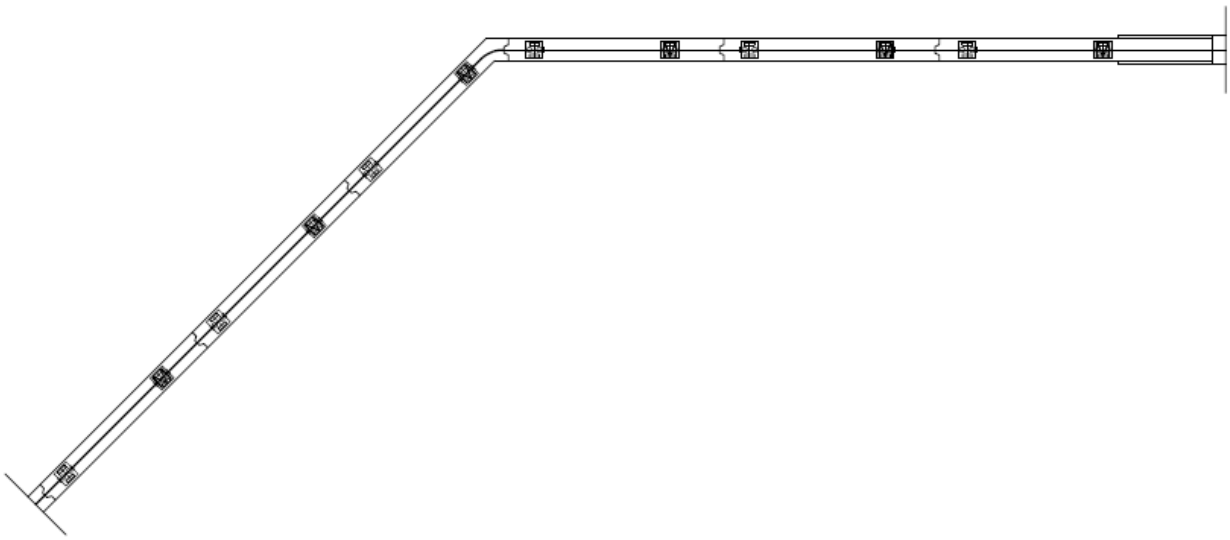
- Straight track run:



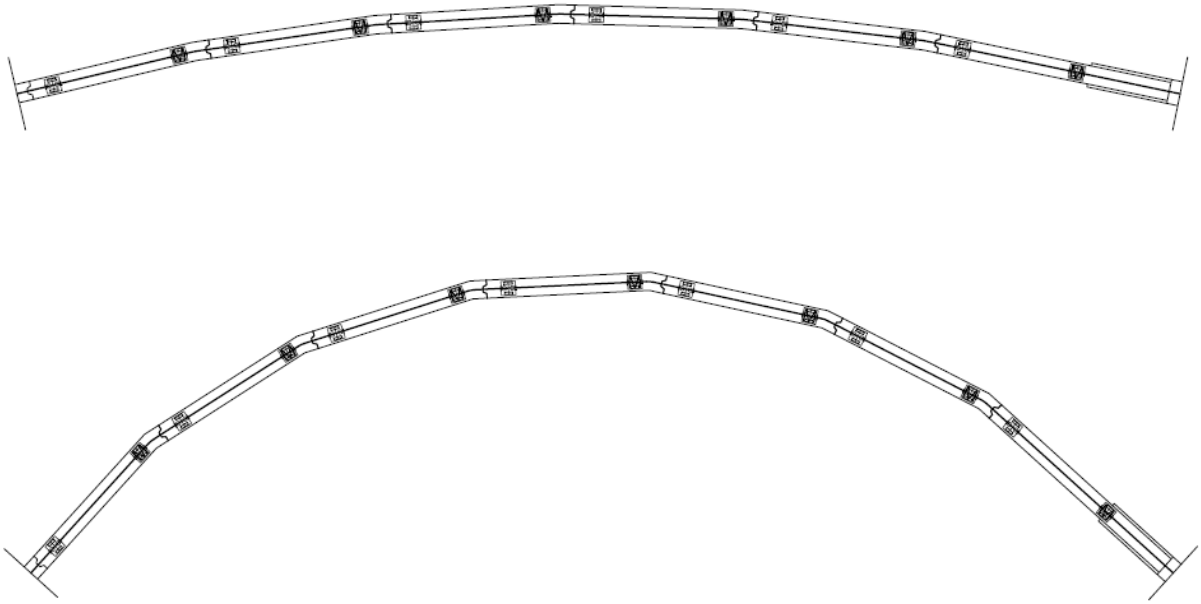
- Track configuration with 90° angle



- Track configurations with directional change angles, e.g. 135°



- Segmented track configurations



- Curved track configuration (only with glass partitions) – minimum radius 3m

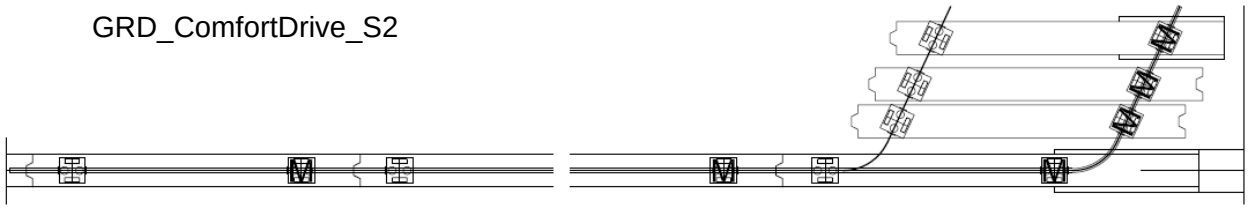
3.3.4 Parking section variants

The parking section (stacking track) can be located at various positions, for example directly next to the main axis, in a corner, behind a projecting wall or in a niche. The size of the parking section depends on the design, width and number of the elements. The following provides a few example illustrations to give a clearer idea of what is involved, with only a few notional elements being shown in each case. The maximum number of elements is sometimes limited by the type of parking solution selected.

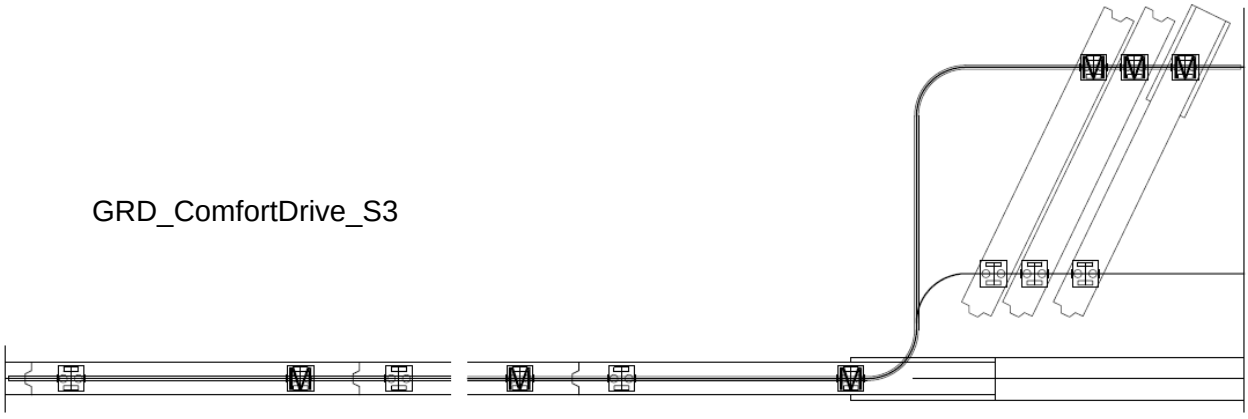
3.3.4.1 Designs for sound-insulating partitions

GRD_ComfortDrive_S1

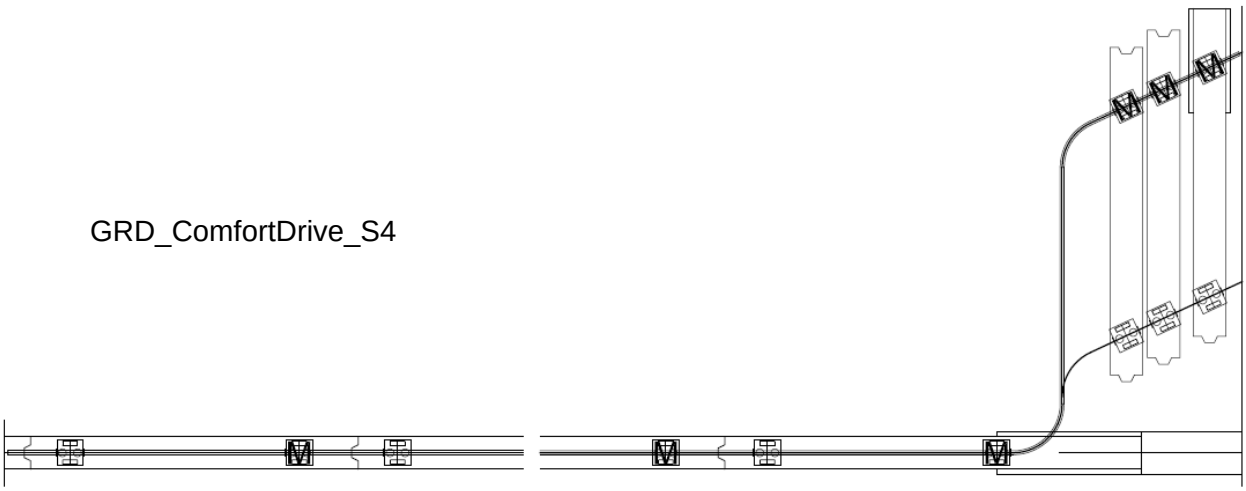
GRD_ComfortDrive_S2



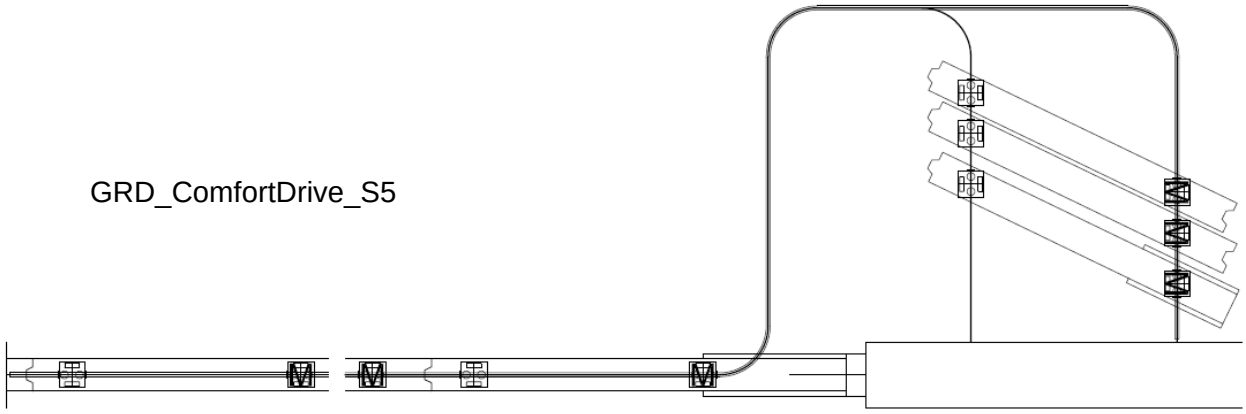
GRD_ComfortDrive_S3



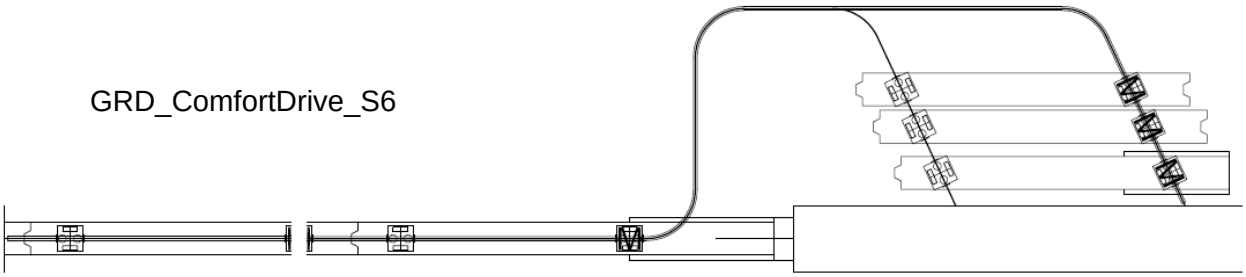
GRD_ComfortDrive_S4



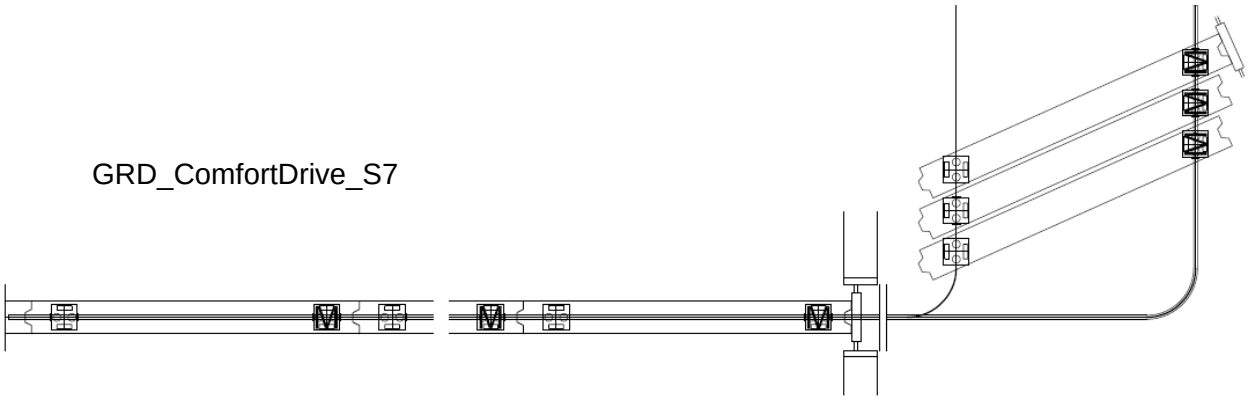
GRD_ComfortDrive_S5



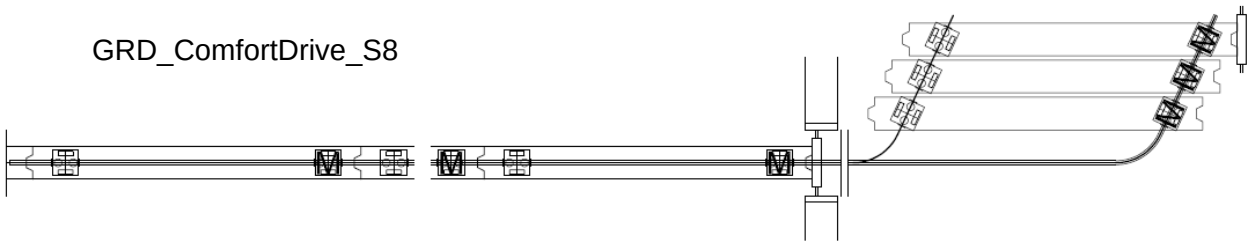
GRD_ComfortDrive_S6



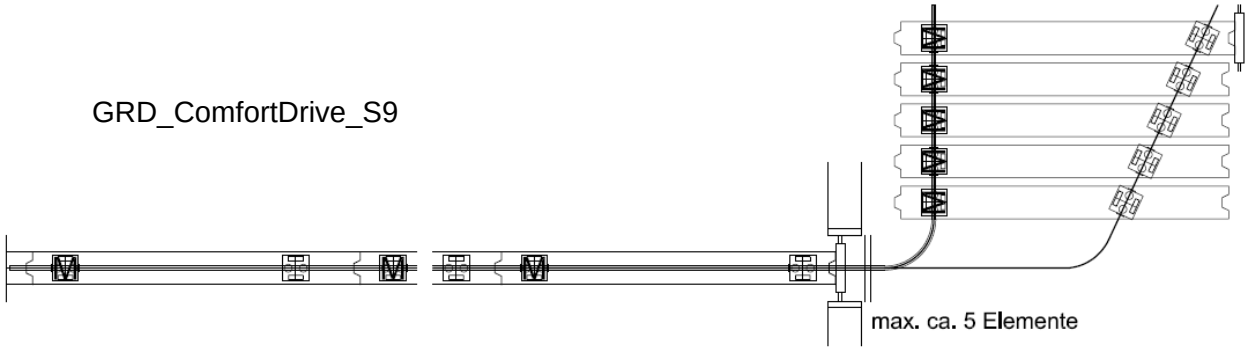
GRD_ComfortDrive_S7



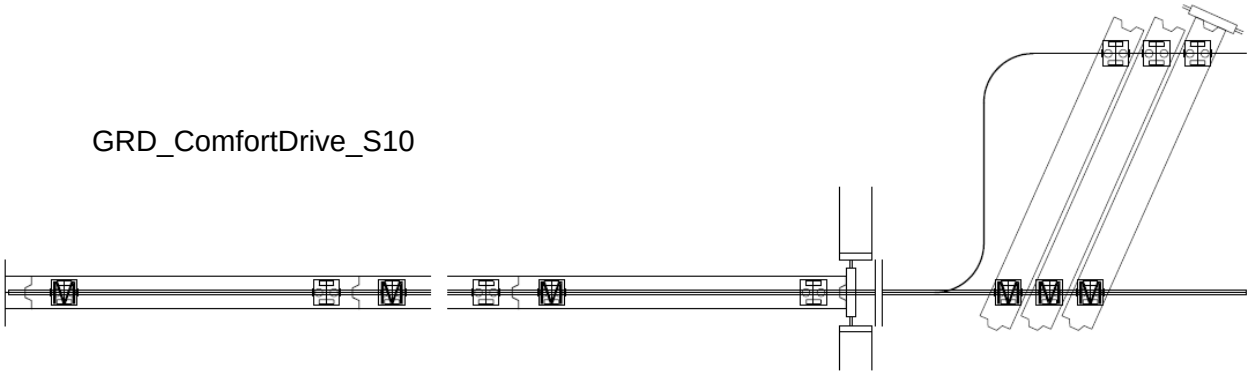
GRD_ComfortDrive_S8



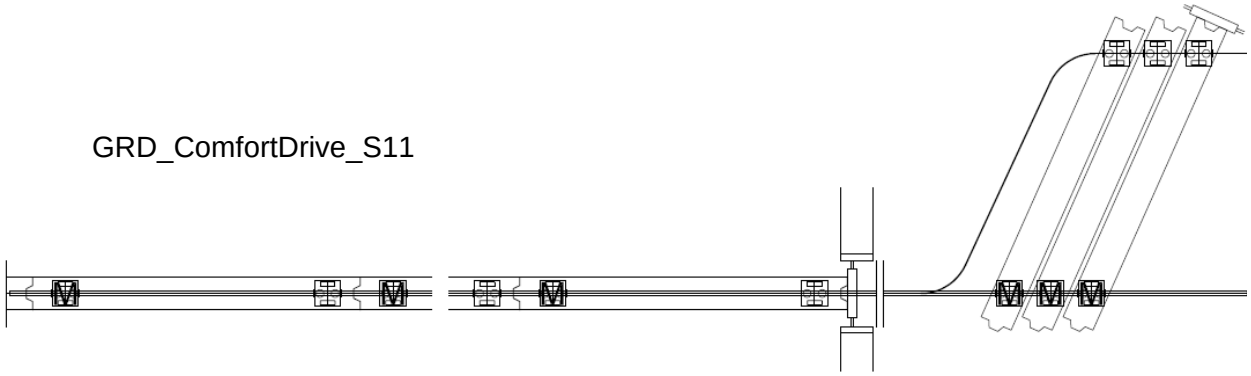
GRD_ComfortDrive_S9



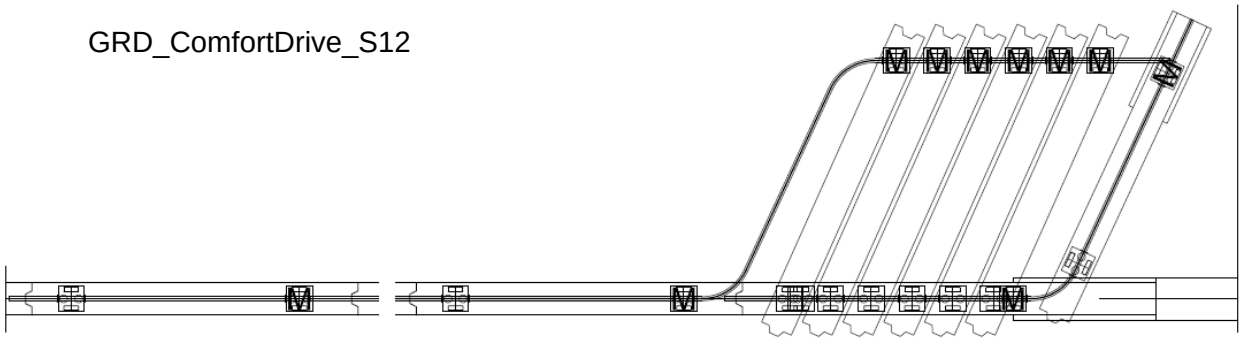
GRD_ComfortDrive_S10



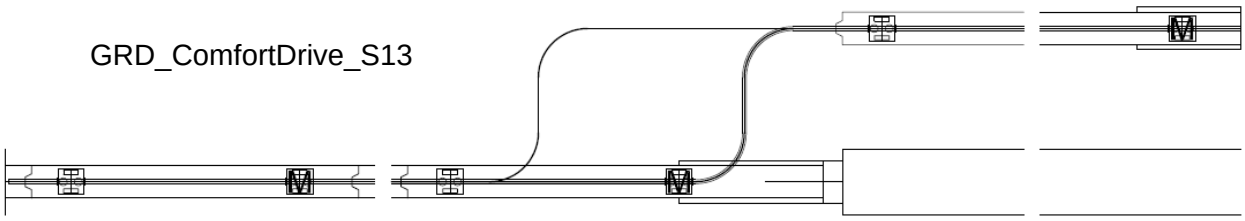
GRD_ComfortDrive_S11



GRD_ComfortDrive_S12



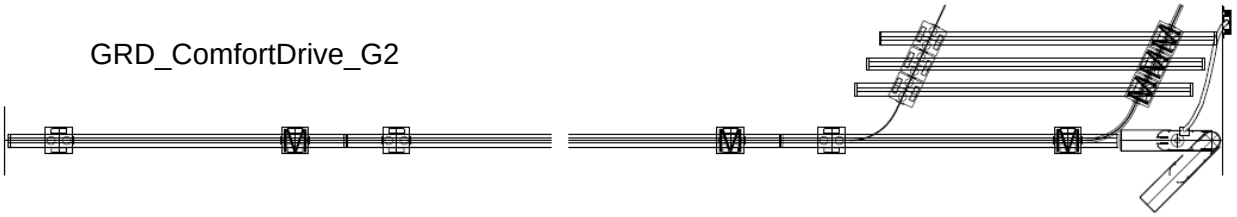
GRD_ComfortDrive_S13



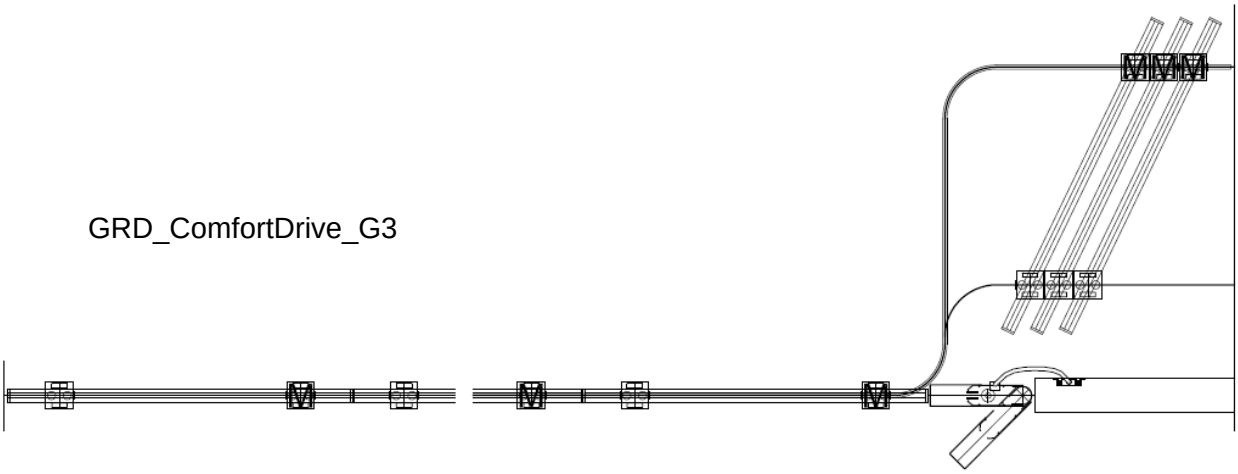
3.3.4.2 Designs for glass partitions

GRD_ComfortDrive_G1

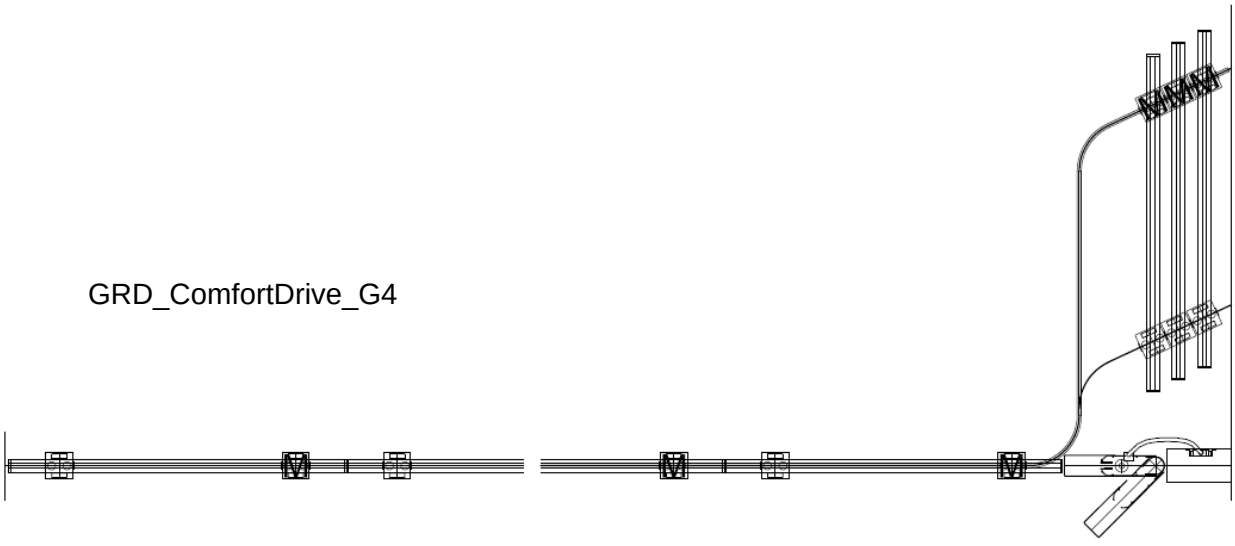
GRD_ComfortDrive_G2



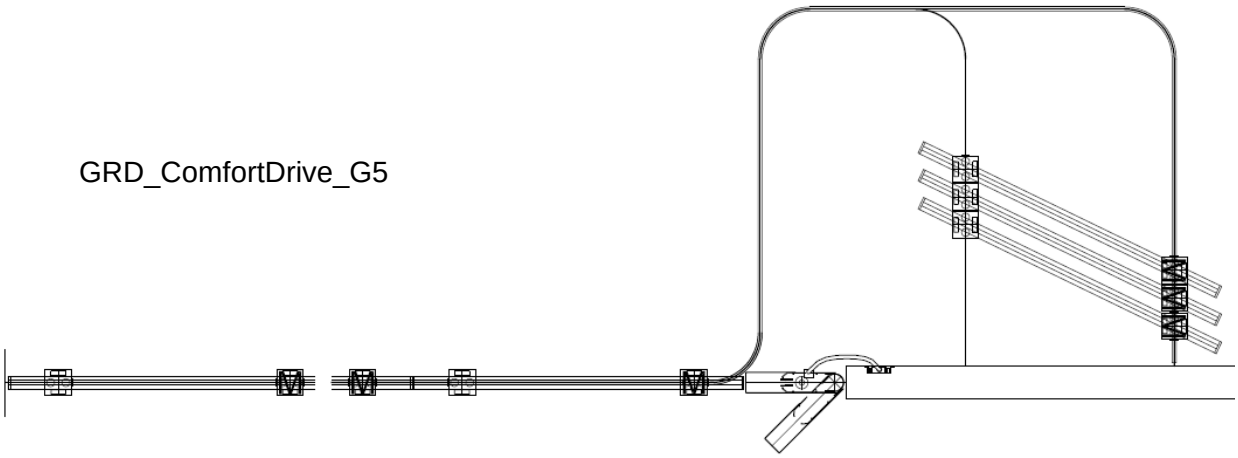
GRD_ComfortDrive_G3



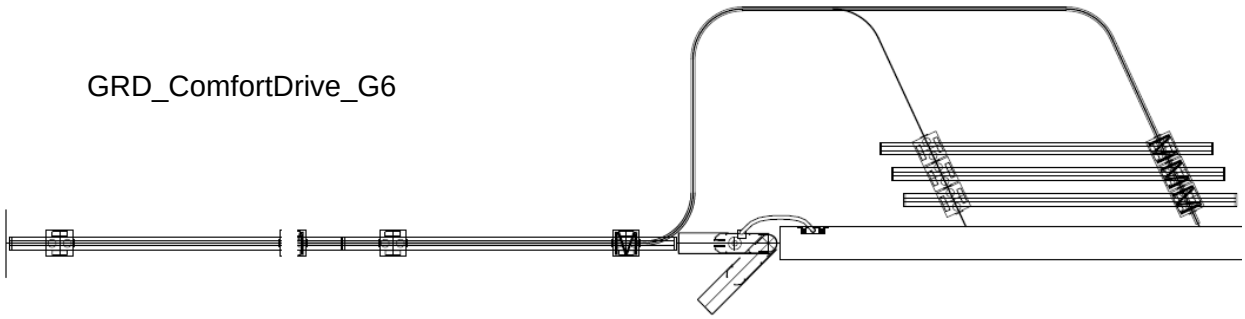
GRD_ComfortDrive_G4



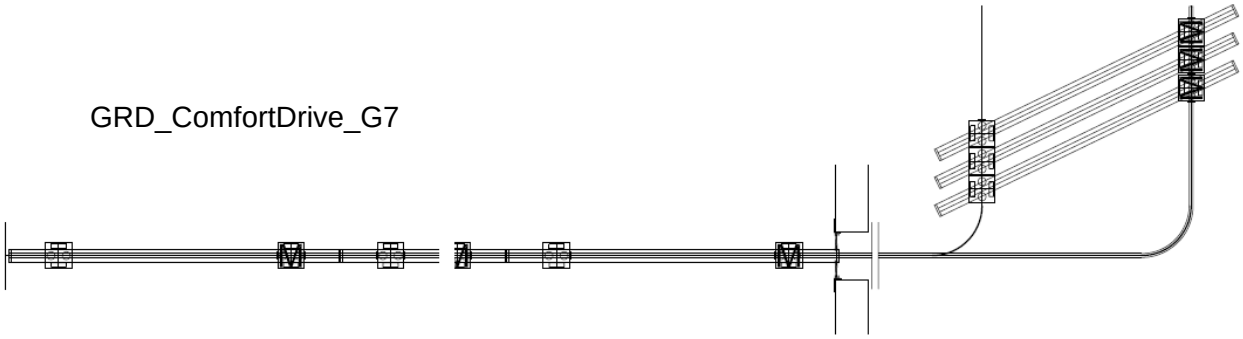
GRD_ComfortDrive_G5



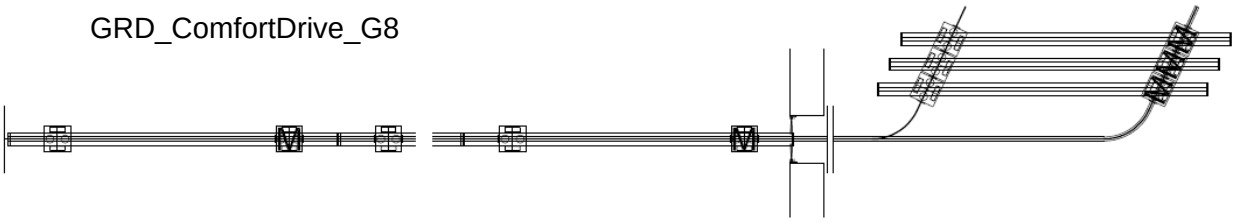
GRD_ComfortDrive_G6



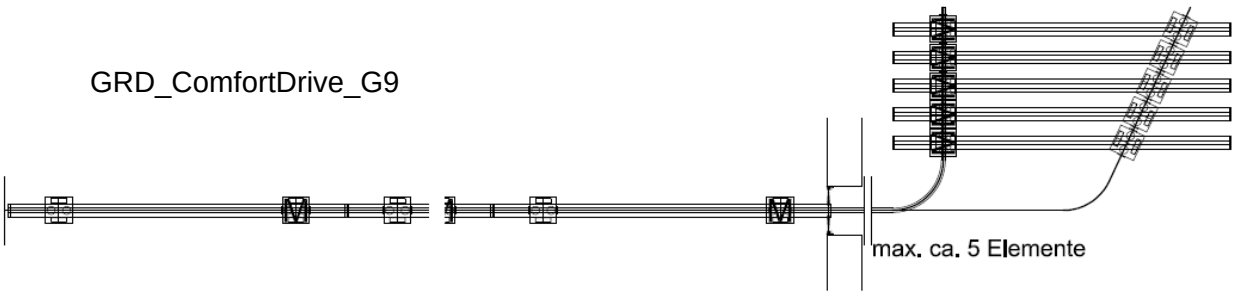
GRD_ComfortDrive_G7



GRD_ComfortDrive_G8

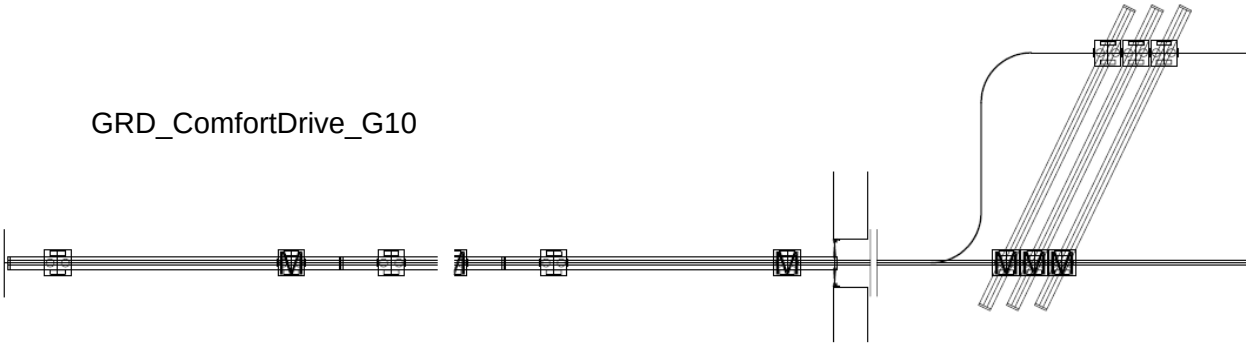


GRD_ComfortDrive_G9

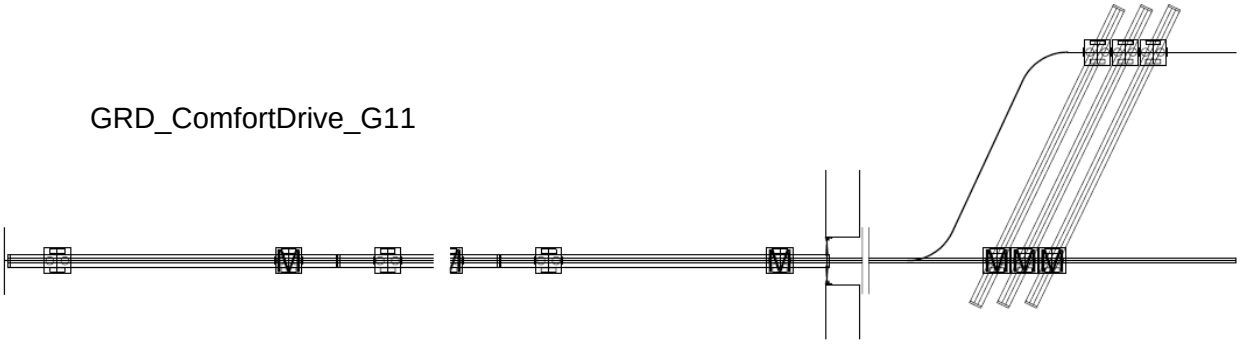


max. approx. 5 elements

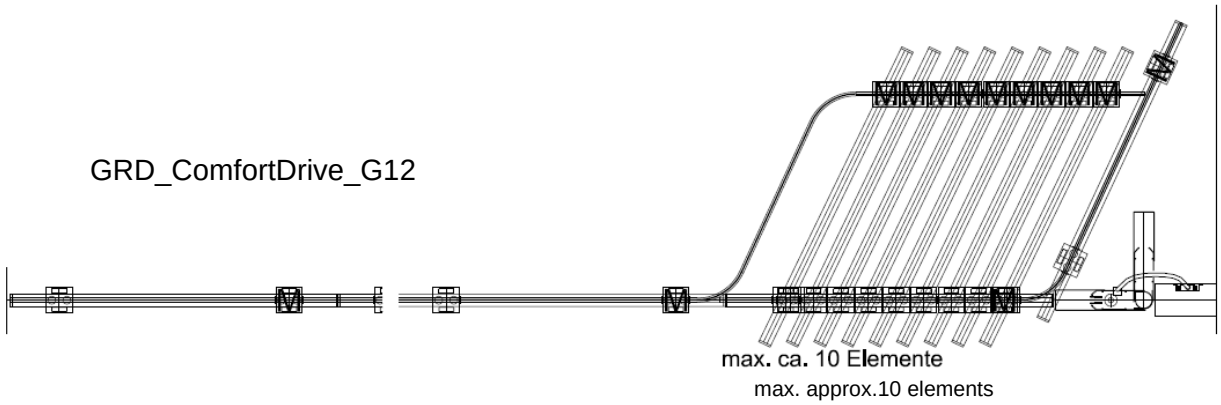
GRD_ComfortDrive_G10



GRD_ComfortDrive_G11

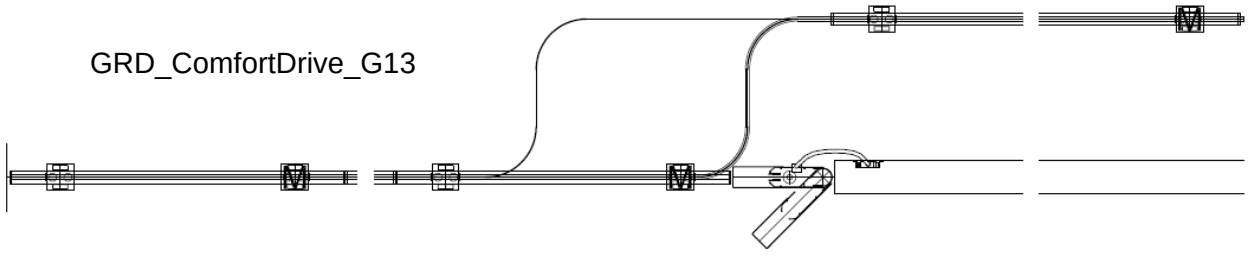


GRD_ComfortDrive_G12



max. approx.10 elements

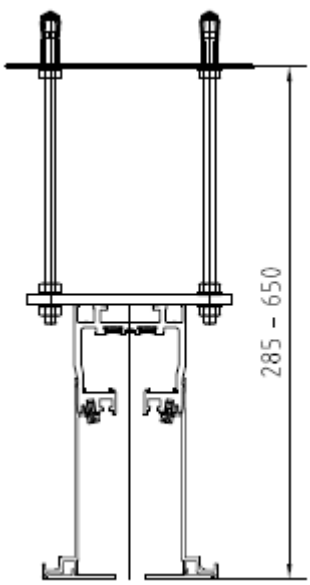
GRD_ComfortDrive_G13



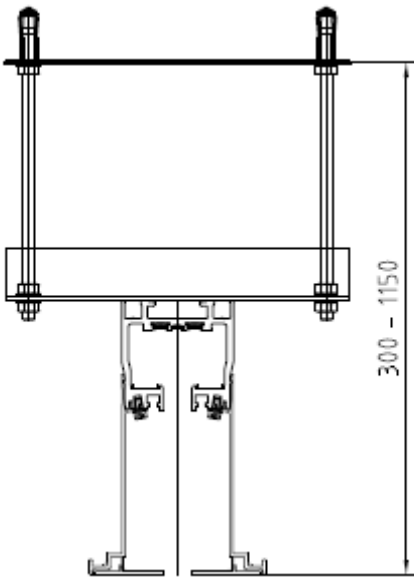
3.3.5 Suspension arrangements

The suspension arrangement for the track is selected in accordance with the requirements of the project and the application concerned. The following is an indication of the most important types of suspension arrangement, illustrated on the basis of an example sound-insulating partition track.

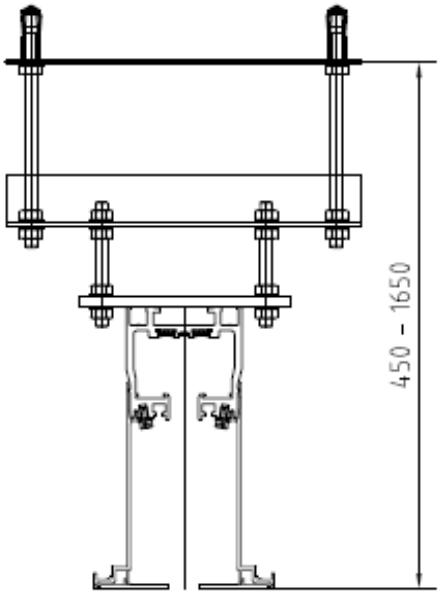
Standard suspension arrangements:



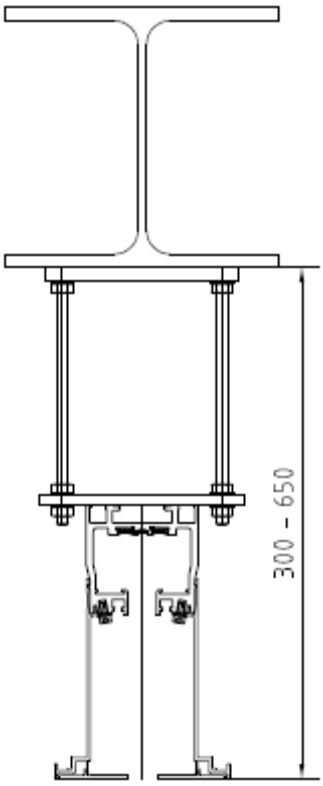
1



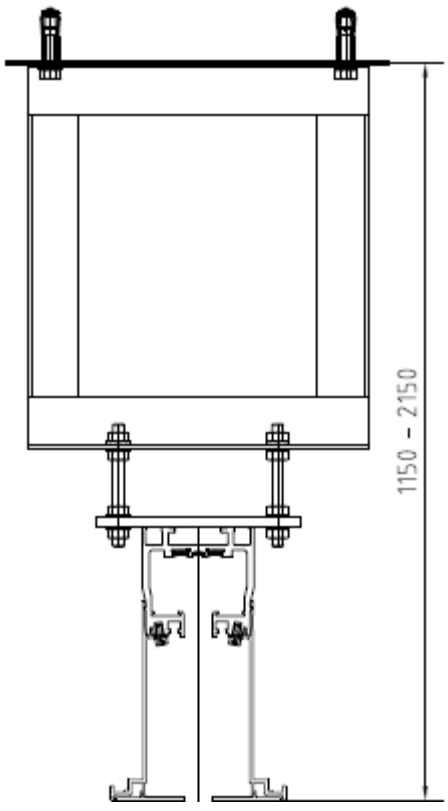
2



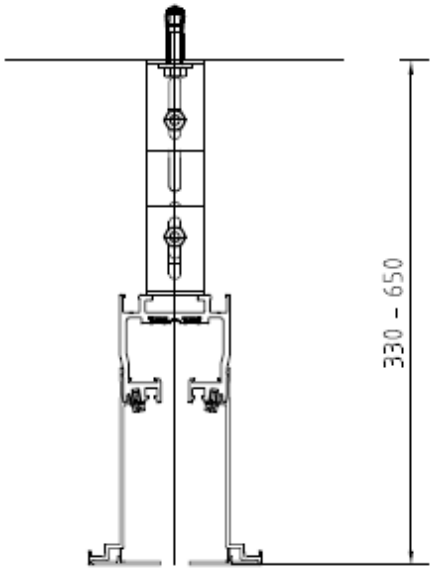
3



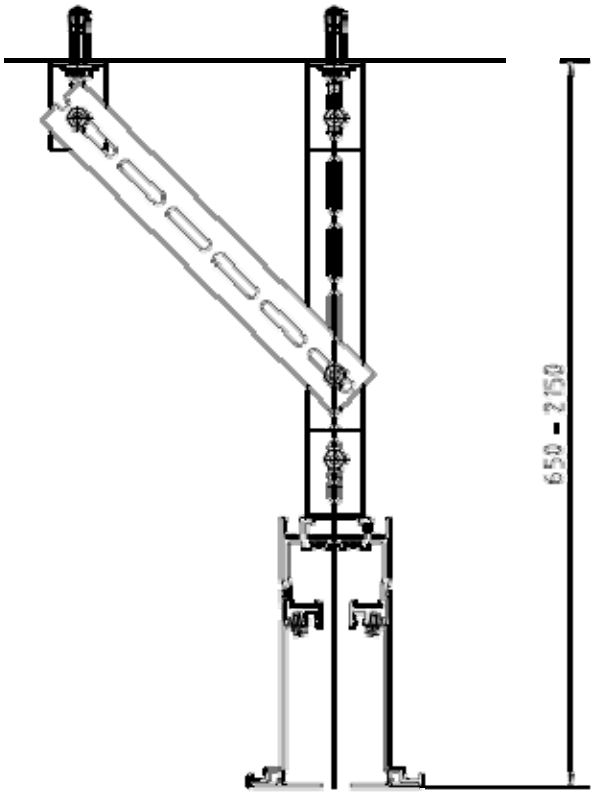
4



5

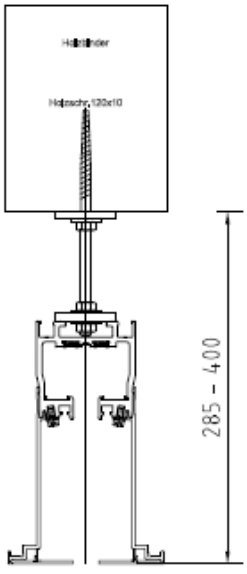


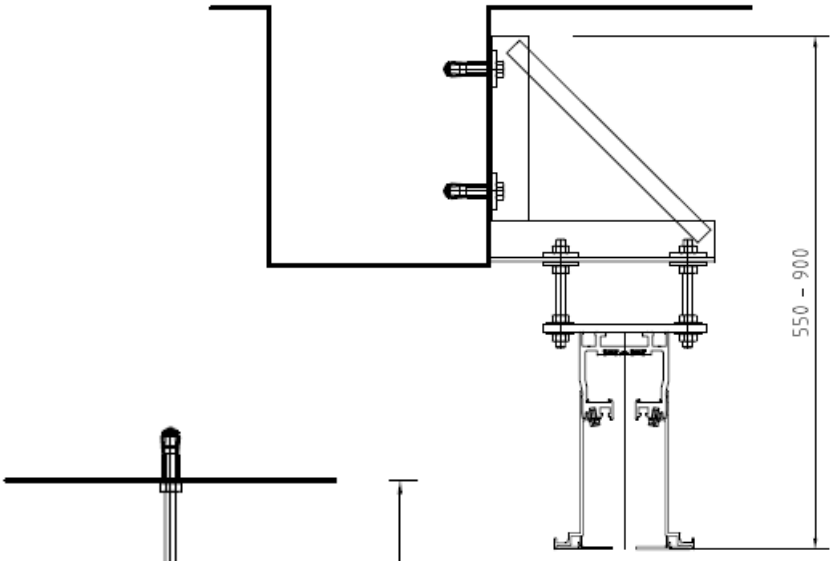
6

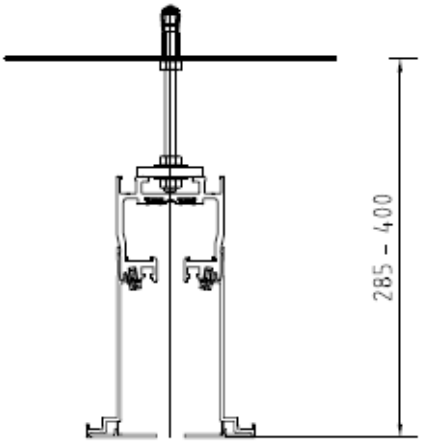


7

Further examples of suspension arrangements:

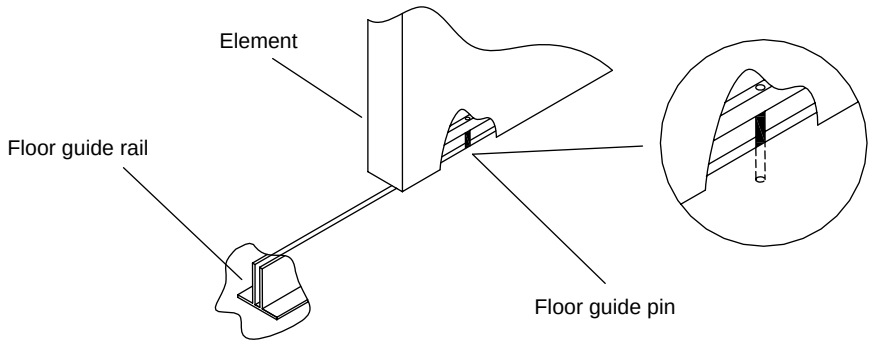






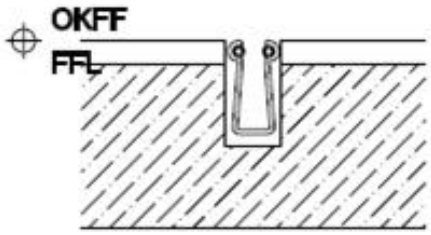
3.3.6 Floor guide

The floor guide is a combination of floor guide rail and floor guide pin. The floor guide rail is recessed into the floor so that its top edge is flush with the floor surface. The guide rail has a narrow slot into which the floor guide pin, which is secured to the bottom edge of the element, is inserted to facilitate accurate movement and positioning.

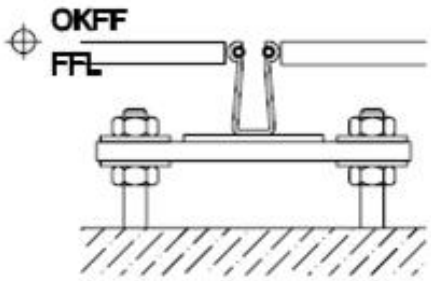


Standard installation types:

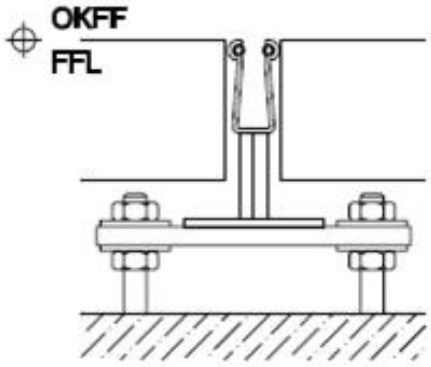
1



2

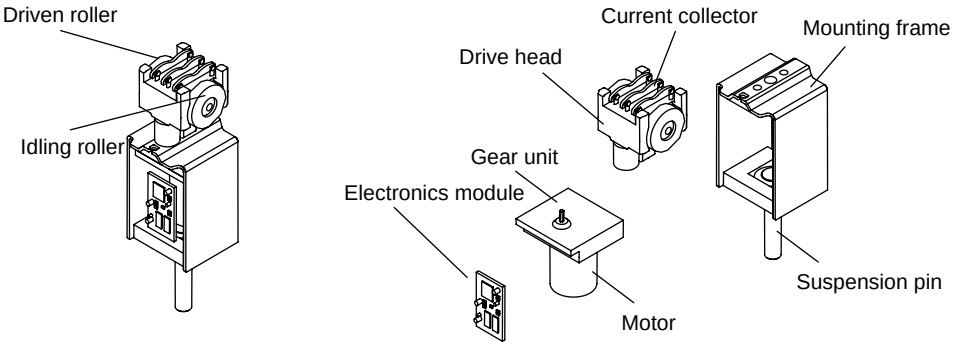


3

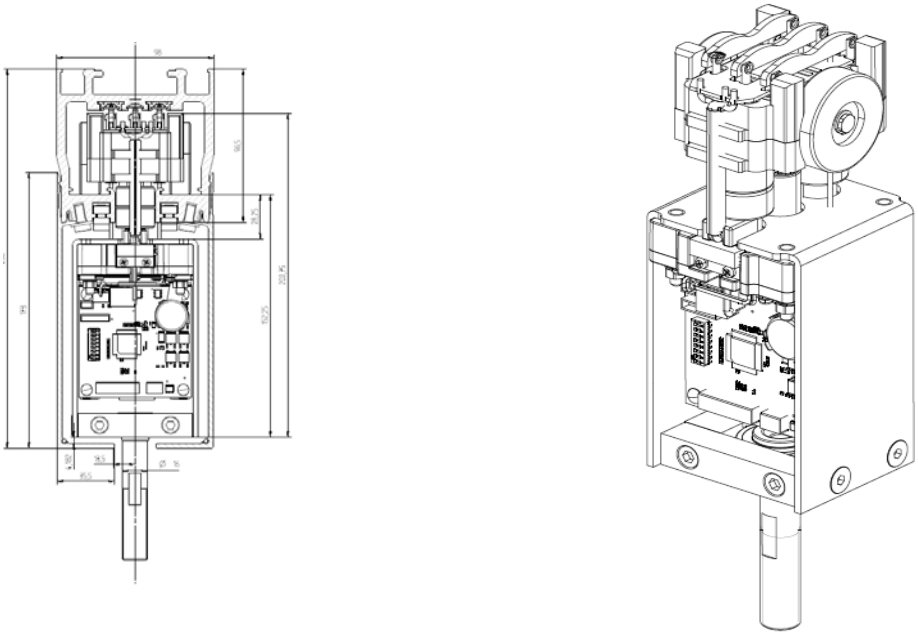


3.3.7 Driven carrier

The driven carrier consists of a mounting frame with a mounting pin to which are fitted the drive head with current collector, the motor with gear unit and also the electronics. The driven carrier has a driven wheel (roller) and an idling wheel (roller).

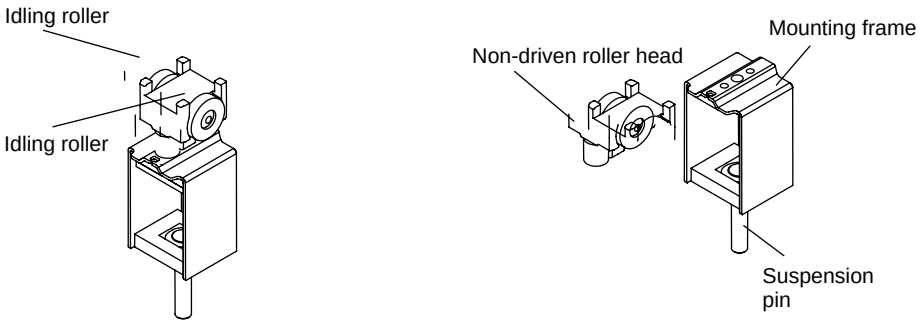


DC motor for generating friction drive between roller and track



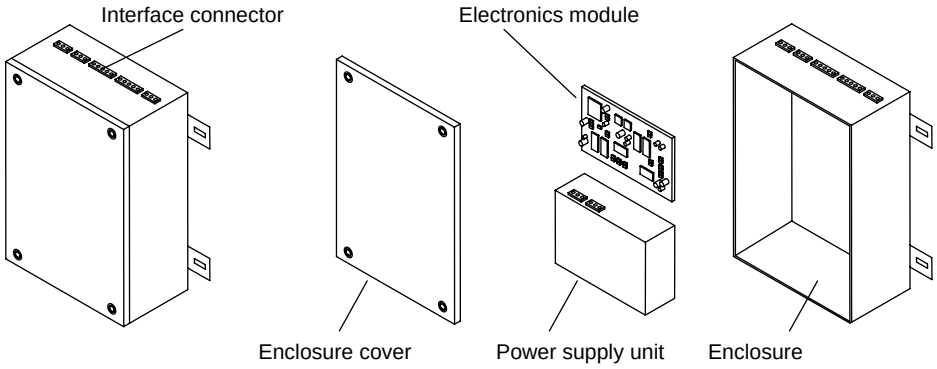
3.3.8 Non-driven carrier

The non-driven carrier exhibits a mounting frame to which the roller head is fitted, and an integral suspension pin. The roller head has two freely rotating (idling) track rollers.



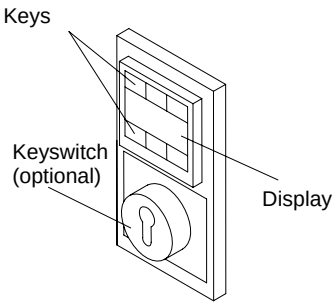
3.3.9 Control unit

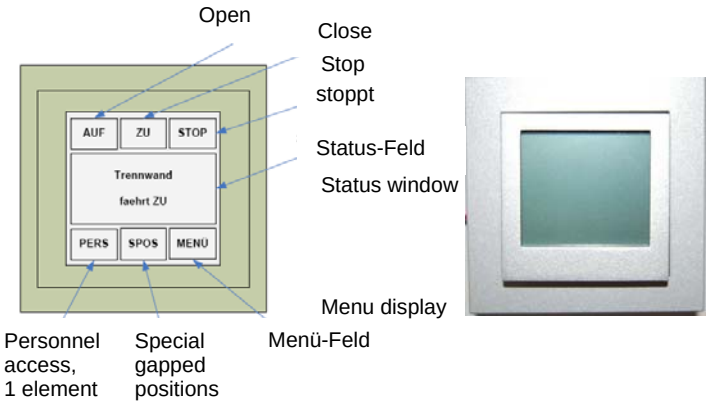
The control unit consists of a housing made up of an enclosure and a cover. The housing contains the electronics module and the power supply unit. An interface connector is provided in one wall of the enclosure with various connections such as for the control panel or the output signals.



3.3.10 Control panel

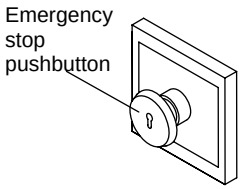
The control panel consists of a display with 6 function keys and a status window. The function keys are assigned the standard functions Open, Close, Stop and Menu. Additional functions can be programmed in, such as 1 Panel Open, Partial Opening or Gapped Positioning (elements spaced apart in variable configurations). In the lower section, an optional keyswitch with a standard single cylinder may also be provided.





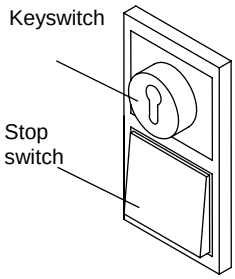
3.3.11 Emergency stop

The emergency stop device comprises a standard single-unit device box with trim and a standard emergency stop pushbutton which, on operation, immediately stops the complete system by disconnecting it from the power.

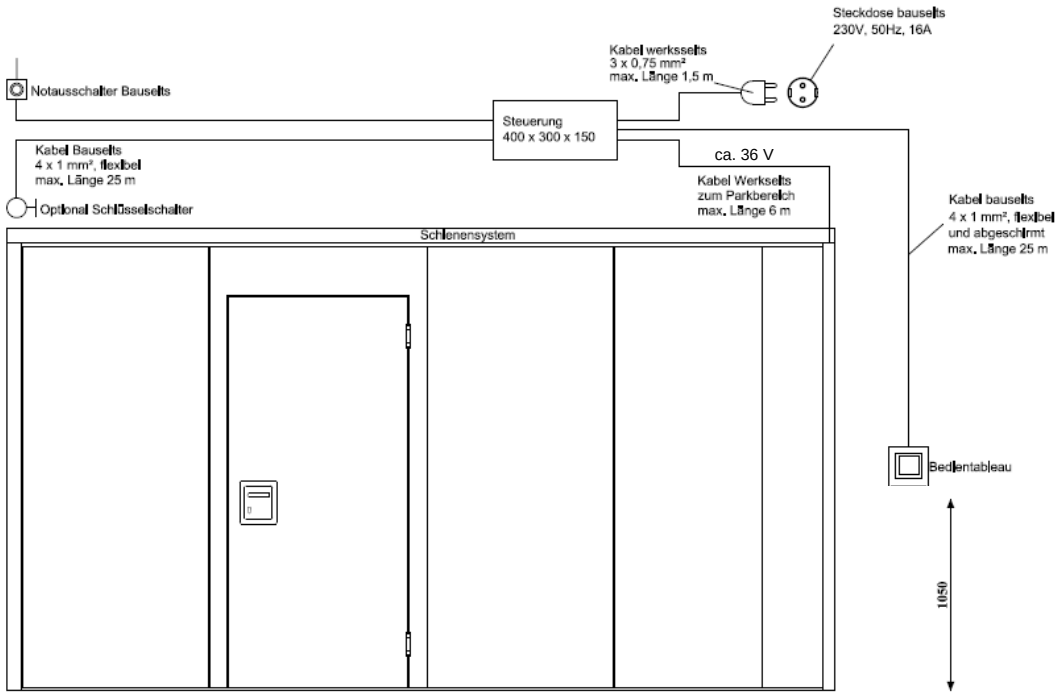


3.3.12 Key-operated control push button (optional)

The keyswitch may comprise a standard double-unit device box with trim. In the upper box section is located a keyswitch with standard single cylinder. In the bottom box section is a switch that can be operated to stop the system.
This switch can be used in order to operate the partition from the side opposite to that at which the control panel is located – for example in the entrance of the self-service area of banks.



3.3.13 Cable diagram



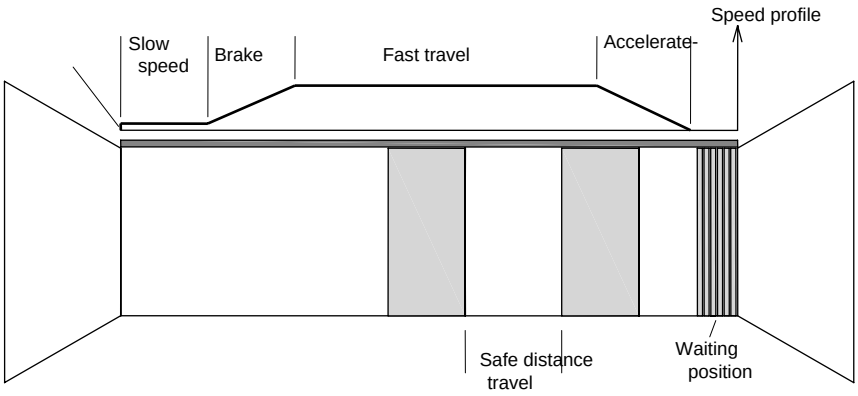
Emergency stop switch by others	Control unit 400 x 300 x 150	Cable provided by factory	Power outlet by others	
		3 x 0.75 mm^2	230 V, 50 Hz, 16 A	
		Max. length 1.5 m		
Cabling by others				
4 x 1 mm^2, flexible				
Max. length 25 m				
		approx. 36V		
		Cable provided by factory to parking section, max. length 6 m		
Optional keyswitch				Cabling by others
				4 x 1 mm^2, flexible and shielded
				max. length 25 m
				Control panel

4 Operating behaviour

In all the travel functions, the elements of the partition are transferred fully automatically to their predefined positions. In order to reach the required position, each element travels a certain distance. Depending on where the element is located and where the respective previous and subsequent elements are positioned, a certain operating mode is initiated. This operating mode is divided into the phases “Accelerate”, “Fast travel”, “Maintain distance”, “Slow travel”, “Brake”, “Wait” and “Stop”. The operating behaviour in each case can be configured using the parameterisation function.

4.1 Overview of travel phases

The following diagram shows the operating behaviour of the first element passing through the entire travel distance when closing the partition. Starting from the parked position, the first element is initially accelerated, then travels quickly over a lengthy section before it is switched to a slower speed and finally stops at its end position. The subsequent elements are initially held in their waiting position. They are then accelerated one after the other, and travel under safe distance control to their predefined positions until the partition is completely closed.



Accelerate: As soon as an element receives a travel command, it checks whether the way is clear and then accelerates to the predetermined speed.

Fast travel: If the section in front of the element is unimpeded over a significant distance, it maintains its fast travel speed under system control based on configurable parameters.

Slow speed: Once the element is close to its predetermined position, its speed is reduced under system control based on configurable parameters.

Brake: Once the element is just a few inches from its predetermined position, it is decelerated down to creep speed.

Stop: Once the element has reached its predetermined position, it stops.

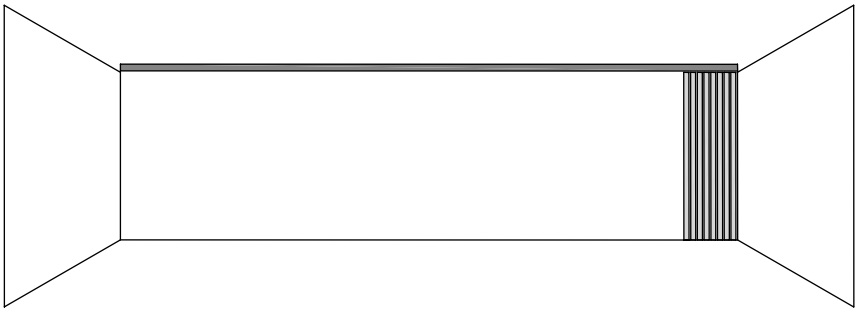
Safe distance travel: The element follows the previous element travelling to its end position at a defined distance based on configurable parameters.

Waiting position: If the element has received a travel command but the way in front is not free, it waits.

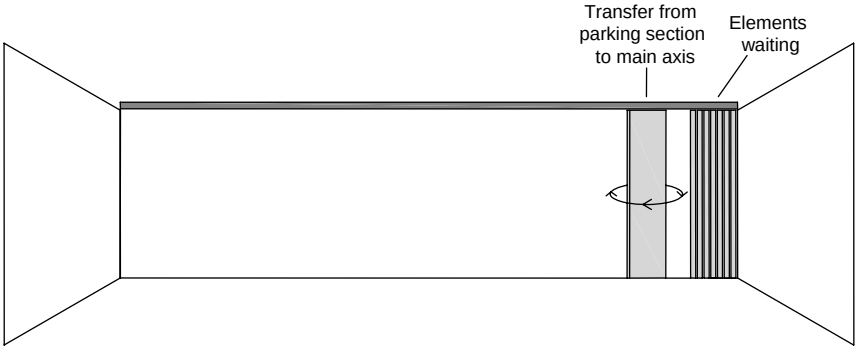
4.2 Depiction of operating behaviour

Closing and opening the partition

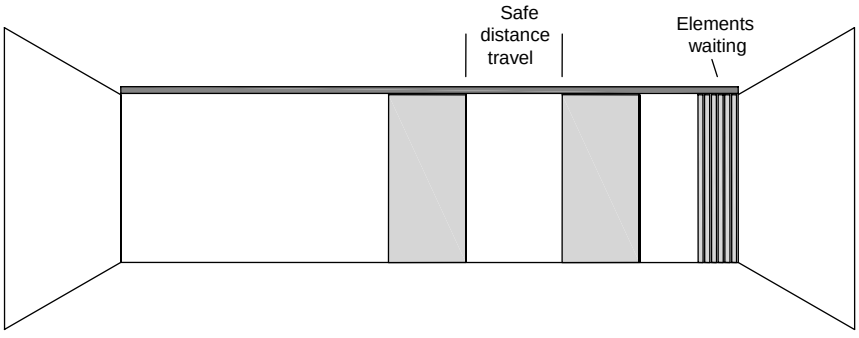
The partition home position is defined as all elements in the parking section (stacking track). The partition is completely open.



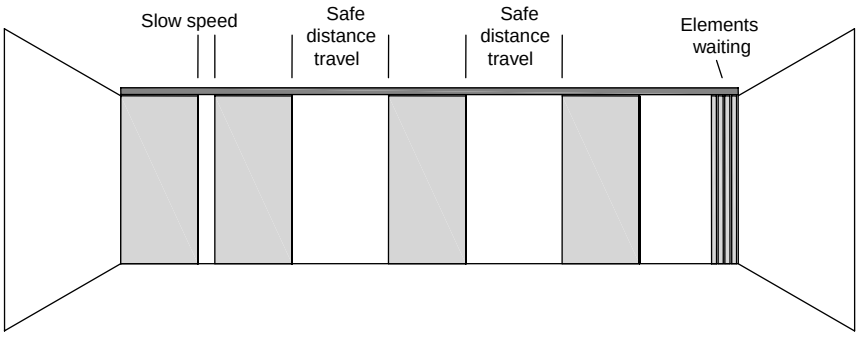
The first element accelerates from the parking position and travels at fast speed heading for its end position. The second element waits in the parking position until a defined gap is created with the first element.



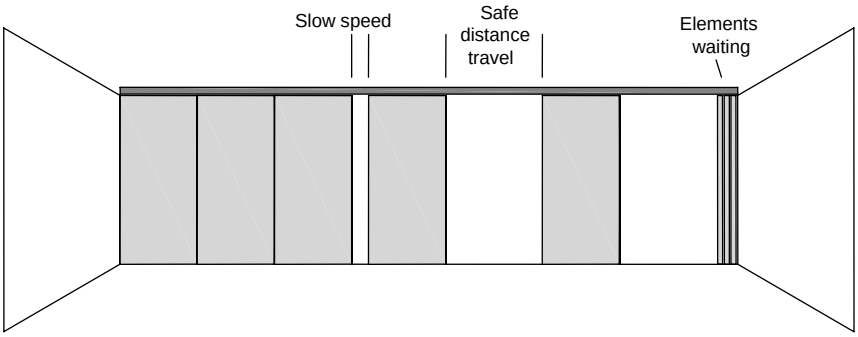
As soon as the defined gap has been reached, the second element accelerates from the parking position. The speed of the second element is controlled to maintain a certain safe distance from the first element.



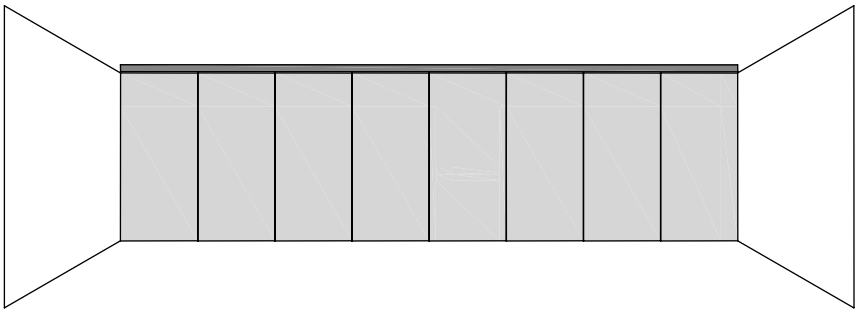
As soon as the required gap has been achieved in each case, the waiting element accelerates from the parking position. The speed of this element is controlled to ensure that the distance from the previous element is maintained.



The elements travel in succession to their predetermined positions. Partition closure is achieved by each element in succession coupling with the preceding element on the main axis (default setting). Each element approaches the preceding element at slow/creep speed, maintaining a defined distance. As soon as the element meets the preceding element, it stops and the following element closes up. This procedure is followed by all the elements except the last one.



As soon as the penultimate element has reached its predefined position, the abutment (closure) element closes. The partition is then fully closed.



The partition is opened in the reverse sequence.

5 Travel functions

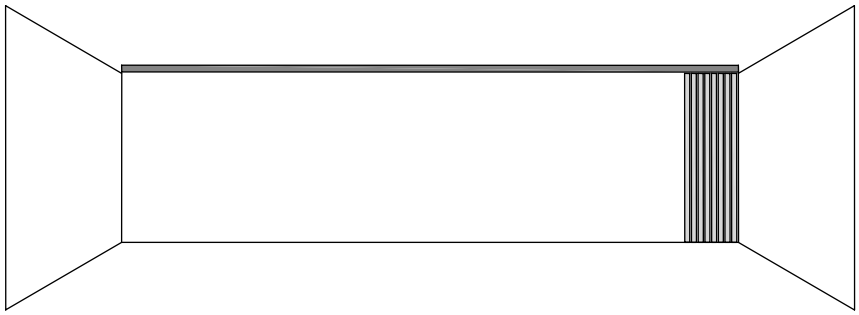
This section describes all the functions of the partition relating to the general partition travel operations.

5.1 Basic functions

The basic functions are the classic operations that are carried out in the case of every partition and are provided as standard without the need for parameter configuration.

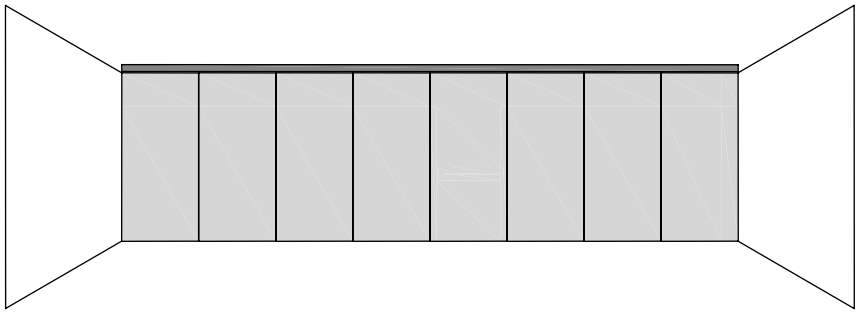
5.1.1 OPEN function

This function completely opens the partition. All the elements move fully automatically to the OPEN position.



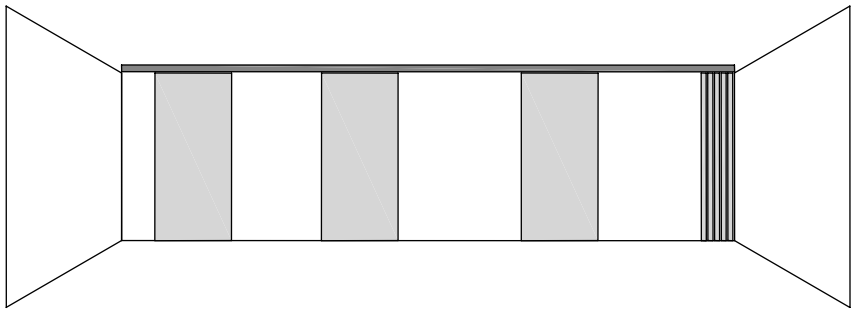
5.1.2 CLOSE function

This function closes the partition. All the elements travel under fully automatic control to the CLOSE position.



5.1.3 STOP function

This function immediately stops all the travel functions. All the elements remain at their currently assumed positions.

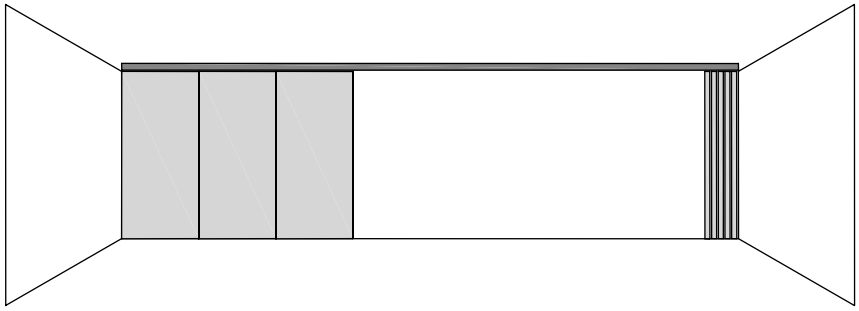


5.2 Expanded basic functions

These functions constitute an extension to the basic functions. Implementation of these functions requires simple parameterisation.

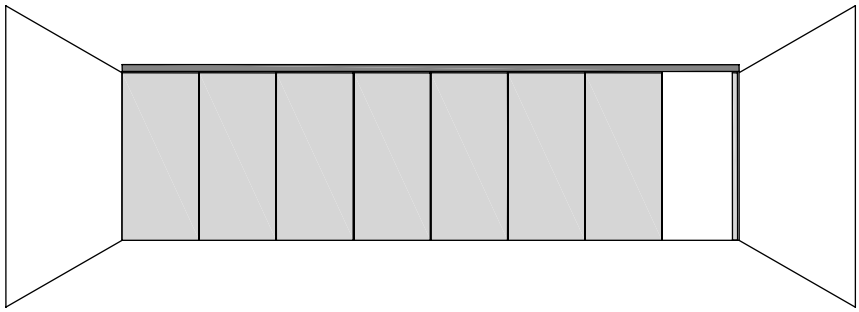
5.2.1 PARTIAL CLOSE function

This function serves to partially open or close the partition. The number of elements to be moved to their CLOSE position in this function can be preset using the parameterisation feature. In this example, the number is 3 elements.



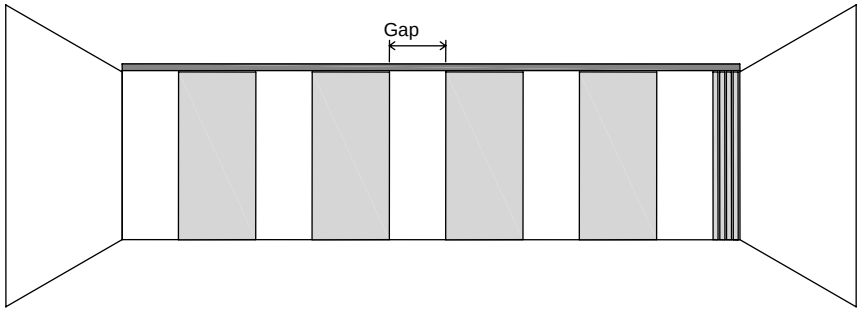
5.2.2 PERSONNEL ACCESS function

This function serves to only partially open or close the partition in order to create a so-called “Personnel Access”. The number of elements to be closed in response to this function can be preset using the parameterisation feature. In this example, the number is 7 elements. Automatic closing can also be enabled.



5.2.3 GAPPED POSITIONING function

This function positions the elements with a certain gap in between. The number of elements and also the distance between them can be preset using the parameterisation feature. In this example, the number is 4 and the distance is 80 cm.

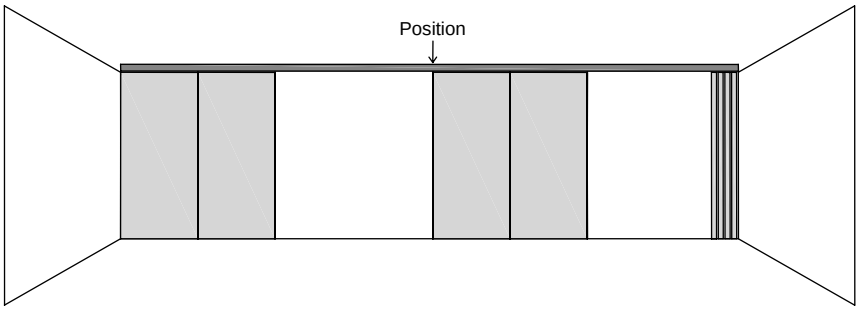


5.3 Special functions

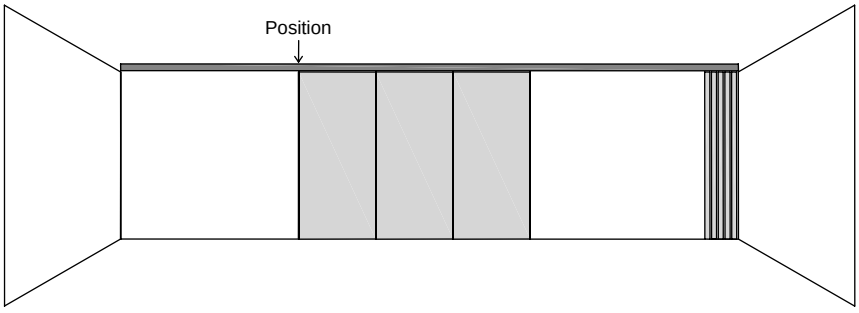
These functions add special features to the basic functions. Application of these functions requires a greater degree of parameter configuration work.

5.3.1 ZONAL OPENING function

This function enables a certain area of the partition to be opened. Two element groups and their positions can be defined using the parameterisation feature. The following two examples show the various possibilities available with this function:



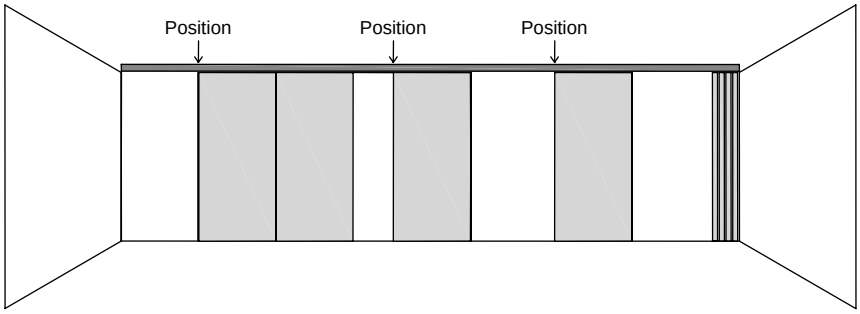
Example 1: Number of elements in Group 1 = 2; number of elements in Group 2 = 4
The position of element 3 is defined.



Example 2: Number of elements in Group 1 = 0; number of elements in Group 2 = 3
The position of element 1 is defined.

5.3.2 FREE POSITIONING function

This function offers the possibility of freely defining the positions of each of the elements. With this function, the partition can be individually preset with the positions of the elements being defined using the parameterisation feature.



Example: The positions of elements 1, 3 and 4 are defined. Element 2 adjoins element 1.
Elements 5, 6 and 8 are in their OPEN position.

6 Functions of specific elements

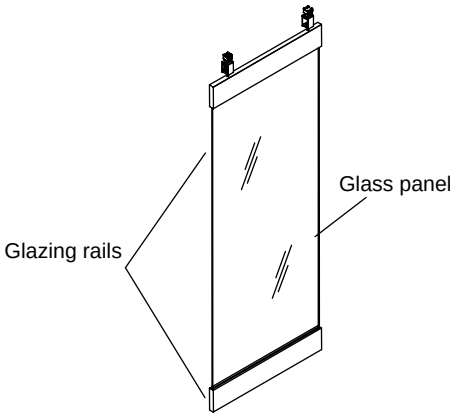
In the previous descriptions, the elements have largely been depicted as having no functions of their own. In the following, we differentiate between “general elements” and “specific elements”. Each element serves a certain purpose and consequently specific functions. To describe these, the elements are divided into two groups – glass partitions and sound-insulating positions.

6.1 Elements for glass partitions

The elements used in glass partitions consist of toughened safety glass (TSG) or laminated safety glass (LSG) panels which are suspended from the track system with the aid of glazing rails. Glass partitions are primarily used where spatial division is required without the need for visual obscurity or sound insulation.

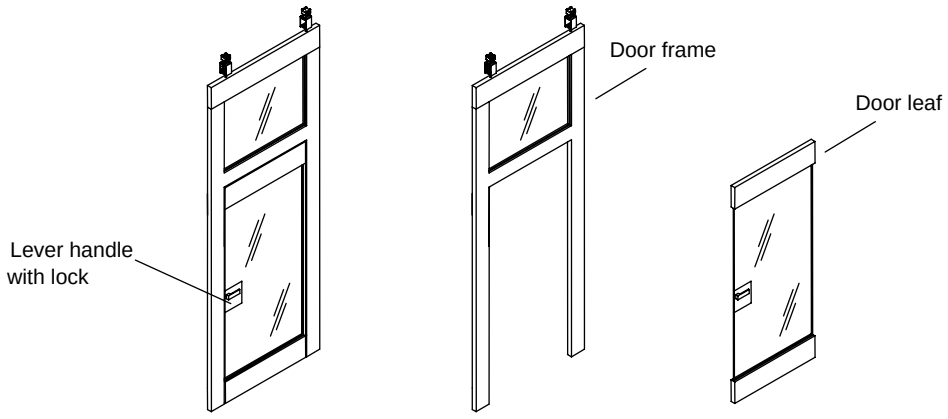
6.1.1 Fullwall element

The fullwall element, abbreviated “VE” from the German “Vollelement”, is the simplest of the glass elements. The main function is to separate two areas. The element has a driven carrier and a non-driven carrier which are guided in the track system. The VE has two sensors which signal the presence of the element in the end positions CLOSE and OPEN.



6.1.2 Passdoor (H-frame)

The passdoor, abbreviated “DT” from the German “Durchgangstür”, or “DT-H” for H-frame, is a glass element with an integrated door. The DT is equipped with a driven carrier and a non-driven carrier which are guided in the track system. Aside from performing the function of separating two spaces, this element also offers the possibility of providing door access. The door leaf is manually opened or closed and is equipped with an integrated overhead door closer (DORMA ITS 96). In addition, the DT has a lever handle with door lock and can thus be locked. The DT likewise has two sensors which signal the presence of the element in the CLOSE and OPEN end positions. There is, moreover, an integrated sensor which signals whether or not the door is closed (protection against uncontrolled operation with the door open).



6.2 Elements for sound-insulating partitions

The elements of sound-insulating partitions are suspended from the track system with the aid of carrier units. These contain special sealing arrangements (sealing strips) which ensure effective sound insulation at the gaps that would otherwise exist at the ceiling and floor. These sealing strips are likewise fully automatically extended and retracted under electrical control.

6.2.1 Fullwall element

The fullwall element, abbreviated as “VE” from the German “Vollelement” is the simplest of the sound-insulating elements. The VE is equipped with a driven carrier and a non-driven carrier which are guided in the track system. In addition, the VE of the MOVEO system has two actuator modules that press the horizontal sealing strips against the floor and ceiling. These actuator models are controlled with the aid of the electronics integrated in the element, which communicate with the electronics located in the driven carrier. The VE also has two sensors that signal the presence of the element in the CLOSE and OPEN end positions.

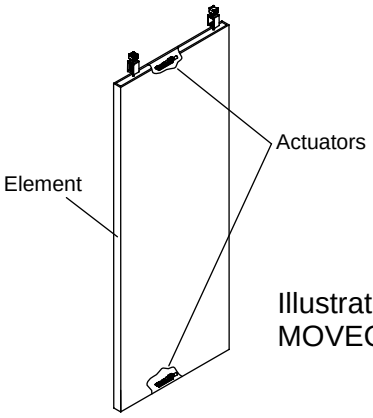
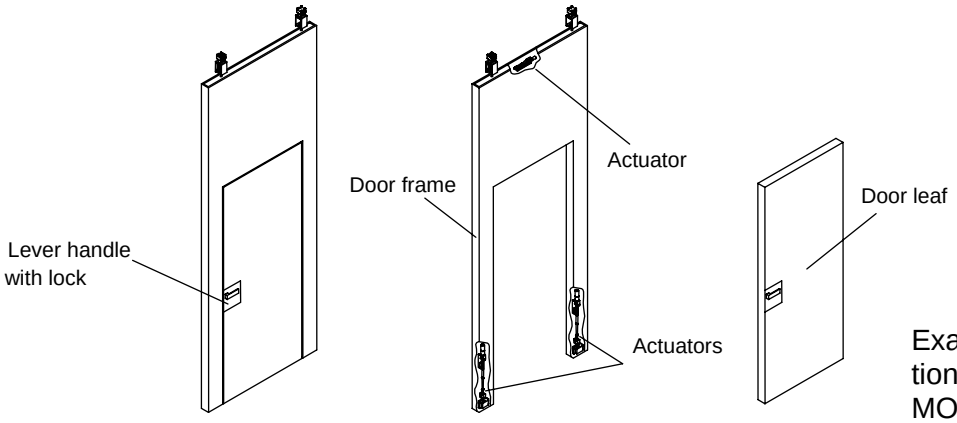


Illustration of a typical MOVEO VE element

Also applies to MOVEO Glass

6.2.2 Passdoor

The passdoor, abbreviated as “DT” for the German “Durchgangstür” is a sound-insulating element with an integrated door. The DT has a driven carrier and a non-driven carrier which are guided in the track system. In addition, the DT is equipped with an actuator module that presses the top sealing strip against the track. There are also two actuator units at the bottom of the two door posts which press the DT against the floor. The top actuator and also the two bottom actuators are controlled with the aid of the electronics integrated in the element which communicate with the electronics in the driven carrier. The door leaf is manually opened or closed and comes equipped with a lever handle with lock. The DT has two sensors that signal the presence of the element in the CLOSE and OPEN end positions. Also integrated is a sensor that signals whether or not the door is closed (protection against uncontrolled operation with the door open).

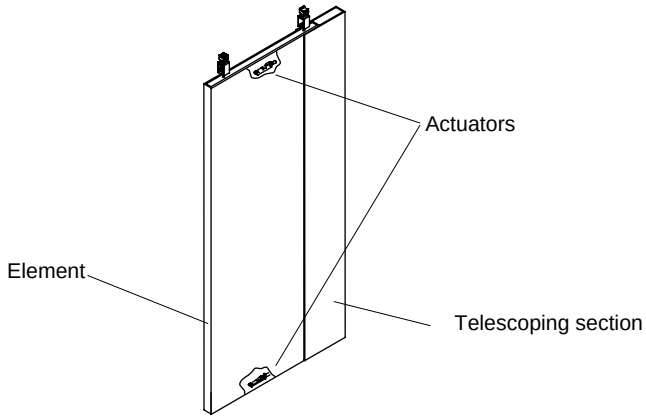


Example illustration of a MOVEO DT DT-Element

6.2.3 Double-leaf passdoor (in preparation)

6.2.4 Telescopic element

The telescopic element, abbreviated “TE”, is a sound-insulating element with an integrated, extending and retracting thrust bar. The TE serves as the closure element of a partition system, completing the fullwall effect. It is equipped with a driven carrier and a non-driven carrier which are guided in the track system. In addition, the TE in the case of the MOVEO system has two actuators which press the sealing strips of the TE against the track at the top and the floor at the bottom. These actuators are controlled with the aid of the electronics integrated in the element which communicate with the electronics integrated in the driven carrier. The integrated thrust bar presses a telescoping section against the wall. This telescoping section is controlled with the aid of an electronic system in the thrust bar which communicates with the electronics in the element. The TE has two sensors that signal the presence of the element in the CLOSE and OPEN end positions.



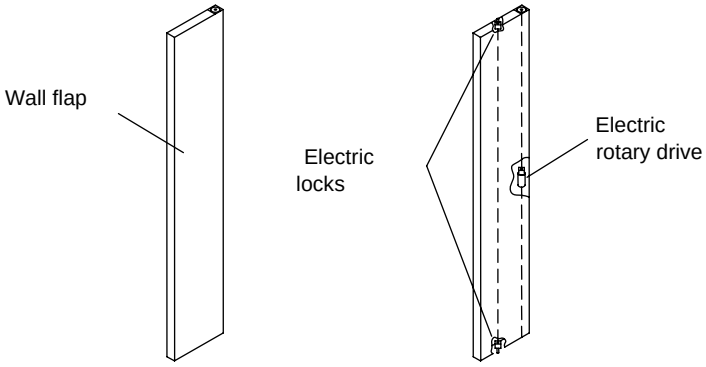
7 Functions of specific modules

Specific modules are sub-assemblies that, although they may be controlled in the same way as the elements, they do not travel along the length of the track but are rather installed permanently at one location.

7.1 Modules for all partitions

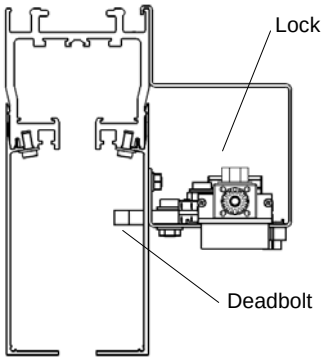
7.1.1 Wall flap

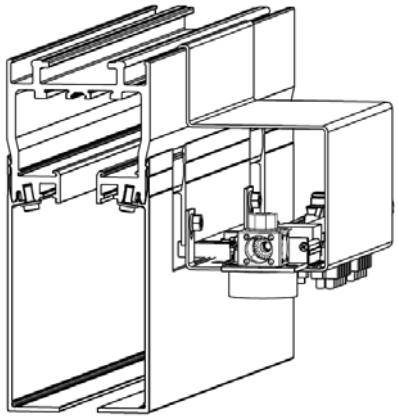
The wall flap (folding wall abutment, hinged flap element), abbreviated “WK” from the German “Wandklappe” is an element hinged on one side. The wall flap is primarily used for closing narrow wall openings which constitute the so-called niche passages for elements. The WK is fully automatically actuated with the aid of an electric swing door operator. The WK also has a lock which automatically engages with the track at the top and the floor at the bottom. The WK has two sensors that signal the position of the element in the CLOSE and OPEN end positions. Two further sensors are integrated that signal whether the WK is locked. One of these two sensors is of floating design and can be used for connection to an alarm system.



7.1.2 Interlock

The Interlock, abbreviated “VR” for the German “Verriegelung” is an electro-mechanically operated deadbolt unit used to engage the elements. The interlock is mounted on the track and serve primarily to secure the closed partition. As a rule, the interlock engages with the closure element used in a glass partition. With the aid of a drive unit, the deadbolt is inserted across the travel path of the element, thus preventing the element from any further movement. The VR has two sensors that signal the position of the deadbolt in the CLOSE and OPEN end positions. There are a further two sensors integrated in the system that signal whether or not the interlock is engaged. One of these two sensors is of floating design and can be used for connection to an alarm system.

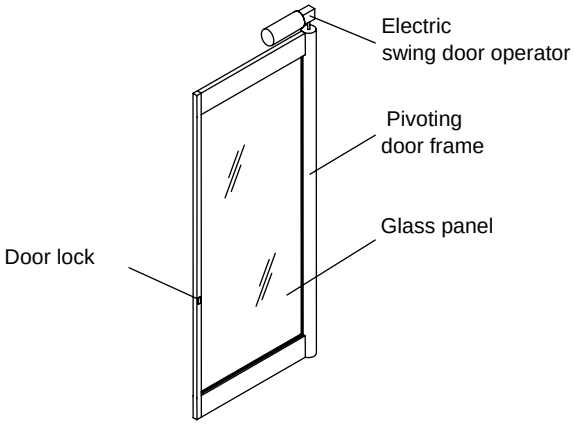




7.2 Specific modules for glass partitions

7.2.1 Single action door, electrically operated

The single action door with electrical operator, abbreviated “FTE” from the German “Fest angeschlagene Tür, Elektrisch” is an element hinged on one side which can be used as a door. Aside from serving the purpose of spatial division, this element also creates an access point. The FTE is fully automatically operated with the aid of an electric swing door operator. In addition, the FTE has a door lock and can therefore be secured. The FTE also has two sensors that signal the presence of the element in the CLOSE and OPEN end positions. Two further sensors are integrated which signal whether the FTE is locked or not. One of these two sensors is of floating design and can be used for connection to an alarm system.



7.3 Functionality of the modules

The modules WK, VR and FTE are individually controllable. Their functionality can be adjusted as required using the parameterisation feature. The modules can be configured to respond to the current status of the partition, opening or closing automatically in accordance with prevailing requirements.

8 Nomenclature

Actuator PCB	Within the sound-insulating elements are sealing strips that are pressed against the floor and overhead track in order to ensure a good insulating seal. For this, an actuator PCB is integrated in the units to control the operating sequence.
Busbars	Located in the upper chambers of the overhead track are three busbars which provide the power supply, earth and data interchange for the elements.
Control panel	The control panel is used to operate the system by transmitting data to the control unit and providing the user with information via a display.
Control PCB	The control PCB is incorporated in the control unit and comprises the electronic devices necessary for controlling the operational sequences and processes within the partition axis.
Control unit	The control unit is the command module that handles all the inputs and outputs, controls the sequence of system operations and enables implementation and adjustment of the operational variations. It is usually installed in the maintenance hatch located in the ceiling of the parking section (stacking track).
Current collector	Above the driven carrier are three spring-mounted current collectors which connect with the power supply busbar, the earth busbar and the data busbar incorporated in the track.
Drive PCB	The main electronics module of the driven carrier are located on the drive PCB which is secured within the mounting frame.
Driven carrier	The driven carrier consists of the driven and idling rollers, the drive shaft, the bevel gear set and gear case, the motor, the mounting frame, the suspension pin with pin mounting and bearings, the transmission, the current collectors, the Reed switch PCB and the drive PCB.
Driven roller	The track roller that is positively secured to the drive shaft and serves to transmit the motor torque to the track guideway.
Floor guide pin	Solid metal pin located vertically below the driven carrier, and extending from the element to engage in the floor rail slot.
Floor guiding rail	Precisely vertically aligned to the overhead track, this continuous rail is recessed in the floor (usually providing a slot of 8 mm). It holds the elements in line while they are being operated along the overhead track. Each element has a floor guide pin which engages in the floor rail slot.
Idling roller	Located opposite the driven roller on the drive shaft is the freely rotating (non-driven/idling) track roller, which is equipped with magnets so that the position of the element can be accurately read by the Reed switch PCB.

Maintenance section	Between the parking section (stacking track) and the main track axis is a ceiling-mounted track section which can be removed for maintenance purposes, enabling e.g. the driven rollers and idling rollers to be easily replaced.
Module bus	Within the control system, a branch leads from the three-wire data bus of the track rail to a module connector by means of which the component modules (lock, wall flap, etc.) can be supplied with power.
Mounting frame	The support plate of the mounting frame is arranged between the idling rollers and the suspension pin; the frame also serves as the housing for the drive PCB and the motor with the spur gear unit.
Overhead track	All the elements of the partition are suspended from and guided by the ceiling-mounted/overhead track. The overhead track comprises the track rail, the lateral covers and the intermediate connectors joining the segments.
Reed switch PCB	Above the driven carrier is located a PCB equipped with two Reed switches. The magnets located on the idling roller trigger these Reed switches as the roller rotates, enabling the drive PCB to determine the position of the element.
Spur gear	Flanged onto the motor in the driven carrier is the spur gear which transmits the motor’s torque to the bevel gear.
Switched power supply unit	Installed in the control system is a switched power supply unit which can operate on any input voltage from 100 to 240 V in order to generate the 36 V supply necessary for operation of the complete system.
Track guideway	Surface within the track rail along which the driven and idling rollers travel.