

Product data

Dimensions, technical information and performance specification



trendvario 6200+



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Explanation of symbols



Platforms accessible horizontally.



max. load per parking space in kg.
Upweighting over 2000 kg possible with surcharge (see "Vehicle data", page 3).



Parking space load can be subsequently upweighted (see "Vehicle data", page 3).



Traversable and can be combined with other TrendVario systems as a KombiSystem.

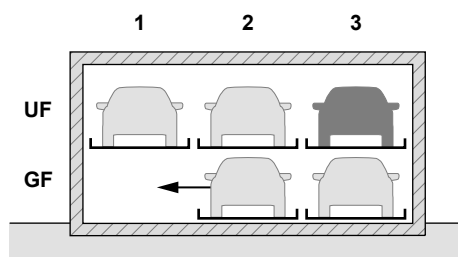


The systems provided are consistent with DIN EN 14010 and the EC Machinery Directive 2006/42/EC.
This system has also undergone a voluntary compliance test conducted by TÜV SÜD.

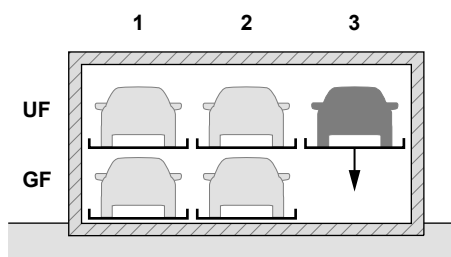
Function diagram with standard designation



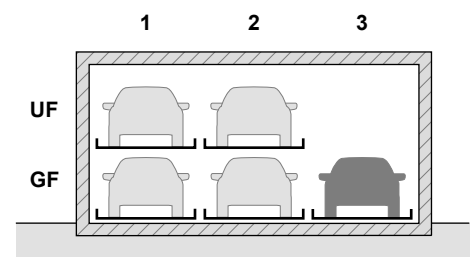
Example for vehicle on upper floor (UF) of grid 3:
Selection via the control panel; all doors must be closed.
Representation of parking spaces in a row.



To remove the vehicle from the space in **grid 3/UF**, the GF platforms are moved to the left.



The empty space is now located under the vehicle being removed. The parking space in **grid 3/UF** is lowered.



The vehicle in the space in **grid 3/UF** can now be removed.

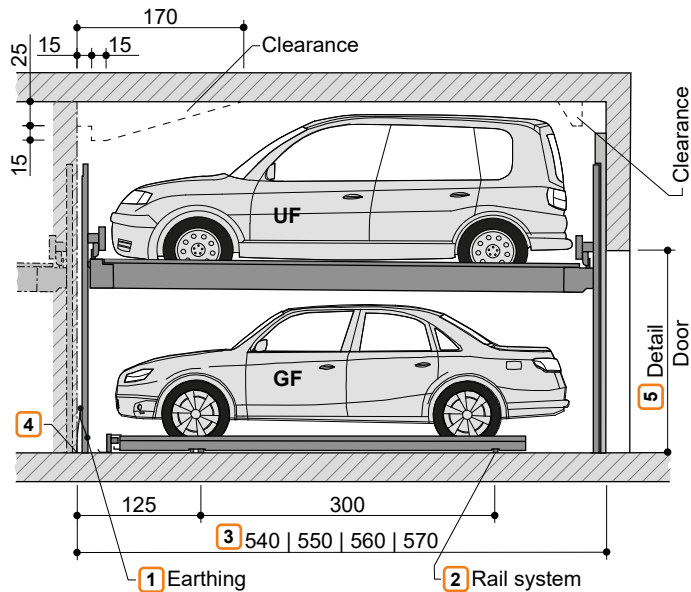
Dimensions and tolerances



All dimensions and minimum final dimensions.
Tolerance for dimensions +3/-0. Dimensions in cm.
In order to adhere to the minimum final dimensions, the tolerances in accordance with the German Construction Tendering and Contract Regulations [VOB], Part C (DIN 18330 and 18331) and DIN 18202 must also be taken into account.

Overview of building configuration

Building configuration with vertical door 5



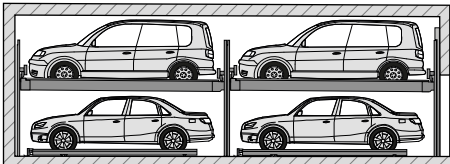
- 1 Equipotential bonding from foundation earth connection to system (to be provided by the customer).
- 2 The tolerances for evenness of the roadway (floor) must be adhered to in accordance with DIN 18202, Table 3, row 3. (see "Detail of building configuration - rail system", page 7).
- 3
 - 540 cm for vehicle length max. 5.0 m
 - 550 cm for vehicle length max. 5.1 m
 - 560 cm for vehicle length max. 5.2 m
 - 570 cm for vehicle length max. 5.3 m
 Shorter versions are possible on request - observe local regulations on parking space lengths.
We recommend a minimum length of 560 cm for comfortable use of your parking space and increasingly longer vehicles.
- 4 No fillets/haunches are permitted at the transition from the pit floor to the walls. If fillets/haunches are required, the systems must be narrower or the pits wider.
- 5 Door detail and other door variants (see "Configuration with vertical door", page 5 and see "Configuration with sliding door", page 6).



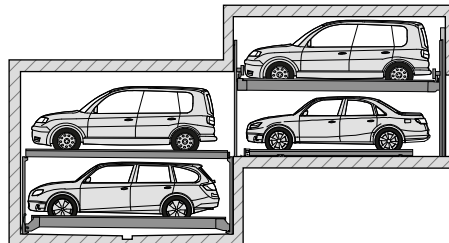
If sprinklers are required, the customer must leave sufficient clearance during the construction phase.

KombiSystem examples

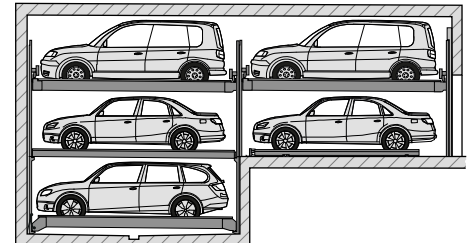
Combination 6200+ with 6200+



Combination 6100 with 6200+



Combination 6300 with 6200+



Vehicle data

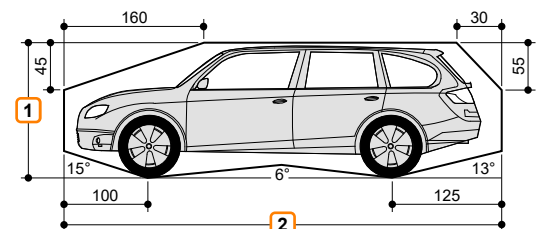
Parking options

Series vehicles:
saloon, estate, SUV, van in accordance with clearance gauge and maximum parking space load.

	UF GF 3		
Weight 4	2000 kg	2600 kg	3000 kg
Wheel load	500 kg	650 kg	750 kg

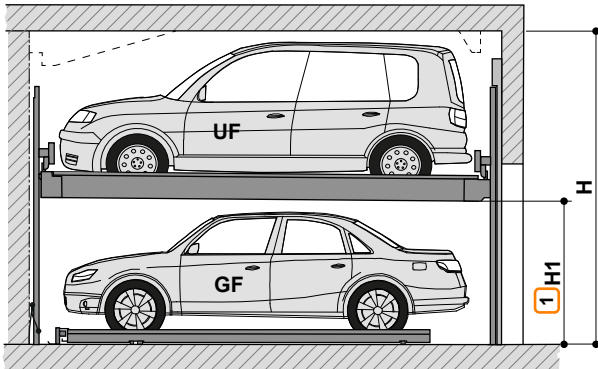
- 1 Vehicle height (see "Overview of system types and building heights", page 4)
- 2 Vehicle length (see "Overview of building configuration", page 3)
- 3 UF = upper floor | GF = ground floor
- 4 Individual space loads can also be subsequently upweighted to 3000 kg.

Clearance gauge



Vehicle width 190 cm with platform width 230 cm.
Correspondingly wider vehicles can be parked with wider platforms.

Overview of system types and building heights



H: Building height
H1: Headroom

Type	H1	Vehicle height GF	Vehicle height UF														
			150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
6200+/160	160	150	330	335	340	345	350	355	360	365	370	375	380	385	390	395	400
6200+/165	165	155	335	340	345	350	355	360	365	370	375	380	385	390	395	400	405
6200+/170	170	160	340	345	350	355	360	365	370	375	380	385	390	395	400	405	410
6200+/175	175	165	345	350	355	360	365	370	375	380	385	390	395	400	405	410	415
6200+/180	180	170	350	355	360	365	370	375	380	385	390	395	400	405	410	415	420
6200+/185	185	175	355	360	365	370	375	380	385	390	395	400	405	410	415	420	425
6200+/190	190	180	360	365	370	375	380	385	390	395	400	405	410	415	420	425	430
6200+/195	195	185	365	370	375	380	385	390	395	400	405	410	415	420	425	430	435
6200+/200	200	190	370	375	380	385	390	395	400	405	410	415	420	425	430	435	440
6200+/205	205	195	375	380	385	390	395	400	405	410	415	420	425	430	435	440	445
6200+/210	210	200	380	385	390	395	400	405	410	415	420	425	430	435	440	445	450
6200+/215	215	205	385	390	395	400	405	410	415	420	425	430	435	440	445	450	455
6200+/220	220	210	390	395	400	405	410	415	420	425	430	435	440	445	450	455	460

H - Building height

1 Maximum vehicle height for the passage = H1 - 5 cm

Example configuration



Example: Vehicle height, GF 165 cm and vehicle height, UF 180 cm.

Type: 6200+/175

Building height: 375 cm

Type	H1	Vehicle height GF	Vehicle height UF														
			150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
6200+/160	160	150	330	335	340	345	350	355	360	365	370	375	380	385	390	395	400
6200+/165	165	155	335	340	345	350	355	360	365	370	375	380	385	390	395	400	405
6200+/170	170	160	340	345	350	355	360	365	370	375	380	385	390	395	400	405	410
6200+/175	175	165	345	350	355	360	365	370	375	380	385	390	395	400	405	410	415
6200+/180	180	170	350	355	360	365	370	375	380	385	390	395	400	405	410	415	420

H

Width dimension and door height

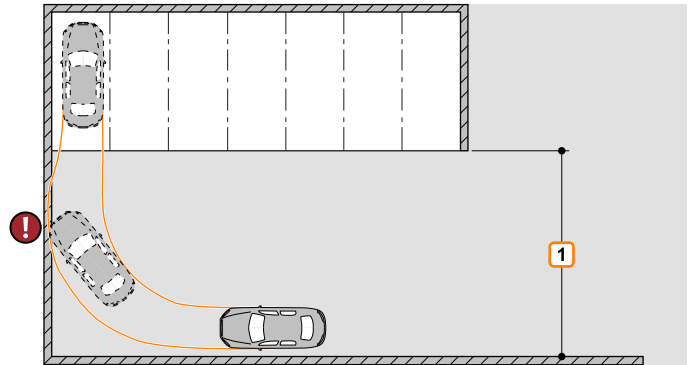


We recommend platform widths of minimum 250 cm and driving lane widths of 650 cm in order that vehicles can comfortably access the Multiparking system and enter and leave without difficulty.

Narrower platforms may impede parking according to the following criteria.

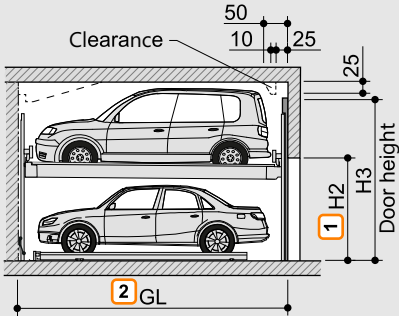
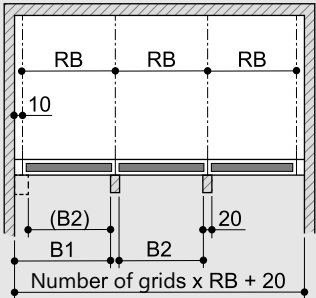
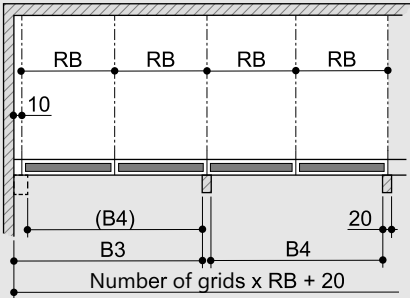
- Driving lane width
- Entrance conditions
- Vehicle dimensions

- 1 Observe minimum driving lane width in accordance with local regulations.



For commercial use of doors with electrical drive systems, an inspection log is required in accordance with ASR A1.7 'Technical rules for workplaces' in Germany. The door must be inspected by an expert before commissioning and annually thereafter and the result entered in the inspection log. The inspection must be carried out independently of maintenance. Observe local regulations on operation of electrical doors.

Configuration with vertical door

	Door versions					Supports per grid					Supports per second grid				
Vertical door															
Width dimensions	Clear platform width					RB 3	Supports per grid				Supports per second grid				
	UF		GF				B1	B2		B3	B4				
	230		220		250	250	230		500	480					
	240		230		260	260	240		520	500					
	250		240		270	270	250		540	520					
	260		250		280	280	260		560	540					
	270		260		290	290	270		580	560					
	max. vehicle height UF GF														
	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
H2	210	210	210	210	210	210	210	210	210	210	215	220	225	230	235
H3	325	335	335	335	335	335	360	360	360	360	360	380	380	380	380

1 Observe minimum clear height H2 in accordance with local regulations.

2 GL: building length (see "Overview of building configuration", page 3).

3 RB: grid width. These dimensions **must** be adhered to.

Configuration with sliding door

	Door versions			Supports per grid			Supports per second grid								
Sliding door behind the supports															
				Not possible!											
Sliding door inside the supports															
Sliding door in front of the supports															
Width dimensions	Clear platform width		RB ³	Supports per grid		Supports per second grid									
	UF	GF		B1	B2	B3	B4								
	230	220	250	250	230	500	480								
	240	230	260	260	240	520	500								
	250	240	270	270	250	540	520								
	260	250	280	280	260	560	540								
	270	260	290	290	270	580	560								
	max. vehicle height UF GF														
	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
H2	210	210	210	210	210	210	210	210	210	210	215	220	225	230	235
H3	220	220	220	220	220	220	220	220	220	220	225	230	235	240	245
H4	210	210	210	210	210	210	210	210	210	210	215	220	225	230	235

¹ Observe minimum clear height H2/H3/H4 in accordance with local regulations.

² GL: building length (see "Overview of building configuration", page 3).

³ RB: grid width. These dimensions **must** be adhered to.

Detail of building configuration - rail system

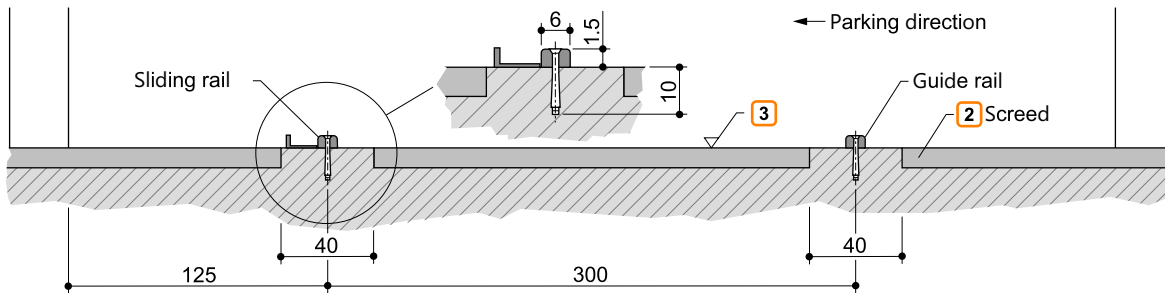


Various options are available for rail installation depending on the structural conditions.

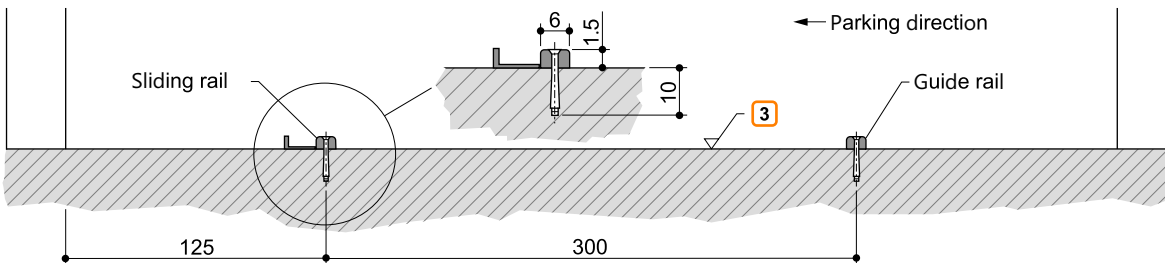
Rail load due to a moving traffic load:

- With parking space load 2000 kg: 6.5 kN per wheel
- With parking space load 2600 kg: 8.0 kN per wheel
- With parking space load 3000 kg: 9.0 kN per wheel

Laying on strip foundation ¹



Laying on finished floor ¹



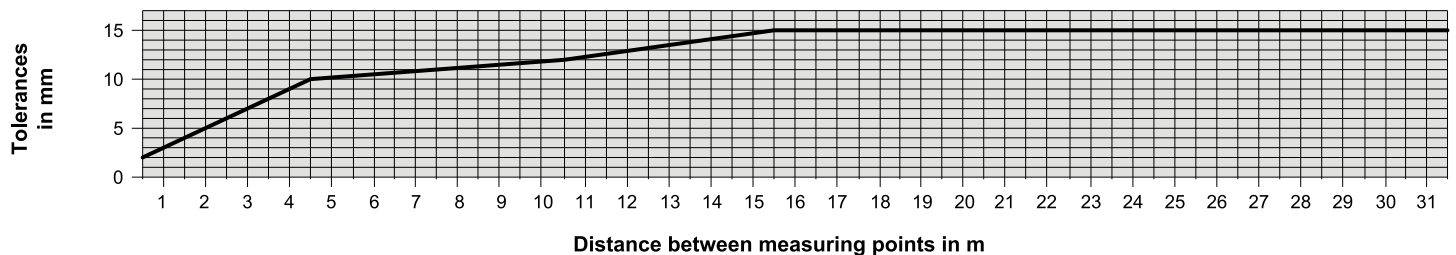
- ¹ The tolerances for evenness of the roadway (floor) must be adhered to in accordance with DIN 18202, Table 3, row 3. There must be no building joints or expansion joints in the area around the rail system.
- ² We do not recommend using poured asphalt.
- ³ Upper edge finished floor

Evenness tolerance – extract from DIN 18202, Table 3



The safety clearance between the outer lower edges of the ParkBoard and the floor must not exceed 2 cm. To comply with the requirement in DIN EN 14010 and to reach the requisite floor evenness, the evenness of the finished floor in accordance with DIN 18202, Table 3, row 3 must not be exceeded. The customer does not, therefore, need to level the floor.

Row	Reference	Inside micrometer as limit values in mm with measuring point distances in m to ¹				
		0.1	1	4	10	15
3	Finished floors, e.g. screeds as floor screeds, screeds for floor coverings, floor coverings, tile coverings, levelled and glued coverings	2	4	10	12	15

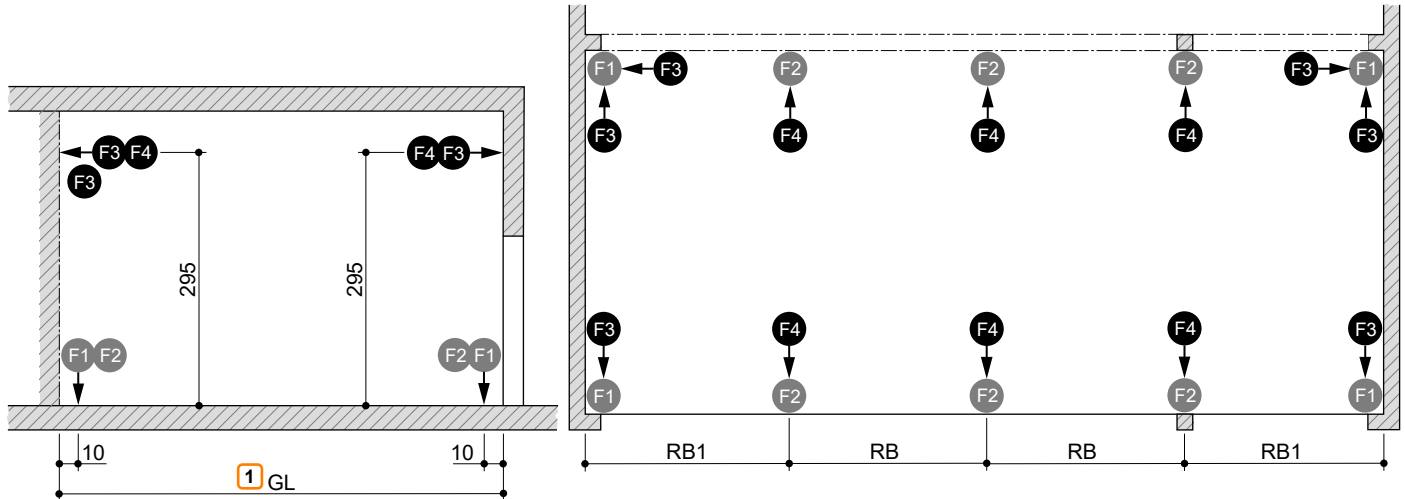


- ¹ Intermediate values can be found in the diagram and should be rounded up.

Loading schedule



The systems are dowelled into the ground. The drill hole depth in the floor plate is approx. 15 cm, in the walls approx. 12 cm.
The floor plate and walls must be from concrete (quality min. C20/25).
The dimensions for the bearing points have been rounded. If the precise figures are required, please consult KLAUS Multiparking.

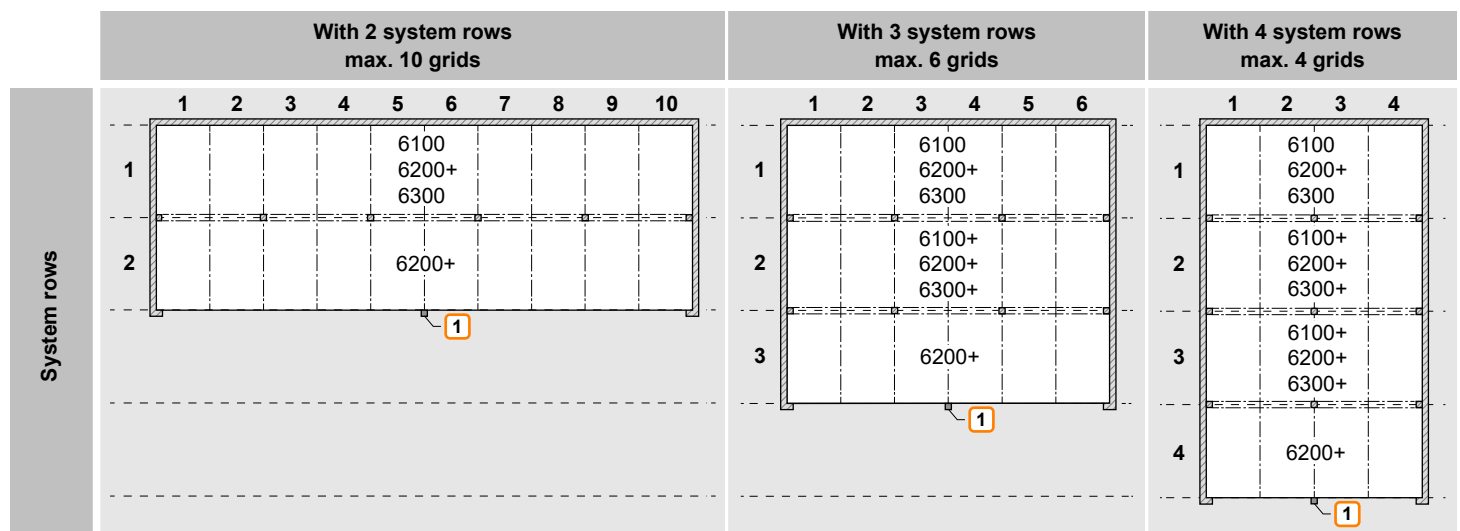


Parking space load	F1	F2	F3	F4
2000 kg	+ 9.0 kN - 0.1 kN	+ 18.0 kN - 0.2 kN	± 0.5 kN	± 1.0 kN
2600 kg	+ 12.0 kN - 0.3 kN	+ 24.0 kN - 0.6 kN	± 0.8 kN	± 1.6 kN
3000 kg	+ 13.0 kN - 0.4 kN	+ 26.0 kN - 0.8 kN	± 1.0 kN	± 2.0 kN

Clear plat- form width UF	RB ²	RB1
230	250	260
240	260	270
250	270	280
260	280	290
270	290	300

- ¹ GL: building length
² RB = grid width. These dimensions **must** be adhered to.

Arrangement of grids – KombiSystem

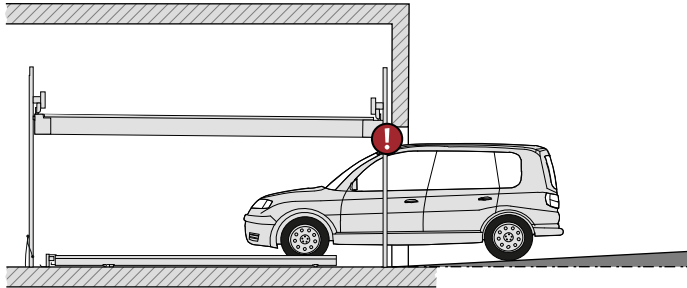


- ¹ Control panel

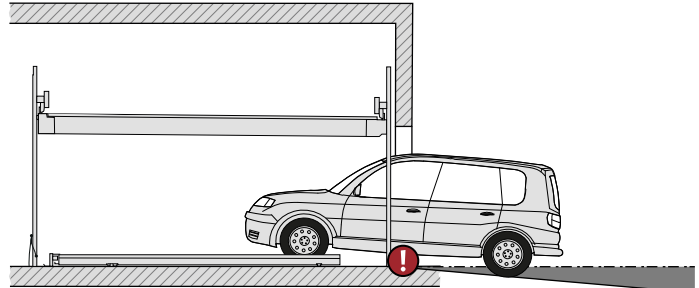
Access incline



The maximum access inclines specified in the symbol sketch must not be exceeded.
Improper configuration can lead to extreme difficulty accessing the system, for which KLAUS Multiparking cannot be held liable.

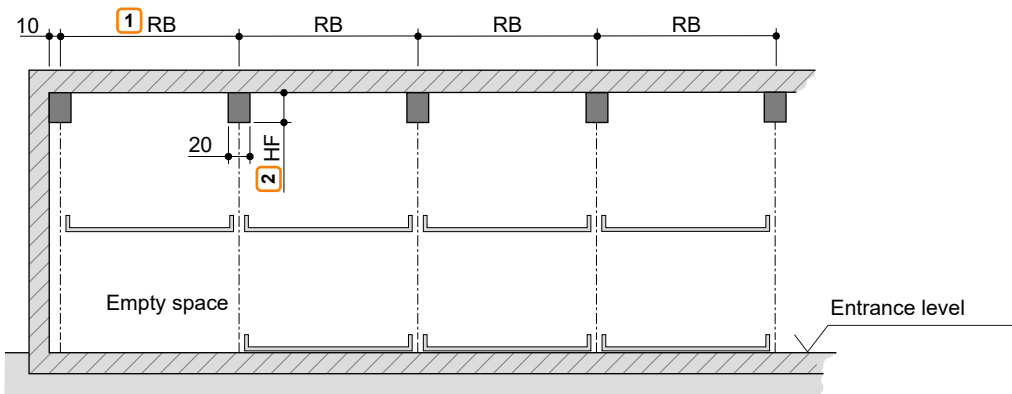


max. 3% slope



max. 5% gradient

Clearance for installations



1 RB: grid width. These dimensions **must** be adhered to.

2 HF: clearance height = building height (H) - 305 cm | where CH max. = 45 cm (see "Overview of system types and building heights", page 4).

■ Clearance for lengthways cable routing

Electrical installation

Switch cabinet and master switch

The switch cabinet (approx. 60 x 60 x 25 cm) as well as the lockable master switch must be accessible from outside at all times and be located in the visual range of the system.

With wall opening from switch cabinet to system (consultation with KLAUS Multiparking required).

Hydraulic unit

■ 3 kW, three-phase current 230/400 V / 50 Hz

Supply cable to master switch

Supply cable min. 5 x 2.5 mm² (3 PH+N+PE) to switch cabinet with pre-fuse 3 x 16 A (slow blow) or circuit breaker 3 x 16 A (trip characteristic K or C) to be provided by the customer

DIN/VDE and local regulations of energy-supply companies must be observed (see "Supply cable to master switch - foundation earth", page 13).

Control panel with emergency-stop

- Attachment at a clear point (e.g. pillar).
- Secured against external operation.

Technical information

Usage area

The system is suitable for a fixed group of users as standard. Where users change (e.g. short-term parking in office buildings or hotels), structural modifications to the Multiparking system are required. Please request a consultation if required.

Units

Low-noise, bearing-mounted hydraulic units are installed on rubber-metal blocks. Consequently, we recommend separating the garage body from the residential building.

Parking space designation

Please consult the function diagram for the standard designation of the parking spaces (see *"Function diagram with standard designation"*, page 2). Alternative designations are possible with a surcharge.

Please note the following specifications:

- The empty space is situated on the left as standard.
- Any alternative designations must be notified 8 to 10 weeks before delivery.

Ambient conditions

Ambient conditions for the areas around Multiparking systems: Temperature range -10 to $+40^{\circ}\text{C}$. Relative humidity 50 % to a maximum external temperature of $+40^{\circ}\text{C}$.

If ascent/descent times are specified, these relate to an ambient temperature of $+10^{\circ}\text{C}$ and with the system positioned immediately adjacent to the hydraulic unit. These times are increased at lower temperatures or with longer hydraulic lines.

Building application documents

Multiparking systems generally require approval. Please observe local regulations and stipulations.

Care

To prevent corrosion damage, please observe our special cleaning and care instructions and ensure that your garage is well ventilated.

Corrosion protection

In accordance with the 'Corrosion protection' supplement.

Electrically driven doors

For commercial use of doors with electrical drive systems, an annual inspection is required in accordance with ASR A1.7 'Technical rules for workplaces' in Germany. We urgently recommend concluding a maintenance contact as these services are included for the complete system.

CE conformity

The systems provided are consistent with DIN EN 14010 and the EC Machinery Directive 2006/42/EC. This system has also undergone a voluntary compliance test conducted by TÜV SÜD.

Noise protection

Standard noise protection:

In accordance with DIN 4109-1 Noise protection in high-rise - Section 9: Maximum sound pressure level in living and sleeping areas 30 dB (A). User noise is not subject to the requirements.

The following dimensions are required for adherence to this value:

- Noise protection package in accordance with quote/order (KLAUS Multiparking)
- Sound insulation dimension of the building structure of min. $R'w = 57\text{ dB}$ (service to be provided by the customer)

Increased sound protection (special agreement):

In accordance with DIN 4109-5 Increased noise protection in high-rise - Section 8:

Maximum sound pressure level in living and sleeping areas 25 dB (A). User noise is not subject to the requirements.

The following dimensions are required for adherence to this value:

- Noise protection package in accordance with quote/order (KLAUS Multiparking)
- Sound insulation dimension of the building structure of min. $R'w = 62\text{ dB}$ (service to be provided by the customer)

Note:

User noise is noise that can be influenced individually by the user of our Multiparking systems. This includes, e.g., accessing the platform, the slamming of vehicle doors, engine and brake noise.

Performance specification

Description

Multiparking system for independent parking of vehicles one on top of and next to one another.

The system is traversable and can be combined with the TrendVario 6100, 6100+, 6200+, 6300 and 6300+ (details on these systems can be found on the corresponding product sheets).

Dimensions in accordance with the underlying building, width and height dimensions.

Access to the parking spaces horizontally (installation tolerance $\pm 1\%$).

An access must be provided over the entire width of the system (minimum driving lane width in accordance with local regulations).

The parking spaces are arranged on 2 levels one on top of the other. Vehicles park on stable steel platforms.

The platforms on the upper floor (UF) move vertically, the platforms on the ground floor (GF) move horizontally. At entrance level (GF), there is always 1 parking space less. This empty space is used for sideways movement of the GF parking spaces to allow a parking space on the UF above to lower to entrance level. Consequently, 3 parking spaces (1 on GF, 2 on UF) is the smallest unit for this parking system.

Vehicle positioning in any parking space by positioning aid mounted on one side (to be adjusted in accordance with the operating instructions).

For safety reasons, the movement operation of the platforms always takes place behind locked doors.

All requisite safety equipment is integrated into the system. This essentially comprises a chain monitoring system, locking levers for the upper platforms and locked doors. The doors can only be opened when the selected parking space has reached its parking position.

Steel frame (secured to the floor) comprising:

- Supports (arranged in rows)
- Crossbeams and lengthways beams
- Sliding rails for the sideways moving GF platforms

Platform comprising:

- Platform profiles
- Adjustable positioning aid
- Chamfered ramp
- Side beams
- Crossbeams
- Screws, nuts, washers, spacers, etc.

Lifting equipment for platforms on the UF comprising:

- Hydraulic cylinders with solenoid valves
- Chain wheels
- Chains
- Limit switches
- The platforms are each suspended at 4 points and are guided at the supports by means of plastic plain bearings

Drive unit for sideways moving platforms on GF:

- Gear motor with chain wheel
- Chains
- Sliding and guide rollers (low-noise)
- Power supply via energy chain

Hydraulic unit comprising:

- Hydraulic unit (low-noise, fitted to bracket and bearing mounted on rubber-metal block)
- Hydraulic oil tank
- Oil filling
- Internal gear pump
- Pump holder
- Coupling
- Three-phase motor
- Noise protection, motor protection switch and control fuse
- Test pressure gauge
- Pressure relief valve
- Hydraulic hoses (to attenuate noise transmission to the hydraulic pipes)

Control:

- Central control point (control panel with emergency-stop) for selecting the desired parking space
- The electrical wiring from the system cabinet is provided by the supplier

Vertical doors:

Size

Dimensions adjusted to the underlying widths and height dimensions. The door comprises two door leaves

Frame

- Frame structure with two vertical centre rungs from extruded aluminium profiles (anodised, coating thickness approx. 20 μm)
- There is a rubber lip on the closing edge for a clean seal with the building.

Door filling

Aluminium perforated plate

- Thickness 1.5 mm, RV 8-14 E6/EV1, anodised, coating thickness approx. 20 μm
- Ventilation cross-section of the filling approx. 30%

Guide rails

- The sliding rails of the doors are attached to the steel frame of the system.
- Galvanised steel guide rails (coating thickness approx. 20 μm).

Door actuation

Electrical drive system by means of electric motor, above the door frame. For safety reasons, the movement operation of the platforms always takes place behind locked doors. An electrical signal generator is used to query the positions 'door open' and 'door closed'.

Please note:

Door apertures (at the side, covers over the sliding rails, etc.) and door suspensions are not included with the standard configuration but can be supplied as special equipment with a surcharge.

Sliding doors:

Size

- Sliding doors, size approx. 2500 mm x 2000 mm (width x height).

Frame

- Frame structure with one vertical centre rung from extruded aluminium profile (anodised, coating thickness approx. 20 µm)
- A handle shell is provided in a vertical aluminium profile for opening the doors.
- There is a rubber lip on the closing edge for a clean seal with the building.

Standard door filling

Aluminium perforated plate

- Thickness 2 mm, RV 5-8 E6/EV1, anodised, coating thickness approx. 20 µm
- Ventilation cross-section of the filling approx. 40%

Alternative door filling

Plain aluminium sheet

- Thickness 2 mm E6/EV1, anodised, coating thickness approx. 20 µm

Corrugated steel sheet

- Thickness 1 mm, galvanised, coating thickness approx. 20 µm
- Additional powder coating, coating thickness approx. 25 µm on the outside and approx. 12 µm on the inside
- Colour options on the outside (building view):

RAL 1015 (light ivory)	RAL 3003 (ruby red)
RAL 5014 (pigeon blue)	RAL 6005 (moss green)
RAL 7016 (anthracite grey)	RAL 7035 (light grey)
RAL 7040 (window grey)	RAL 8014 (sepia brown)
RAL 9006 (white aluminium)	RAL 9016 (traffic white)
- Door inside in a light grey tone

Wood filling

- Nordic spruce in A sorting
- Vertical tongue and groove boards
- Colourless, pre-coated

Composite safety glass

- Composite safety glass from ESG 8/4 mm

Wire mesh

- Mesh size 12 x 12 mm
- Wire diameter 2 mm, galvanised, coating thickness approx. 20 µm
- Ventilation cross-section of the filling approx. 70%

Sliding rails

- The running gear comprises 2 double-pair roll systems per door, height-adjustable
- The sliding rails of the doors are attached to brackets with cover bushings or directly to the concrete lintel or a building-specific door suspension
- The lower guide comprises 2 plastic rollers on a base plate which is dowelled to the floor
- Sliding rails, cover bushings, guide roller base plate are galvanised

Door actuation

- Electrical drive system by means of electric motor attached to the rail system in the turning point of the sliding doors. The drive pinion engages a chain attached to the door.

For safety reasons, the movement operation of the platforms always takes place behind locked doors. An electrical signal generator is used to query the positions 'door open' and 'door closed'.

Separation (if required)

- On request

Please note:

Door apertures (at the side, cover over the sliding rails, etc.) and door suspensions are not included with the standard configuration but can be supplied as special equipment with a surcharge.

Services to be provided by the customer

Barriers

Barriers that may be required in accordance with DIN EN ISO 13857 where there are roadways immediately in front of, adjacent to or behind the systems. This also applies during the construction stage.

Parking space numbering

Parking space numbering, if required.

Building services systems

Any lighting, ventilation, fire-extinguishing and fire-alarm systems that may be required, plus clarification and compliance with corresponding official documentation.

Lighting

The customer must observe local regulations pertaining to the illumination of parking spaces and roadways. In accordance with DIN EN 12464-1 'Light and lighting - Lighting of work places', an illumination level of min. 200 lx is recommended for the parking spaces and operating area of the system. A floating contact can be provided for actuation of parking space lighting provided by the customer.

Floor structure – rails

Floor structure in accordance with the details on the product data sheet (see "Detail of building configuration - rail system", page 7).

Recesses, tolerances for evenness of the roadway must be adhered to in accordance with DIN 18202, Table 3, row 3.

Lining for the rail system by means of cement screed over the entire length. Laying the screed

Wall openings

Wall openings, if required.

Supply cable to master switch - foundation earth

The customer must lay the supply cable to the master switch during assembly. Functional capability can be checked by our engineers on site, in conjunction with the electronics engineer. If this is not possible during assembly for reasons attributable to the customer, the customer must commission an electronics engineer.

The customer must earth the steel structure with a foundation earth connection (earthing distance max. 10 m) and equipotential bonding in accordance with DIN EN 60204.

Door suspensions

Please note that if the specified clear heights (see "Width dimension and door height", page 5) are not adhered to, additional measures for door attachment (door suspensions) will be required for a surcharge.

Door apertures

Door apertures, if required. This may be requested from KLAUS Multiparking for a surcharge.

Subject to technical changes

In the course of technical progress, KLAUS Multiparking shall be entitled to use newer or different technologies, systems, processes or standards to provide the services than initially offered, provided that this does not disadvantage the customer in any way.

Manufacturer:

KLAUS Multiparking GmbH

Hermann-Krum-Straße 2
D-88319 Aitrach

Phone: +49 (0) 7565 508-0
Fax: +49 (0) 7565 508-88
info@multiparking.com

www.multiparking.com

Sales office:

