



PRODUCT DATA

DIMENSIONS, TECHNICAL INFORMATION AND PERFORMANCE SPECIFICATION

multibase U20



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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 4).



Outdoor installation.



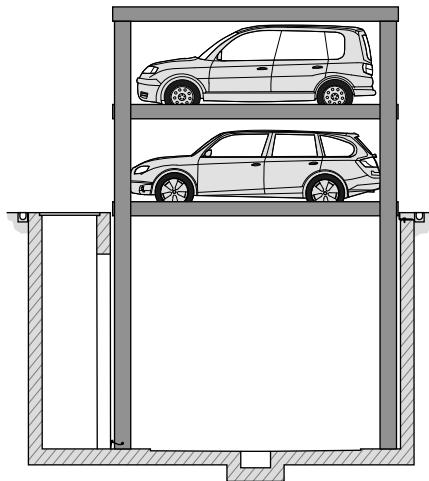
The systems provided are consistent with DIN EN 14010 and the EC Machinery Directive 2006/42/EC.



This system has also undergone a voluntary compliance test conducted by TÜV SÜD.

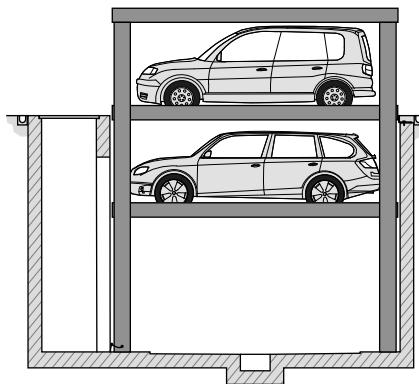
Parking positions

Parking space 2 lower



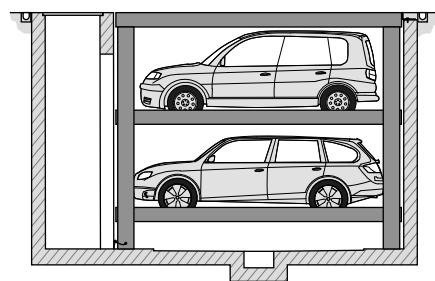
The lower vehicle can park in or leave the parking space.

Parking space 1 upper



The lower vehicle can park in or leave the parking space.

Upper parking space



The upper parking space may be used under specific conditions.

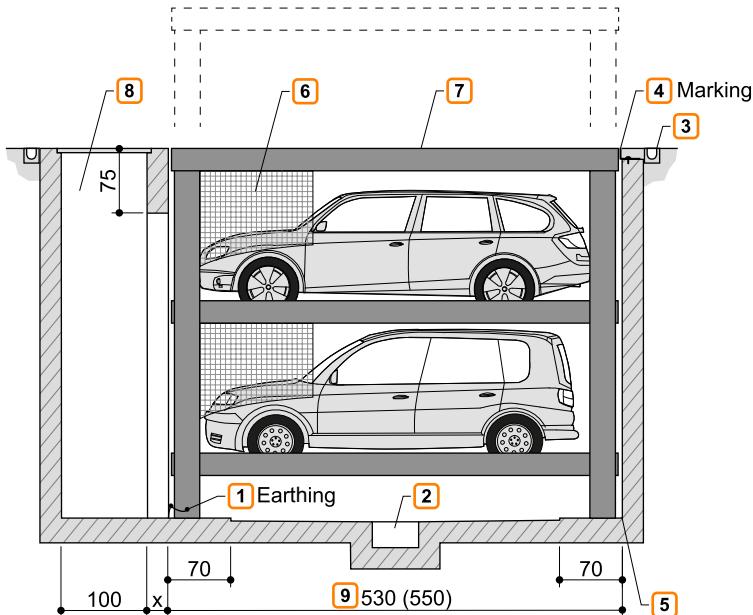
Dimensions and tolerances



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



- 1 Equipotential bonding from the foundation earth connection to the system (on site).
- 2 Slope with water collection channel (see "Detail of building configuration - pit floor", page 7, see "Drainage", page 13).
- 3 Pit edge (see "Detail of building configuration - pit edge", page 7).
- 4 In accordance with DIN EN 14010, the customer must provide 10 cm wide, yellow/black marking in accordance with DIN ISO 3864 in the access area along the edge of the pit to identify the hazard area. (see "Loading schedule", page 9).
- 5 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.
- 6 A protective grille is fitted to the areas at the side and rear; may be omitted under certain structural conditions. Consultation with KLAUS Multiparking required.
- 7 The upper platform is a frame structure. Ground coverings, e.g. soil/grass, grit bed/grass pavers, grit bed/marble, etc. may be provided by the customer. Maximum weight of on-site covering 250 kg/m². Please note that the floor covering has an influence on the infiltration of rainwater and can therefore lead to water overflowing in extreme weather conditions. Sealing of the pit (see "Detail of building configuration - pit sealing", page 8). The upper platform is accessible at ground level and when lowered (vehicle weight max. 2600 kg, wheel load max. 650 kg). Vehicles may only be parked on the upper platform if the platform has the appropriate positioning aid for the vehicle.
- 8 A separated maintenance shaft must be provided by the customer (with shaft cover, shaft ladder and access to the pit). Access to the maintenance shaft must be secured by the customer - consultation with KLAUS Multiparking required. The maintenance shaft also accommodates the hydraulic unit.
- 9 ■ 530 cm for vehicles up to 5.0 m long
■ 550 cm for vehicles up to 5.2 m long
Observe local regulations on parking space lengths.
We recommend a pit length of 550 cm. for comfortable use of your parking space and increasingly longer vehicles.



After operation, the system must be moved into the lowermost limit position (key blocking).

Vehicle data

Version

SP (single platform) = 2 vehicles + 1 vehicle on the upper platform
(see "Overview of building configuration", page 3)

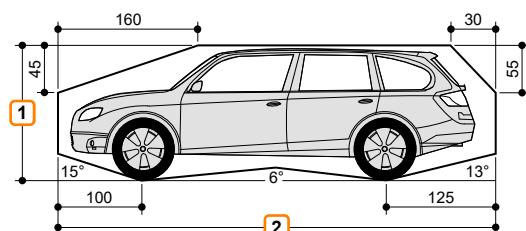
Parking options

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

For countries in which snow loads *do not* need to be taken into account:

	SP - upper parking space	SP - lower parking space	
Weight	2600 kg	2000 kg	2600 kg
Wheel load	650 kg	500 kg	650 kg

Clearance gauge



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

For countries in which snow loads *need* to be taken into account, the parking option on the upper parking space is reduced in accordance with the table below:

	SP - upper parking space
Weight	2000 kg
Wheel load	500 kg

1 Vehicle height (see "Overview of system types and ceiling heights", page 4)

2 Vehicle length (see "Overview of building configuration", page 3)

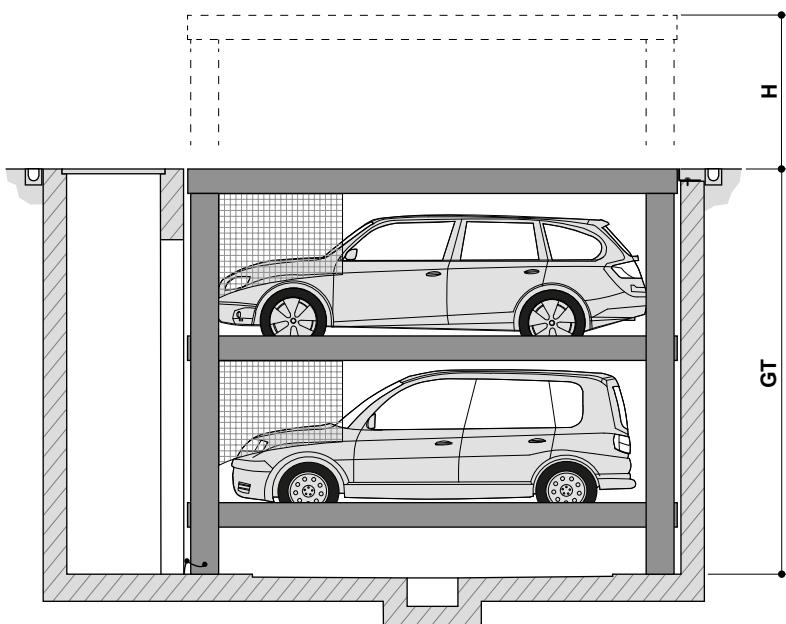


The snow loads apply for a snow height of 20 cm (maximum snow load 0.4 kN/m²). If greater snow heights occur, the snow load must be cleared accordingly.

Overview of system types and ceiling heights



If structural circumstances do not limit the height, the vehicle height on the upper parking spaces is not restricted.



Type	GT	H	Vehicle height, lower
U20 EB-425	425	385	165
U20 EB-495	495	455	200

H: Height extended

GT: Pit depth

Width dimensions

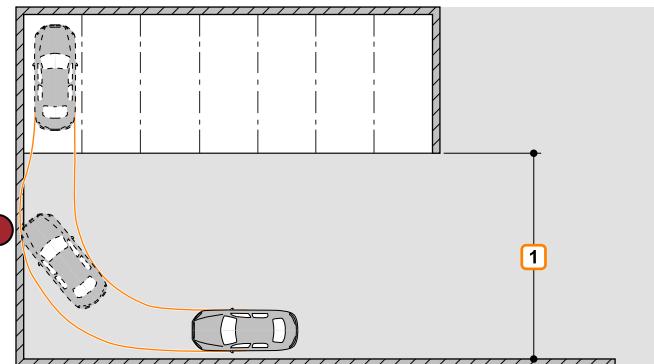


We recommend platform widths of minimum 250 cm and driving lane widths of 650 cm in order that vehicles can comfortably access the Multiparking system and enter and leave without difficulty.

Narrower platforms may impede parking according to the following criteria.

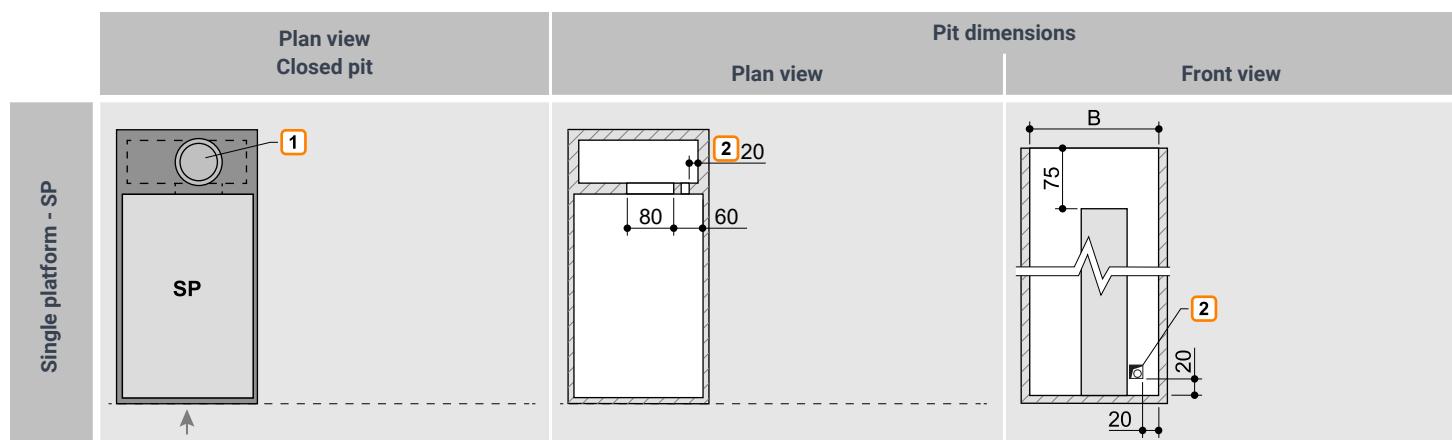
- Driving lane width
- Entrance conditions
- Vehicle dimensions

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



All side walls must be at a right angle. Maximum deviation 1 cm!

Attention: If the sides or rear are freely accessible, safeguards are required (barriers, protective grilles, marking, etc.). Measures will be determined on a project-by-project basis.



1 Shaft cover must be secured (on-site)

2 If there are dividing walls: Wall opening 15 x 15 cm.

Single platform - SP		Pit dimensions	
		Plan view	Front view
2x single platform - SP without dividing walls			
Series system with dividing walls			
	Clear platform width Parking levels	Platform width Upper platform	2x single platform without dividing walls C
SP	230	270	547.5
	240	280	567.5
	250	290	587.5
	260	300	607.5
	270	310	627.5
	Series system with dividing walls B		
	275		
	285		
	295		
	305		
	315		

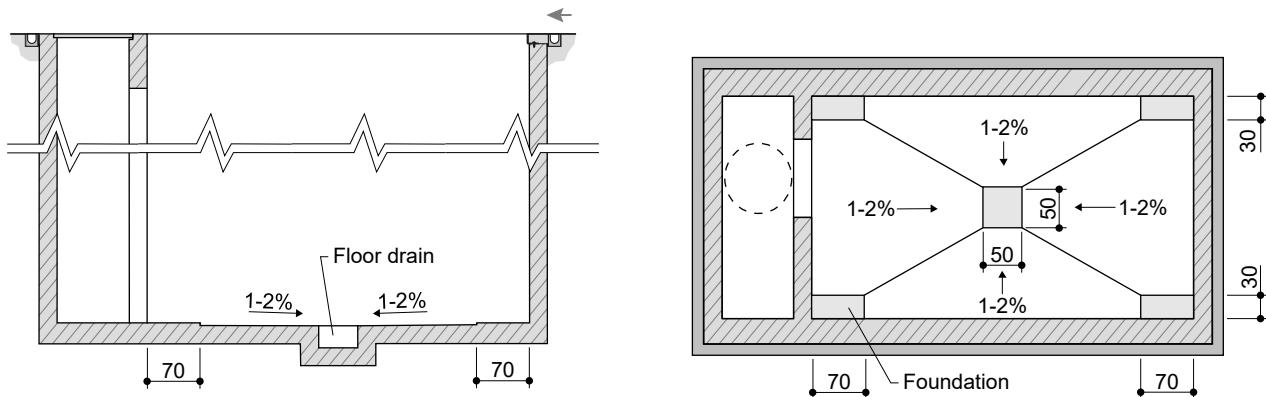
1 Shaft cover must be secured (on-site)

2 If there are dividing walls: Wall opening 15 x 15 cm.

3 An opening to the adjacent system must have the same height as the opening from the maintenance shaft in the pit.

Detail of building configuration - pit floor

Drainage

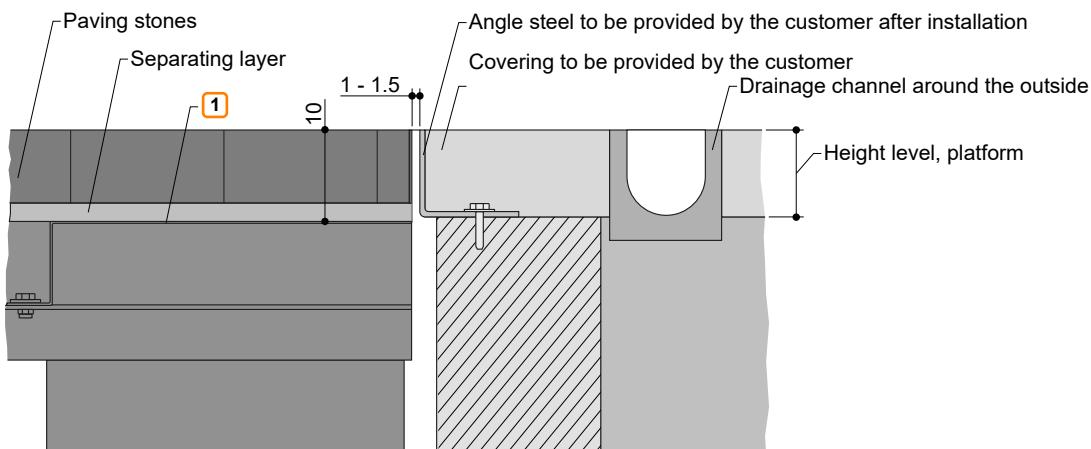


Detail of building configuration - pit edge



Maximum weight of on-site covering 250 kg/m².

Covering to be provided by the customer - paving stones



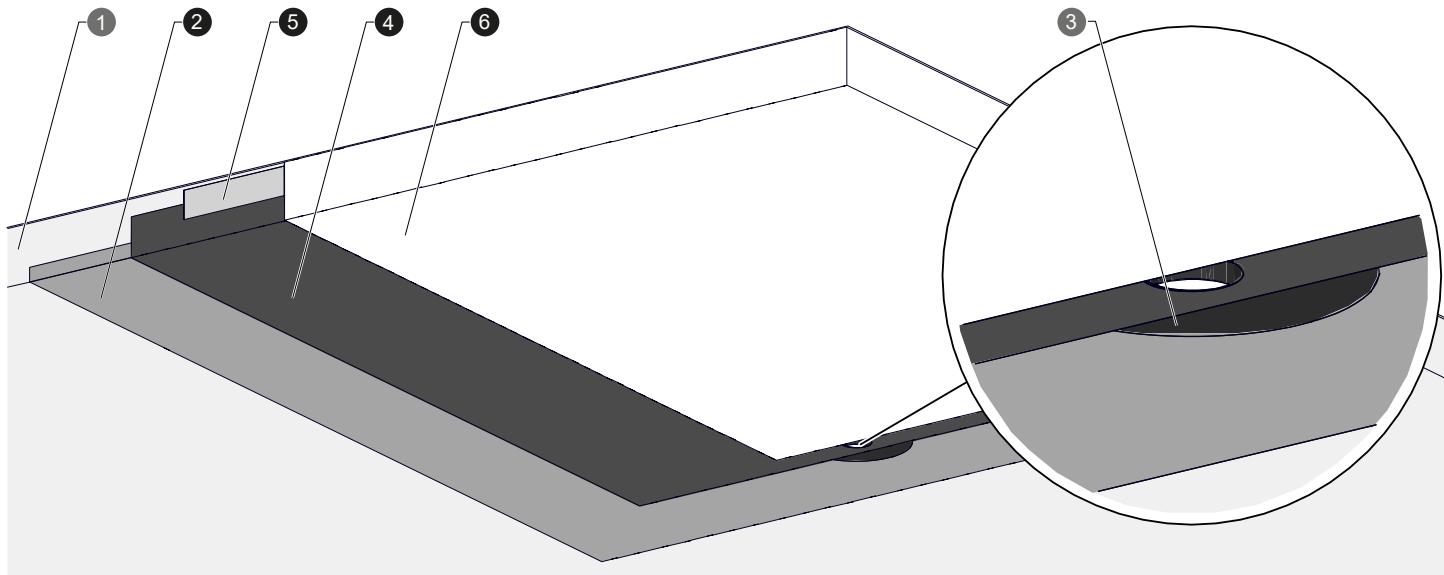
1 Sealing of the pit (see "Detail of building configuration - pit sealing", page 8)

Detail of building configuration - pit sealing



The layer composition is to be considered as a suggestion. Equivalent sealing systems are equally possible, but must be matched to the customer's application. Lay all components according to the manufacturer's working instructions.

Typical structure for pit sealing



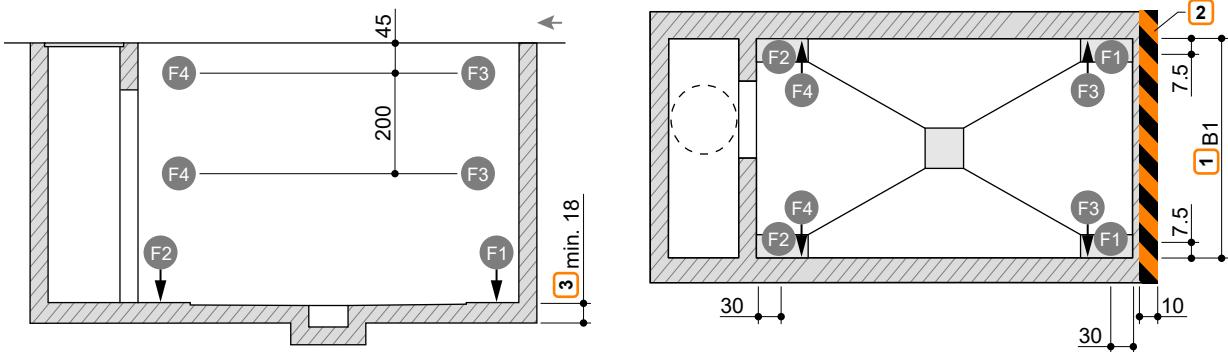
Sealing specifications

No.	Layer	Recommended implementation	Scope of delivery
1	Pit	Top platform of the MultiBase U10 / U20 as frame structure.	KLAUS Multiparking
2	Separating layer	Pond liner 300 g/m ² , laid continuously. Also cover corner connections and screw projections, and fix using a suitable adhesive.	To be performed by the customer
3	Water drain	PVC foil flange, diameter 50 mm, for gluing (by the customer) to the seal.	KLAUS Multiparking
4	Sealing	PVC pond liner, thickness 0.5 mm, laid continuously. Glue the pond liner and foil flange over the entire surface using a suitable adhesive.	To be performed by the customer
5	Edge fastening	High performance adhesive tape 50 mm, for circumferential fastening of the sealing.	To be performed by the customer
5	Protective layer	Pond liner 500 g/m ² , laid continuously and extending over the border of the pit.	To be performed by the customer

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.



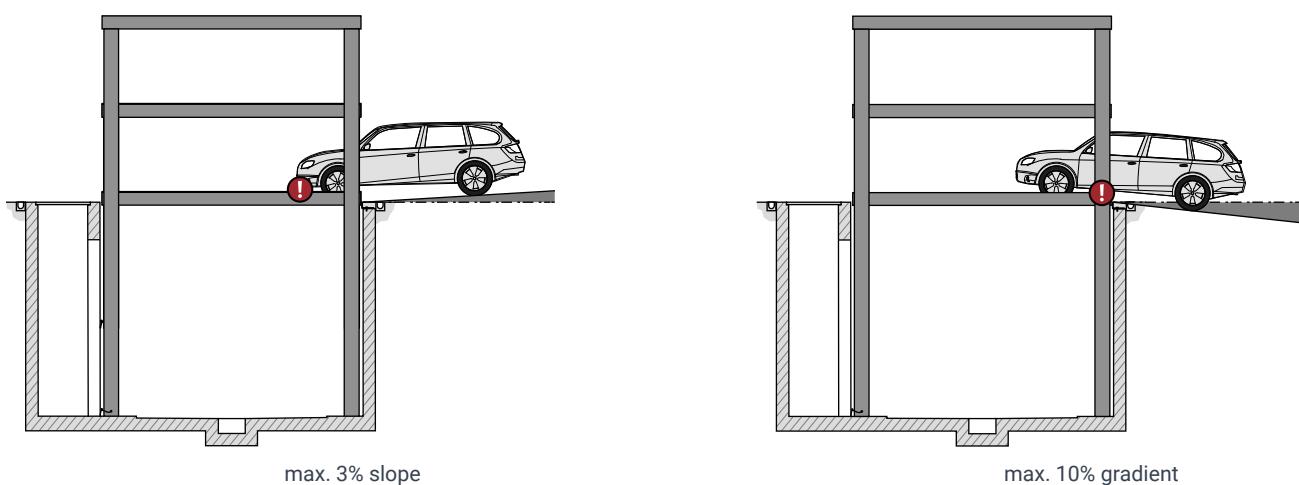
Parking space load	F1	F2	F3 4	F4 4
2000 kg	+ 55.0 kN - 2.6 kN	+ 47.0 kN - 6.6 kN	± 16.4 kN	± 11.3 kN
2600 kg	+ 59.0 kN - 2.7 kN	+ 50.0 kN - 7.5 kN	± 17.0 kN	± 11.5 kN

- 1 Width dimension B (see "Width dimensions", page 5)
- 2 Marking in accordance with DIN ISO 3864 (illustration colour not consistent with DIN ISO 3864)
- 3 The bearing capacity of the floor plate must be verified by a statistician. A thicker floor plate may be required in some cases.
- 4 Forces F3 and F4 should be reduced by 9 kN for wind-protected installation.

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. Where above-ground garages are on a slope, provision of a drainage gutter in the access is recommended.



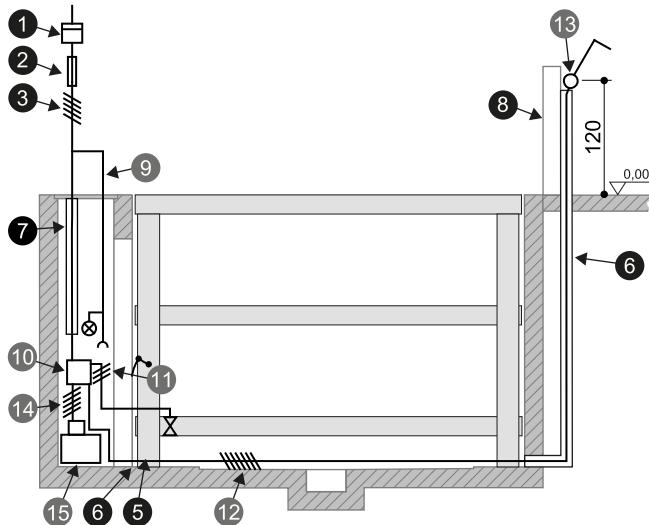
CE conformity

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.



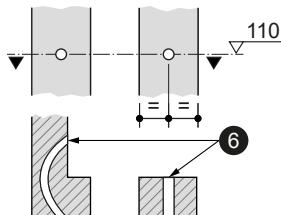
Electrical installation

Electrical installation diagram



On-site facilities for operating element

Surface-mounted operating element



Electrical specifications (services to be provided by the customer)

Nr.	Quantity	Designation	Position	Frequency
1	1	Power meter	in the supply cable	
2	1	Pre-fuse: 3x safety fuse 25 A (slow-blow) or Circuit breaker 3 x 25 A (trip characteristic K)	in the supply cable	1x per unit
3	1	Supply cable min. 5 x 4 mm ² (3 PH+N+PE) with marked wires and protective earth	to master switch	1x per unit
4	every 10 m	Foundation earth connection	Corner of pit floor	
5	1	Equipotential bonding in accordance with DIN EN 60204 from foundation earth connection to system		1x per system
6	1	Empty pipe EN 25 (M25) with taut wire	from pit floor to operating element	1x per system
7	1	Empty pipe EN 50 (M50) with taut wire	Supply cable to unit	1x per unit
8	1	Operating stands		1x per system
9	1	Separate supply cable 230 V AC with lighting and socket	from the supply cable into the shaft	1x per system

Electrical specifications (KLAUS Multiparking scope of supply)

Nr.	Designation
10	Switch cabinet with lockable master switch
11	Control cable 3 x 0.75 mm ² with marked wires and protective earth
12	Control cable 7 x 1 mm ² with marked wires and protective earth
13	Operating element
14	Control cable 4 x 2.5 mm ² with marked wires and protective earth
15	Hydraulic unit 7.5 kW, three-phase current 230/400 V / 50 Hz

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 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.

Ambient conditions

Ambient conditions for the areas around Multiparking systems:

- Temperature: Temperature range -20 to +40° C. Relative humidity 50 % for a maximum outside temperature of +40° C.
- Wind: Peak speed pressure during gusts of wind 1.05 kN/m² according to DIN EN 1991-1-4.
- Snow: characteristic snow load of 6.86 kN/m² according to DIN EN 1991-1-3. Snow load data apply to the lowered system (see "Vehicle data", page 4)

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

Seismic conditions

Local seismic conditions may require special precautions such as strutting. Please contact KLAUS Multiparking for seismic reports and advice.

Water condensation

If a warm vehicle is parked, the interior temperature of the enclosed space will increase quite considerably despite the designed ventilation (see "Ventilation", page 14). If the heated air comes into contact with cold elements such as concrete and steel, it cools down and forms condensation. As warmer air generally rises, this effect will primarily be seen on the platform undersides of the multiparking system. Water condensation is an unavoidable physical effect.

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 information' supplement.

Protective grille

If the permissible fall opening is exceeded, protective grilles must be installed on the systems. If there are roadways immediately adjacent to or behind the systems, the customer must provide barriers in accordance with DIN EN ISO 13857. This also applies during the construction stage.

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 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 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 2 vehicles (single platform - SP), one on top of the other. Vehicles may only be parked on the upper platform if the platform has the appropriate positioning aid for the vehicle. Dimensions in accordance with the underlying pit, width and height dimensions.

Access to the parking spaces horizontally (installation tolerance $\pm 1\%$). Special configuration of the lift and support structure prevents hindrance to door opening. Vehicle positioning in any parking space by positioning aid mounted on one side (to be adjusted in accordance with the operating instructions). Control via an operating element with key blocking by means of simultaneous key. Concise instructions at each operating point.

Multiparking system comprising:

- 2 telescopic lifting columns at the rear with hydraulic cylinder (secured to the floor)
- 2 telescopic lifting columns at the front (secured to the floor)
- 1 upper platform/cover (for floor covering provided by the customer, e.g. sand bed/stone covering). Maximum weight of on-site covering 250 kg/m². Alternative version with platform profiles from KLAUS Multiparking, surcharge applies.
- 2 lower platforms
- 1 mechanical synchronisation system (for synchronised operation of the hydraulic cylinders when lifting and lowering)
- 2 hydraulic cylinders
- Dowels, screws, connectors, bolts, etc.
- The platforms are continuously accessible.

Upper platform comprising:

- Trough for covering to be provided by the customer
- Cover sheets
- Side beams
- Crossbeams
- Screws, nuts, washers, etc.

Lower platform comprising:

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

Hydraulic system comprising:

- Hydraulic cylinders
- Magnetic valves
- Hydraulic lines
- Bolted connections
- High-pressure hoses
- Attachments

Electrical system comprising:

- Operating element (emergency-stop, key, 1 simultaneous key per parking space)
- Switch cabinet with lockable master switch

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)

Services to be provided by the customer

Barriers

Barriers that may be required in accordance with DIN EN ISO 13857 to secure the pits where there are roadways immediately in front of, adjacent to or behind the systems. This also applies during the construction stage. Protective grilles on the systems, where required, are available for a surcharge.

Parking space numbering

Parking space numbering, if required.

Drainage

Functional drainage of the pit must be provided by means of a floor drain in the centre area that is connected to the sewer system or a pump sump. The water must be drained away by a pump provided by the customer. A slope from the corners of the pit/supporting surface of the lifting columns to the floor drain/pump sump is required. In the interests of environmental protection, we recommend coating the pit floor. Oil and/or fuel separators should be installed in accordance with local regulations. To drain large quantities of water from the yard area, the customer must install a water collection channel around the outside of the pit.

Warning marking

In accordance with DIN EN 14010, the customer must provide 10 cm wide, yellow/black marking in accordance with DIN ISO 3864 in the access area along the edge of the pit to identify the hazard area.

Wall openings

Any wall openings that may be required should be in accordance with the sectional drawings (see "Width dimensions", page 5).

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 or of min. 50 lx for the maintenance shaft.

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.

Operating element

The customer must provide an empty pipe (see "*Electrical installation*", page 11) from the pit floor to the operating element. The position of the operating element should be determined on a project-by-project basis (operating stands, house wall, etc.).

Installation

In general, the customer must provide a crane to aid installation of the telescopic lifting columns. Hook height min. 700 cm above entrance level, crane load approx. 1400 kg.

Maintenance shaft

A separated maintenance shaft (with shaft cover, shaft ladder and access to the pit) must be provided by the customer. A common maintenance shaft may be sufficient for series systems, depending on the project.

Ventilation

To ensure a continuous exchange of air, to reduce air humidity, prevent condensation and reduce vehicle moisture (from rain, snow, ice, etc.), we recommend that the customer provide a ventilation system in conjunction with a HVAC engineer. This will help to minimise the risk of corrosion and resulting faults.

Covering on the upper platform

Covering on the upper platform (maximum weight of covering to be provided by the customer 250 kg/m²) in accordance with the sectional drawing (see "*Detail of building configuration - pit floor*", page 7). This includes the correct sealing of the pit (typical structure see "*Detail of building configuration - pit sealing*", page 8).

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.

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