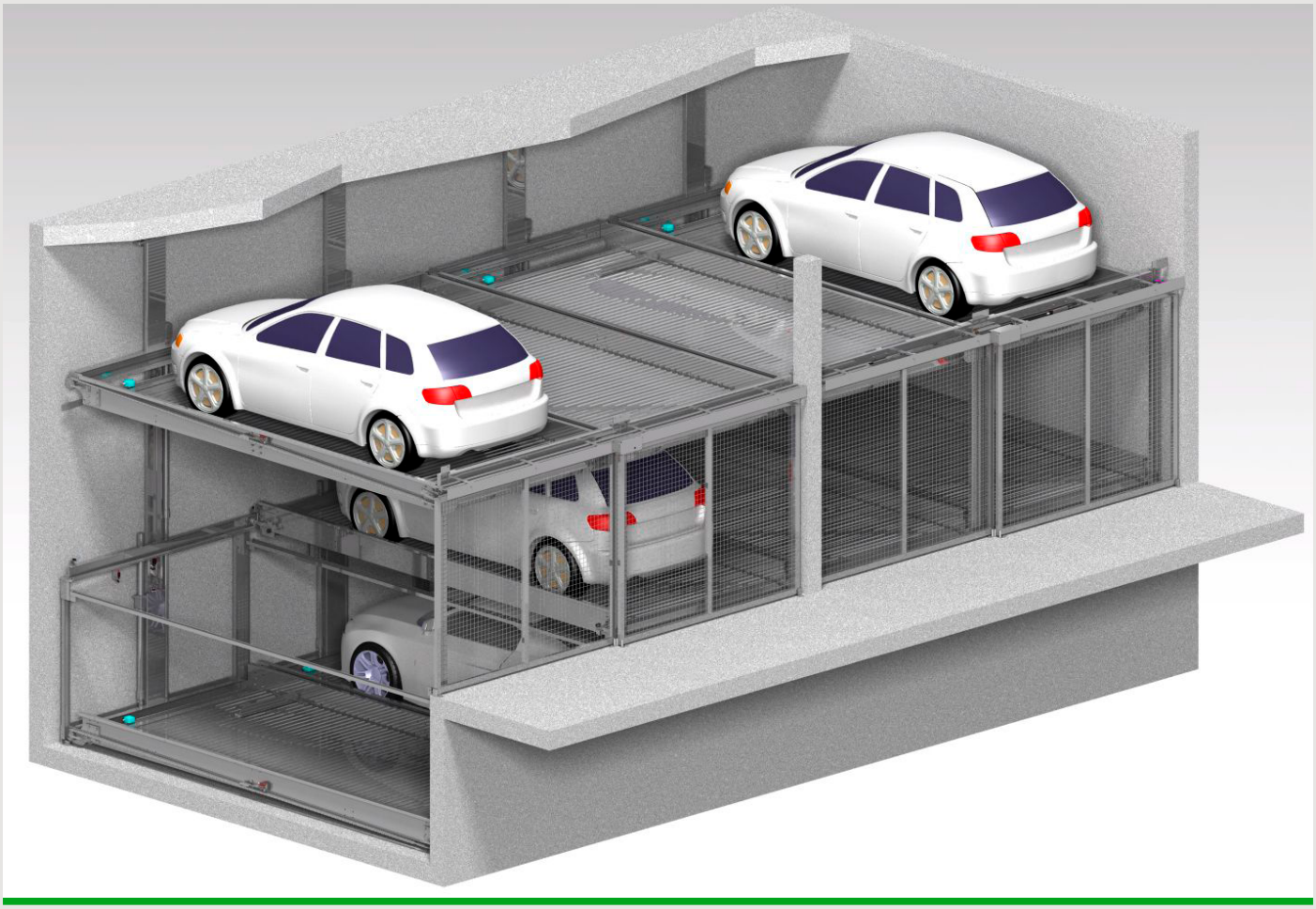
Level Park

PARKING SYSTEMS

SERBIA

PRODUCT DATA

Dimensions, technical data and specifications



smart03

level Park

www.levelpark-rs.com

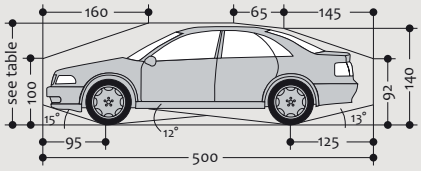
E-mail sales@levelpark-rs.com
Internet www.levelpark-rs.com

Smart03 (Smart03R) Semi-automatic parking system

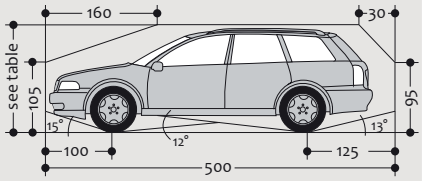
Dimensions

All space requirements are minimum finished dimensions. Tolerances for space requirements +3 % 1

Standard passenger car (L)



Standard station wagon (K)



Standard passenger cars are vehicles without any sports options such as spoilers, low-profile tires, etc.

Parking possibilities

	Standard Smart03	Reinforced Smart03R
Width in cm	190 2	190 2
Weight in kg	max.2000	max.2600
Wheel load in kg	max.500	max. 650

Specification

- Independent parking
- Grid arrangement
  - Minimum 2 grids for 5 vehicles
  - Maximum 10 grids
- Vehicle height up 150 cm to 205 cm
- Vehicle lenght up 500 cm to 520 cm
- **Smart03 (Standard):** Load capacity 2000 kg per parking space, usable platform width up to 270 cm
- **Smart03R (Reinforced):** Load capacity 2600 kg per parking space, usable platform width up to 270 cm

The systems provided are consistent with DIN EN 14010, the VDMA 15423 spec. and the EC Machinery Directive 2006/42/EC.

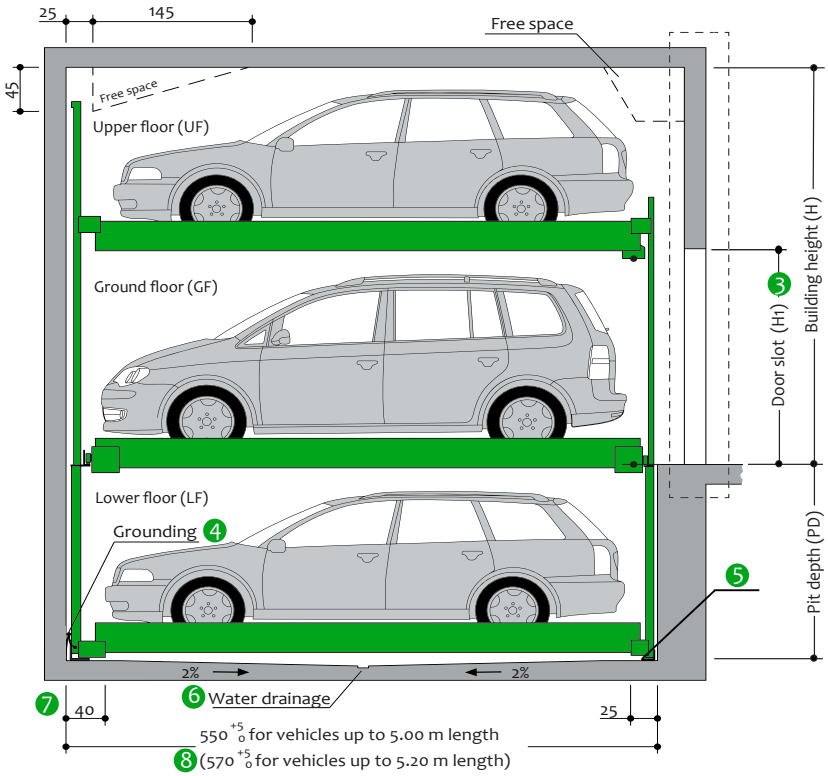
Platforms accessible horizontally.

Max. load per parking space in kg.

Upweighting over 2000 kg possible with surcharge.

Parking space load can be subsequently upweighted.

Garage without door



Notes

1. To comply with the minimum finished dimensions, the tolerances according to VOB, Part C (DIN 18330 and 18331) and DIN 18202 must also be considered.
2. Car width for platform width 230 cm. For the greatest possible ease-of-use, we recommend platforms up 250 to 270 cm. If a higher ceiling height is available, higher cars can be parked.
3. Dimensions depend on the type and size of the door. The door should be selected in accordance with DIN EN 14010.
4. Grounding of the system to be connected to the central grounding on-site (to be provided by the customer).
5. At the transition section between the pit floor and walls, no hollow mouldings/coves are possible. If hollow mouldings/coves are required, the systems must be designed smaller or the pits wider.
6. Slope with drainage channel and sump.
7. These floor surfaces should be horizontal and at equal levels across the entire width of the pit.
8. For convenient use of your parking space and due to the fact that the cars keep becoming longer we recommend a pit length of 570 cm.

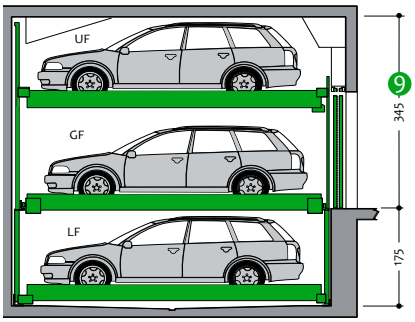
If sprinklers are required, make sure to provide the necessary free spaces during the planning stage.

Overview of system types and ceiling heights

The permissible vehicle height, GF must be greater than or equal to the vehicle height, LF.

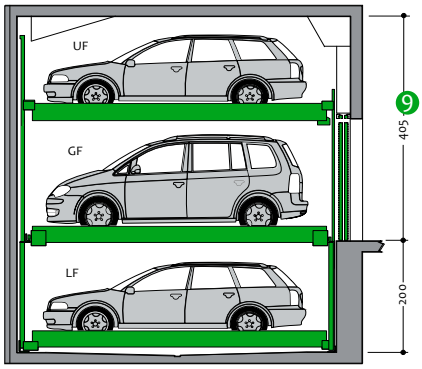
Standard

Smart03-175



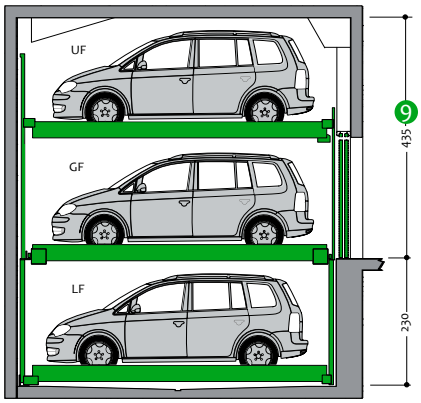
Height	Vehicle height		
	UF	GF	LF
345	150	170	150

Smart03-200



Height	Vehicle height		
	UF	GF	LF
405	175	200	175

Smart03-230

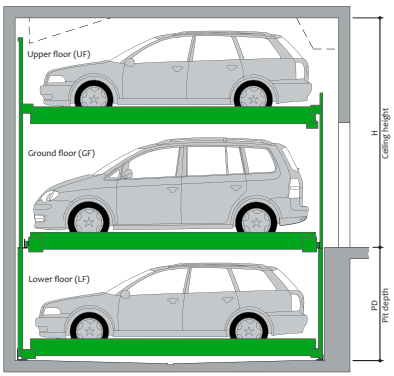


Height	Vehicle height		
	UF	GF	LF
435	200	200	200

9 If the height H is higher, a vehicle with the maximum height applicable to GF can be parked on UF, provided there is free space on the ceiling.

Available upon request

Type	Pit depth PD	Vehicle height LF
Smart03-175	**175**	**150**
Smart03-180	**180**	**155**
Smart03-185	**185**	**160**
Smart03-190	**190**	**165**
Smart03-195	**195**	**170**
Smart03-200	**200**	**175**
Smart03-205	**205**	**180**
Smart03-210	**210**	**185**
Smart03-215	**215**	**190**
Smart03-220	**220**	**195**
Smart03-225	**225**	**200**
Smart03-230	**230**	**205**



Vehicle height GF	Vehicle height UF											
	150	155	160	165	170	175	180	185	190	195	200	205
150	325	330	335	340	345	350	355	360	365	370	375	380
155	330	335	340	345	350	355	360	365	370	375	380	385
160	335	340	345	350	355	360	365	370	375	380	385	390
165	340	345	350	355	360	365	370	375	380	385	390	395
170	345	350	355	360	365	370	375	380	385	390	395	400
175	350	355	360	365	370	375	380	385	390	395	400	405
180	355	360	365	370	375	380	385	390	395	400	405	410
185	360	365	370	375	380	385	390	395	400	405	410	415
190	365	370	375	380	385	390	395	400	405	410	415	420
195	370	375	380	385	390	395	400	405	410	415	420	425
200	375	380	385	390	395	400	405	410	415	420	425	430
205	380	385	390	395	400	405	410	415	420	425	430	435

H - Building height

Example configuration

Example configuration 1:

Vehicle UF: 150
Vehicle GF: 190
Vehicle LF: 175

Type: **Smart03-200**

Height: **365**

Example configuration 2:

Vehicle UF: 160
Vehicle GF: 160
Vehicle LF: 180

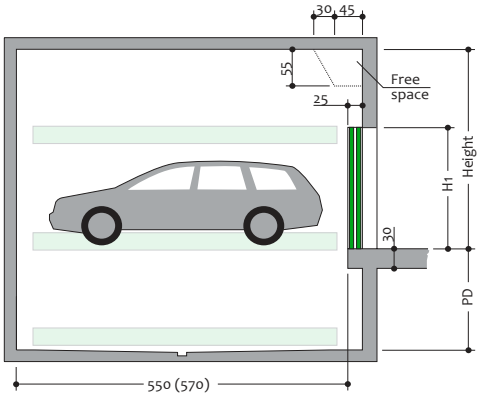
Type: **Smart03-205**

Height: **Selection not possible!**

Configuration 2 is not possible as the maximum permissible vehicle on GF is smaller than the vehicle on LF. As such, the larger vehicle, LF cannot drive in.

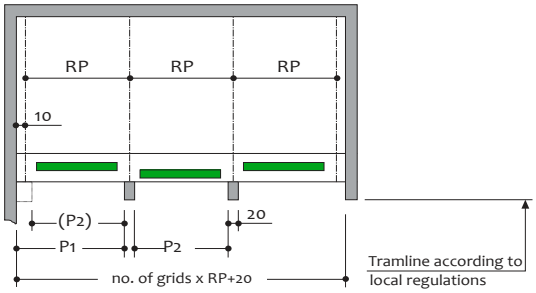
Width dimensions, garages with sliding doors (standard)

Sliding door behind columns



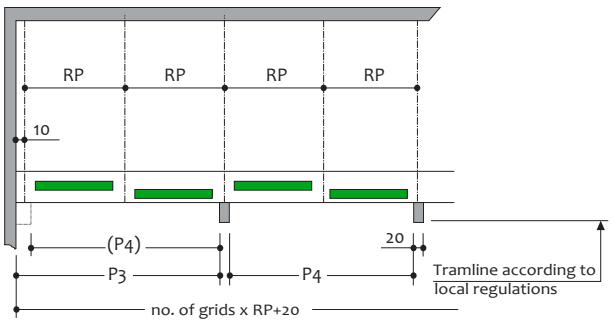
Vehicle height (UF&LF)	Entrance height (H1)
150	**210**
155	**210**
160	**210**
165	**210**
170	**210**
175	**210**
180	**210**
185	**210**
190	**210**
195	**210**
200	**220**
205	**220**

Sliding door behind columns, columns per each grid unit



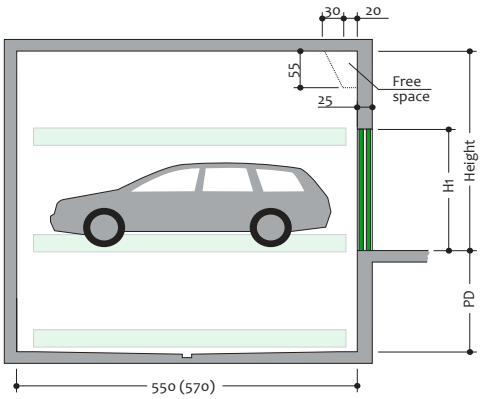
Usable platf. width	Grid width (RP)	Garage width P1	Garage width P2
220	240	240	230
230	250	250	230
240	260	260	240
250	**270**	**270**	**250**
260	**280**	**280**	**260**
270	**290**	**290**	**270**

Sliding door behind columns, columns every second grid unit



Usable platf. width	Grid width (RP)	Garage width P3	Garage width P4
220	240	480	460
230	250	500	480
240	260	520	500
250	**270**	**540**	**520**
260	**280**	**560**	**540**
270	**290**	**580**	**560**

Sliding door between columns



Vehicle height (UF&LF)	Entrance height (H1)
150	**220**
155	**220**
160	**220**
165	**220**
170	**220**
175	**220**
180	**220**
185	**220**
190	**220**
195	**220**
200	**230**
205	**230**

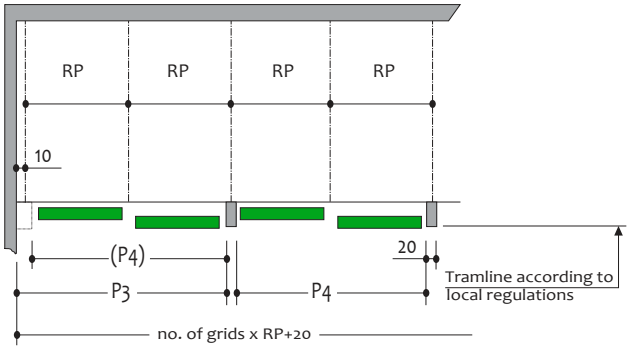
Sliding door between columns, columns per each grid unit

Option not possible!

HINT: The outer parking spaces (closer to the wall) are generally more difficult to park. Parking on standard platform widths with larger vehicles can be difficult. This depends on the type of vehicle, the approach to the platforms and above all the individual driving skills and experience. For maximum comfort, we recommend a maximum platform width of 250 to 270 cm.

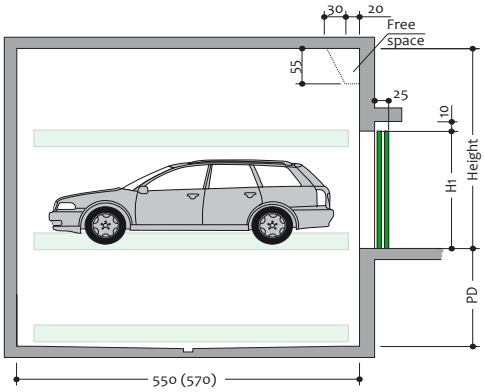
Width dimensions, garages with sliding doors (standard)

Sliding door between columns, columns every second grid unit



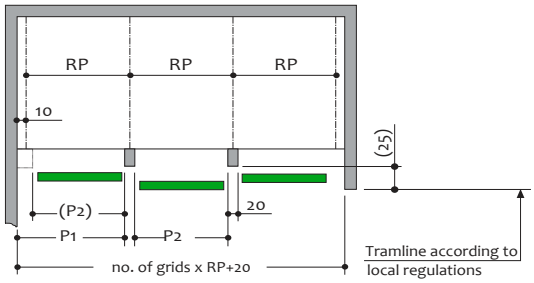
Usable platf. width	Grid width (RP)	Garage width P3	Garage width P4
220	240	480	460
230	250	500	480
240	260	520	500
250	**270**	**540**	**520**
260	**280**	**560**	**540**
270	**290**	**580**	**560**

Sliding door infront of columns



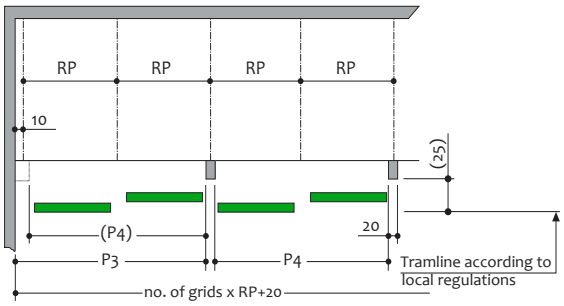
Vehicle height (UF&LF)	Entrance height (H1)
150	**210**
155	**210**
160	**210**
165	**210**
170	**210**
175	**210**
180	**210**
185	**210**
190	**210**
195	**210**
200	**220**
205	**220**

Sliding door infront of columns, columns per each grid unit



Usable platf. width	Grid width (RP)	Garage width P1	Garage width P2
220	240	240	220
230	250	250	230
240	260	260	240
250	**270**	**270**	**250**
260	**280**	**280**	**260**
270	**290**	**290**	**270**

Sliding door infront of columns, columns every second grid unit

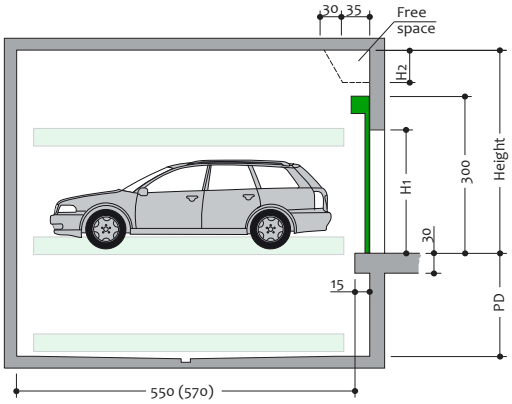


Usable platf. width	Grid width (RP)	Garage width P3	Garage width P4
220	240	480	460
230	250	500	480
240	260	520	500
250	**270**	**540**	**520**
260	**280**	**560**	**540**
270	**290**	**580**	**560**

HINT: The outer parking spaces (closer to the wall) are generally more difficult to park. Parking on standard platform widths with larger vehicles can be difficult. This depends on the type of vehicle, the approach to the platforms and above all the individual driving skills and experience. For maximum comfort, we recommend a maximum platform width of 250 to 270 cm.

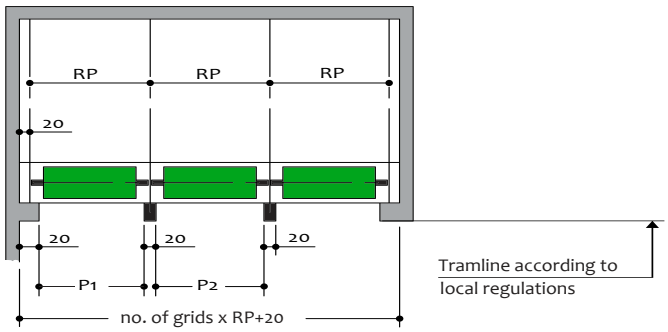
Width dimensions, garages with roll doors

Roll door behind columns



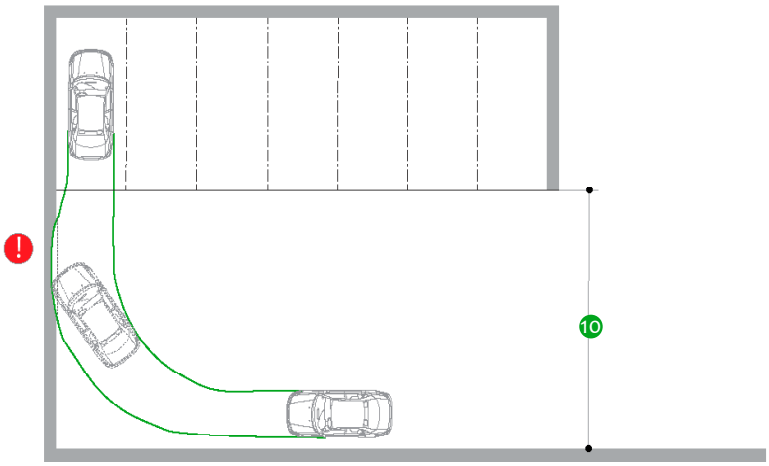
Vehicle height (UF&LF)	Entrance height (H1)
150	**210**
155	**210**
160	**210**
165	**210**
170	**210**
175	**210**
180	**210**
185	**210**
190	**210**
195	**210**
200	**220**
205	**220**

Roll door behind columns, columns per each grid unit



Usable platf. width	Grid width (RP)	Garage width	
		P1	P2
220	240	240	220
230	250	250	230
240	260	260	240
250	**270**	**270**	**250**
260	**280**	**280**	**260**
270	**290**	**290**	**270**

Wall clearance

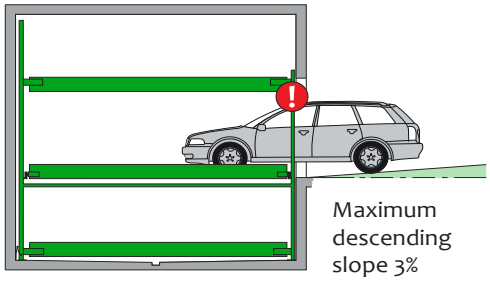


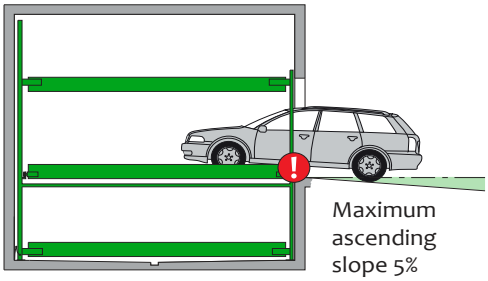
Narrower platforms may impede parking according to the following criteria.
- Driving lane width
- Entrance conditions
- Vehicle dimensions

⑩ Observe minimum driving lane width in accordance with local regulations

HINT: The outer parking spaces (closer to the wall) are generally more difficult to park. Parking on standard platform widths with larger vehicles can be difficult. This depends on the type of vehicle, the approach to the platforms and above all the individual driving skills and experience. For maximum comfort, we recommend a maximum platform width of 250 to 270 cm.

Access incline

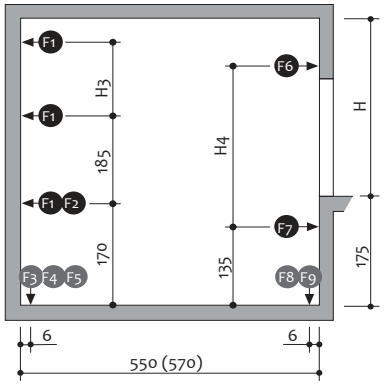




The illustrated maximum approach angles must not be exceeded. Incorrect approach angles will cause serious maneuvering and positioning problems on the parking system for which the producer accepts no responsibility.

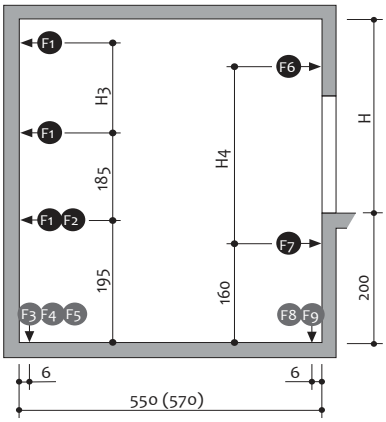
Load plan

Smart03-175



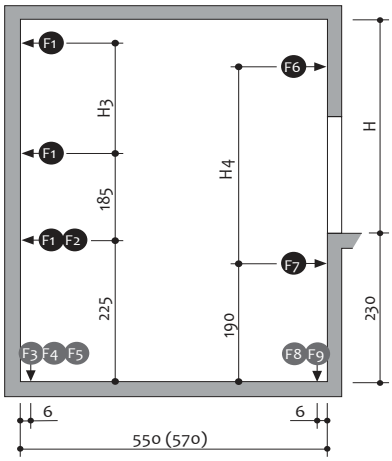
Type	PD	H	H3	H4
Smart03-175	175	345	150	260

Smart03-200



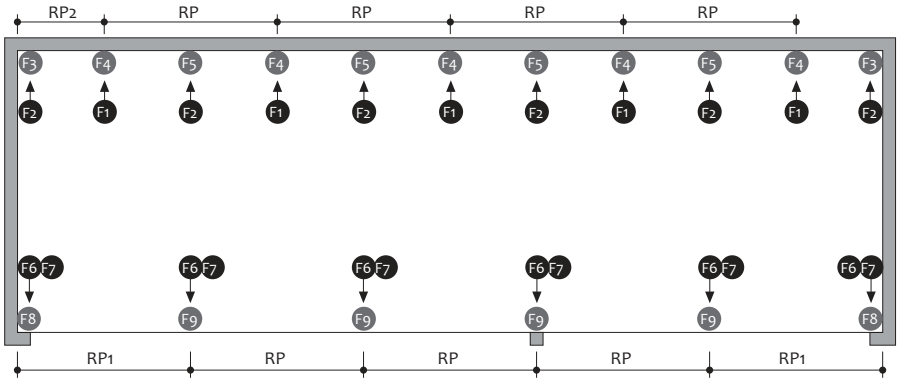
Type	PD	H	H3	H4
Smart03-200	200	405	185	295

Smart03-230



Type	PD	H	H3	H4
Smart03-230	230	430	185	295

Load plan - top view

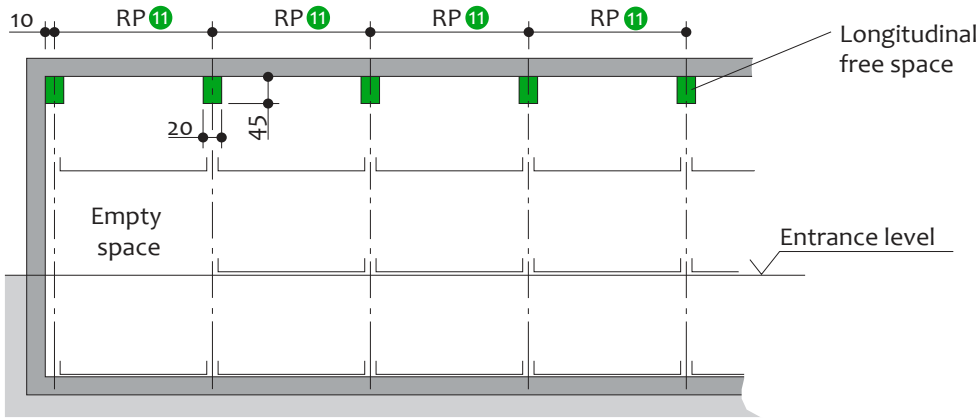


Usable platform width	Grid width		
	RP	RP1	RP2
230	250	260	135
240	260	270	140
250	**270**	**280**	**145**
260	**280**	**290**	**150**
270	**290**	**300**	**155**

Platform load	Force (kN)								
	F1	F2	F3	F4	F5	F6	F7	F8	F9
2000 kg	±5	±2,5	±14,5	+70	±29	±0,2	±2,5	+25	+50
2600 kg	±5	±2,5	±14,5	+80	±29	±0,2	±2,5	+35	+70

HINT: 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 manufacturer.
The outer parking spaces (closer to the wall) are generally more difficult to park. Parking on standard platform widths with larger vehicles can be difficult. This depends on the type of vehicle, the approach to the platforms and above all the individual driving skills and experience. For maximum comfort, we recommend a maximum platform width of 250 to 270 cm.

Installation data

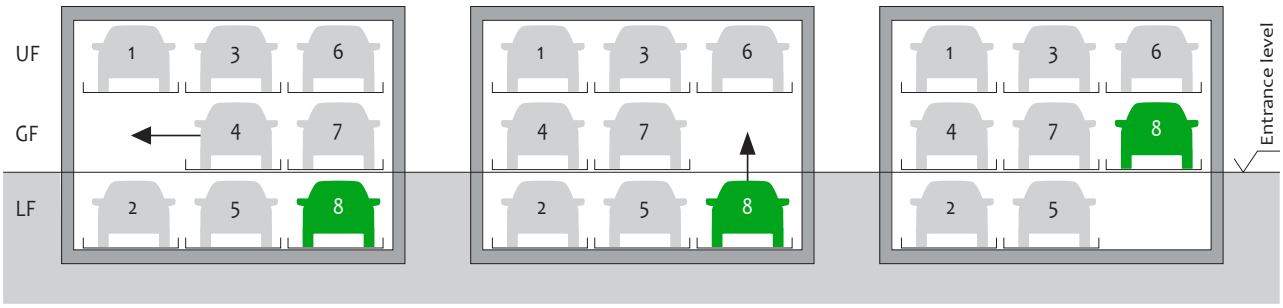


HINT: Free spaces apply only to forward parked cars with driver exit on the left side!

11 Dimensions P1, P2 and P3 see pages 3,4 and 5.

Function with standard numbering and identification of parking levels

e.g. for parking space No. 8:
Check first that all doors are closed, and then place the RFID key for parking space number 8 on the control panel.



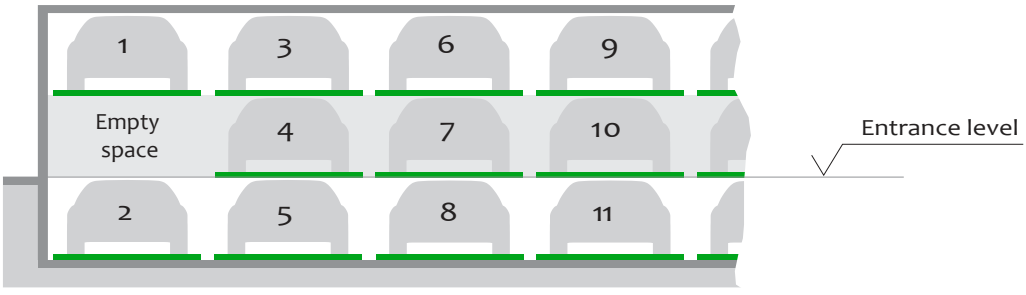
For driving the vehicle off platform No. 8 the ground floor parking platforms are shifted to the left.

The empty space is now above the vehicle which shall be driven off the platform. The platform No. 8 will be lifted.

The vehicle on platform No. 8 can now be driven off the platform.

Numbering

Standard numbering of the parking spaces:



Initial position: lower floor platform No. 2 at entrance level (covering of pit, safety regulation).
Different numbering is only possible at extra cost.
Please take note of the following specifications:
- In general, the empty space must be arranged to the left.
- The numbers must be provided 8 – 10 weeks before the delivery date.

Electrical installation

Switch cabinet and master switch

Access to the switch cabinet (about 100 x 60 x 40 cm) must be possible without danger.
The lockable master switch must be positioned so that the entire entry area of the facility can be surveyed.
With wall opening from switch cabinet to system (consultation with manufacturer required).

Hydraulic unit

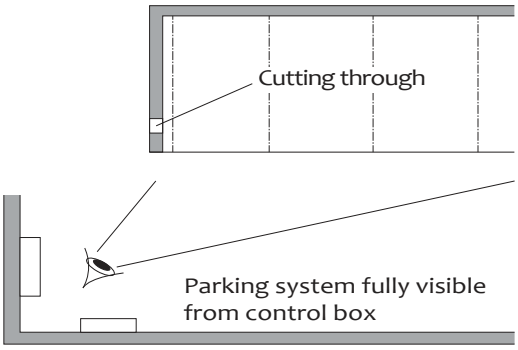
- 3 kW, 3 phase 400 V/50 Hz/8 A
Alternative versions for a surcharge:
- 5,2 kW, 3 phase 400 V/50 Hz/13.8 A

Supply cable to master switch

Standard sliding doors with one hydraulic unit:
Customer-provided supply cable min. 5 x 2.5 mm² (3 PH+N+PE) to master switch with pre-fuse 3 x 16 A (slow T) or circuit breaker 3 x 16 A (trip characteristic K).
National and local laws and regulations regarding electrical energy supply must be observed.
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.

Control panel with emergency-stop

- Attachment at a clear point (e.g. pillar)
- Secured against external operation
The control unit must be accessible from the outside at all times! Approximate dimensions 30 x 30 x 30 cm.
Wall cut from the control unit to the parking system (contact the manufacturer for clarification).



Technical hint

Application area

By default, the system is not suitable for short-term parkers (changing users). If necessary, please contact producer of parking system.

Power pack

Installed on vibration metal mounted, low-noise hydraulic power units. Nevertheless, we recommend separating the garage from the house.

Available documents

- Wall recess plans
- Maintenance offer/contract
- Declaration of conformity

Corrosion protection

According to the supplementary sheet of corrosion protection.

Balustrade / Barriers

When the allowable fall is exceeded, balustrades are attached to the equipment. If the traffic lanes are directly next to or behind the installations, barriers according to DIN EN 294 (DIN EN ISO 13857) are required on site. This also applies during the construction phase.

Environmental conditions

Ambient conditions for the range of our parking systems: Temperature range -10 to +40° C. Relative humidity 50% with a maximum outside temperature of +40° C. If lifting or lowering durations are mentioned, these refer to an ambient temperature of +10° C and an arrangement of the system immediately next to the hydraulic unit. At lower temperatures or longer hydraulic lines, these durations increase.

Soundproofing

According to DIN 4109 (sound insulation in building construction), para. 4, note 4, parking systems fall into the field of technical installations (garage systems).

Normal sound insulation (Special agreement) DIN 4109, Supplement 4, Note for planning and execution, proposals for increased sound insulation. In paragraph 4.1, Table 4, the values for the permissible sound pressure levels in rooms requiring protection are specified for noise from building services. According to line 2, the maximum sound pressure level in living rooms and bedrooms must not exceed 30 dB (A). Noise from the user is not subject to the requirements (see Table 4, DIN 4109).

The following measures are required to maintain this value:
- Soundproofing package according to offer/order
- Sound insulation of the building in min. R'w = 57 dB (performance on site)

Increased sound insulation
DIN 4109, paragraph 4, noise protection of technical equipment and installations.
Agreement: Maximum sound pressure level in living rooms and bedrooms 25 dB (A). User noises are not subject to the requirements (see Table 4, DIN 4109).

The following measures are required to maintain this value:
- Soundproofing package according to offer/order
- Sound insulation of the building in min. R'w = 62 dB (performance on site)

HINT: The user's noises are essentially noises that can be individually influenced by the user of our parking systems.
These include for example driving on the platform, slamming vehicle doors, engine noise and brake.

To be performed by the customer

Balustrade / Barriers

Possibly required barriers according to DIN 294 for securing the parking pits in traffic lanes directly in front of, beside or behind the facilities. This also applies during the construction phase. Railings on the systems, if required, are included optional!

Numbering of parking spaces

Continuous numbering of parking spaces.

Building services

Lighting, ventilation, fire extinguishing and fire alarm systems.

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.

Drainage

For the middle area of the pit, we recommend a drainage channel, which you connect to a floor drain system or sump (50 x 50 x 20 cm). The drainage channel may be inclined to the side, however not the pit floor itself (longitudinal incline is available). In the interest of environmental protection, we recommend painting the pit floor, and to provide oil and petrol separators in the connections to the public sewage system.

Wall cutout

There is a possibility of requiring openings in the walls according to the section on page 1.

Strip footings

If due to structural conditions strip footings must be effected, the customer shall provide an accessible platform reaching to the top of the said strip footings to enable and facilitate the mounting work.

Electrical supply to the control box/Foundation earth connector

The supply line to the main switch and the control line to the unit must be made by the customer during installation. The functionality can be checked by our technicians on site together with the electrician. If this is not possible during assembly for reasons attributable to the customer, an electrician must be commissioned by the customer.
The steel construction is to be provided on site with foundation earthing connection (grounding distance max 10 m) and potential equalization according to DIN EN 60204.

Door suspensions

Lintel height „H1" (see "Width dimensions", pages 3,4 and 5) is absolutely necessary. With differing heights, additional fixings are required at extra cost.

The following costs are borne by the investor, unless otherwise defined in the offer:

- Complete wiring of individual components according to the attached diagram
- Costs of technical testing/certification, if required by local laws
- Main switch
- Power supply line to the main cabinet
- Floor marking

Other services on-site

- Preparation of the parking system pit
- Measures for the implementation of water protection regulations
- Measures to comply with fire protection regulations and noise protection in accordance with DIN4109
- Pit measurement
- Daily update on project photos, if required
- Foundation grounding if necessary
- All permits and approvals

Technical description of the semi-automatic parking system

General description

- Parking systems provides independent parking spaces for cars, one on top of the other and sidbyside.
- Dimensions are in accordance with the underlying dimensions of parking pit, height and width.
- The parking bays are accessed horizontally. Platforms have a gradient of ±1° for proper drainage.
- Duž celokupne širine sistema mora biti dostupna prilazna traka (vozna traka u skladu sa lokalnim propisima).
- The platforms of both the lower floor (LF) and upper floor (UF) are moved vertically and the platforms of the ground floor (GF) horizontally. At approach level (GF) there is always one parking space less. This vacant space is used for shifting the ground floor (GF) parking spaces sideways, thus enabling an upper floor (UF) parking space or lower floor (LF) parking space to be lowered or lifted to approach level. Consequently, a unit of five parking spaces (2 on the up per floor, 1 on the ground floor, 2 on the lower floor) is the smallest unit available for this parking system.
- For safety reasons, the platforms can only be moved behind electromagnetically locked doors.
- All necessary safety devices are installed. This consists mainly of a chain monitoring system, locking lever for the upper and lower platforms and electromagnetic door locks. The doors can only be opened if the selected parking space has reached the park position and all openings are secured.
- Operating instructions at every operating point.

The steel frame of the parking system consists of:

- Serial supports
- Steel pillars with sliding platform support
- Cross and longitudinal members
- running rails for the transversely movable ground floor (GF) platform
- Dowels, screws, fasteners, connecting elements etc.

Lifting device for upper floor (UF) and lower floor (LF) platforms consist of:

- Hydraulic cylinder with solenoid valve
- Chain wheel
- Chain
- Limit switches
- The platforms are suspended on four points and guided along the supports using plastic sliding bearings

Hydraulic unit consist of:

- Hydraulic power unit (low-noise, installed onto a console with a metal mounting)
- Hydraulic oil reservoir
- Oil filling
- Internal geared wheel pump
- 3 phase AC motor (3 kW, 400VAC, 50 Hz)
- Pressure relief valve
- Hydraulic hoses
- Manometer (optional)
- Safety valve

Drive unit of transversely movable platforms on the ground floor (GF)

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

Control system:

- Central operator panel (operating device) used to select the desired parking space
- Electric wiring is made from the electric cabinet by the manufacturer
- Main cabinet

Platform consist of:

- Driving paths (transverse treads)
- Side members
- Cross members
- Platform base sections
- 1 wheel-stop (on the left per parking space)
- screws, small parts, etc.

Laterally movable doors:

Size
Sliding door, dimensions: approx. 2500 mm x 2000 mm (width x height).
Frame
Frame construction with vertical centre stay bar made from steel pipe.
Standard door panel
Wire mesh: Mesh size 50x50x3,8
Running rails
The running gear of each door consists of 2 twin-pair rolling gadgets, adjustable in height.
The running rails of the doors are fixed to brackets or the concrete lintel, or on a building-specific door suspension using ceiling fittings.
The guide consist of 2 plastic rollers mounted to a base late, witch is doweled to the floor.
Door drive
Electric drive via electric motor mounted to the rail system at the turning point of the sliding doors.
The drive pinion engages into the chain mounted to the door.
For safety reasons, the movement of the platforms is always made behind locked doors. Position sensing, i.e. “door open” and “door closed” is affected by electric signals.

Note: Door panels (on the side, cover for running rails, etc.) and door suspensions are not included in the standard version but can be delivered against surcharge as special equipment.

We reserve the right to change these specifications without prior notice

Manufacturer reserves the right in the course of the technical progress to use newer or other technologies, system, processes, procedures or standards in the fulfillment of their obligations other than those originally offered.