



Indac Parking Systems Pvt. Ltd.
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PRODUCT DATA

Puzzle SP20

2000 kg¹ 2600 kg²

Dimensions

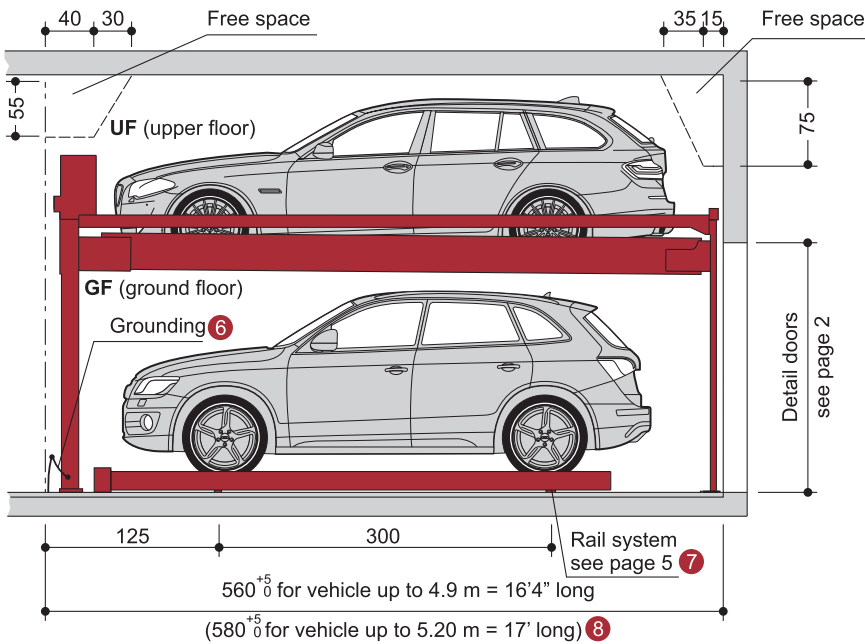
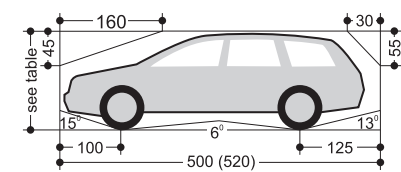
Tolerances for space requirements $+3 \begin{smallmatrix} 0 \\ 0 \end{smallmatrix}$ ³
 Dimensions in cm.

Suitable for

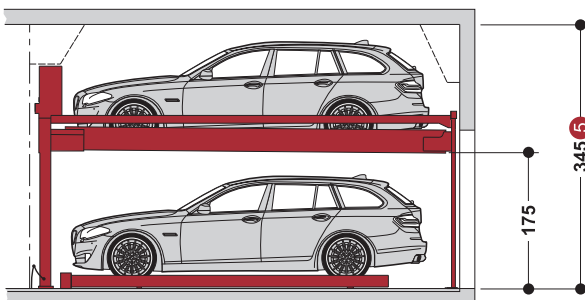
Standard passenger cars:
 According to clearance and maximal surface load.

	Standard
Width	190 cm ⁴
Weight	max. 2000 kg
Wheel load	max. 500 kg

Clearance profile

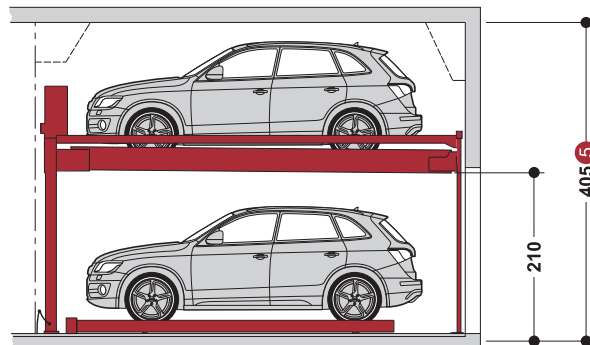


SP20-345



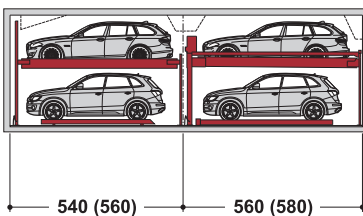
Height	Car height
345	UF GF
	150 165

SP20-405

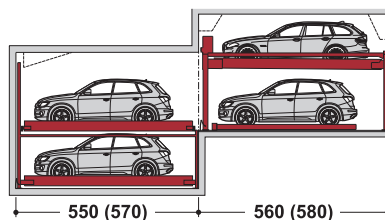


Height	Car height
405	UF GF
	175 200

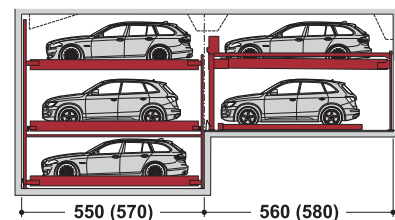
Combination SP21 with SP20



Combination SP11 with SP20



Combination SP31 with SP20



- Standard type
- System with 2.6 T capacity available on request.
- To follow the minimum finished dimensions, make sure to consider the tolerances during construction.
- Car width for platform width 230 cm. If wider platforms are used, it is also possible to park wider cars.
- If height H is larger, vehicles with the maximum height as applicable for the GF be parked on the UF, otherwise there will be free space available on the ceiling.

- Potential equalization from foundation grounding connection to system (provided by the customer).
- Tolerances for the evenness of the driveway (floor) must be strictly followed.
- For convenient use of your parking space and due to the fact that the cars keep becoming longer we recommend a length of 580 cm.

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

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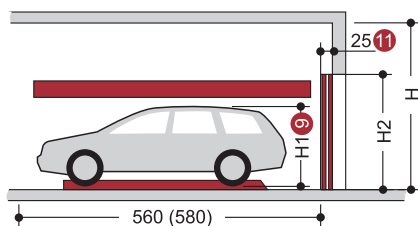
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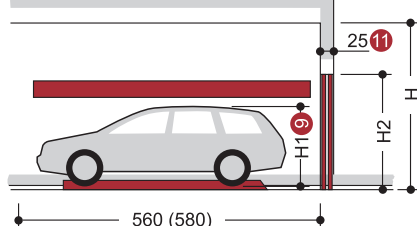
Garages with sliding doors (standard) | Widths dimensions

Sliding door behind columns



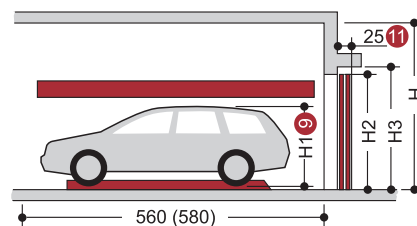
Type	H	H1	H2
SP20-345	345	165	210
SP20-405	405	200	220

Sliding door between columns



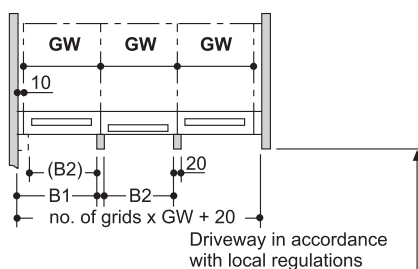
Type	H	H1	H2
SP20-345	345	165	220
SP20-405	405	200	230

Sliding door in front of columns



Type	H	H1	H2	H3
SP20-345	345	165	210	220
SP20-405	405	200	220	230

Columns per each grid unit



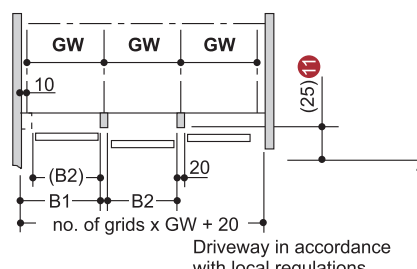
Usable platform width

UF	GF	GW ¹⁰	B1	B2
220	200	240	240	220
230	200	250	250	230
240	210	260	260	240
250	220	270	270	250
260	230	280	280	260
270	240	290	290	270

Columns per each grid unit

Not available

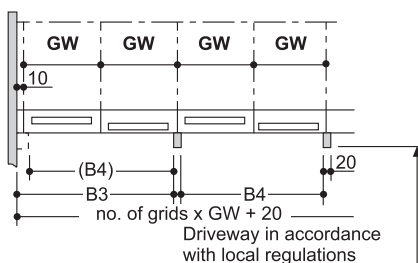
Columns per each grid unit



Usable platform width

UF	GF	GW ¹⁰	B1	B2
220	200	240	240	220
230	200	250	250	230
240	210	260	260	240
250	220	270	270	250
260	230	280	280	260
270	240	290	290	270

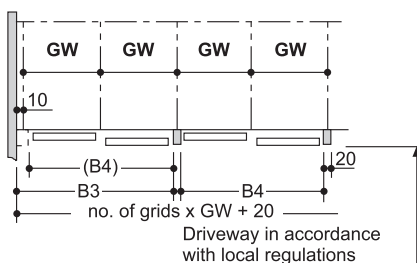
Columns every second grid unit



Usable platform width

UF	GF	GW ¹⁰	B3	B4
220	200	240	480	460
230	200	250	500	480
240	210	260	520	500
250	220	270	540	520
260	230	280	560	540
270	240	290	580	560

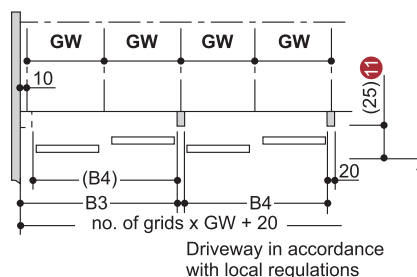
Columns every second grid unit



Usable platform width

UF	GF	GW ¹⁰	B3	B4
220	200	240	480	460
230	200	250	500	480
240	210	260	520	500
250	220	270	540	520
260	230	280	560	540
270	240	290	580	560

Columns every second grid unit



Usable platform width

UF	GF	GW ¹⁰	B3	B5
220	200	240	480	460
230	200	250	500	480
240	210	260	520	500
250	220	270	540	520
260	230	280	560	540
270	240	290	580	560

! End parking spaces are generally more difficult to drive into. Therefore, we recommend our wider platforms for end parking spaces. Parking larger vehicles on standard width platforms may make getting into and out of the vehicle difficult. This depends on the type of the vehicle, entrance and above all, on the driver's skill.

⁹ H1 = Height of the vehicle on ground floor platform.

¹⁰ GW = Grid unit width **must** strictly conform to dimensions quoted.

¹¹ Applies to manually operated doors only.

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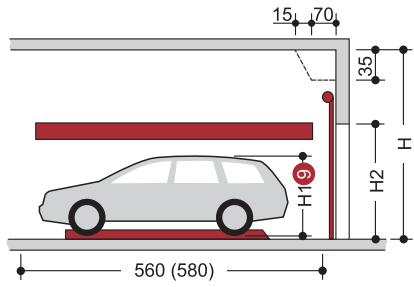
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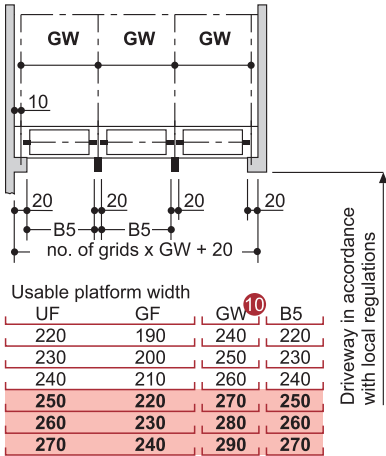
Garages with roll doors | Width dimensions

Roll door behind columns



Type	H	H1	H2	Roll door height
SP20-345	345	165	210	263
SP20-405	405	200	220	300

Columns per each grid unit

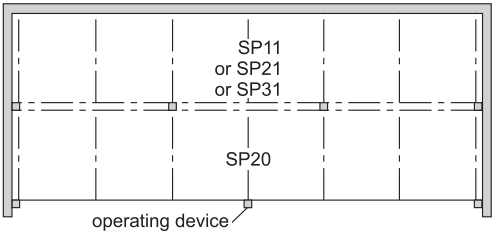


End parking spaces are generally more difficult to drive into. Therefore, we recommend our wider platforms for end parking spaces. Parking larger vehicles on standard width platforms may make getting into and out of the vehicle difficult. This depends on the type of the vehicle, entrance and above all, on the driver's skill.

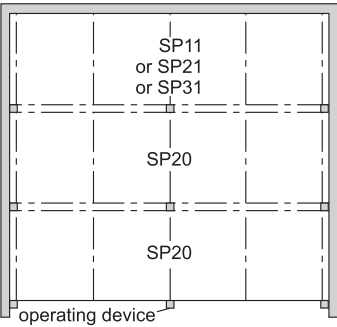
- 9 H1 = Height of the vehicle on ground floor platform.
- 10 GW = Grid unit width **must** strictly conform to dimensions quoted.

Grid arrangement

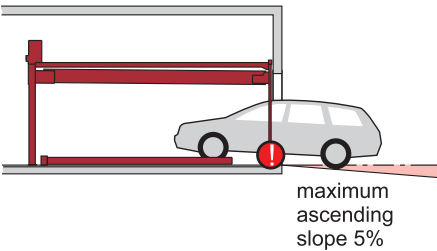
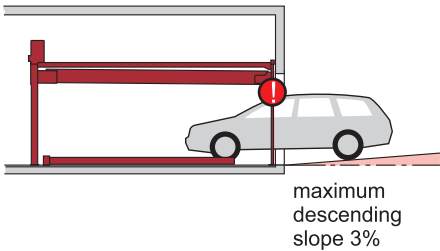
For 2 rows max. 6 grids



For 3 rows max. 4 grids

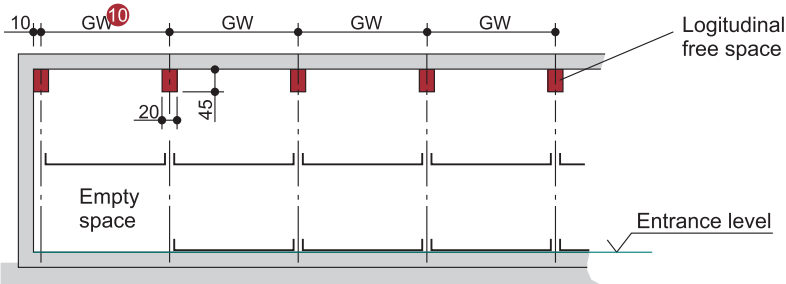


Entrance



The illustrated maximum entrance angles must not be exceeded. Incorrect entrance angles will cause serious maneuvering & positioning problems on the parking system for which the local agency of INDAC Parking Systems accepts no responsibility.

Longitudinal free space

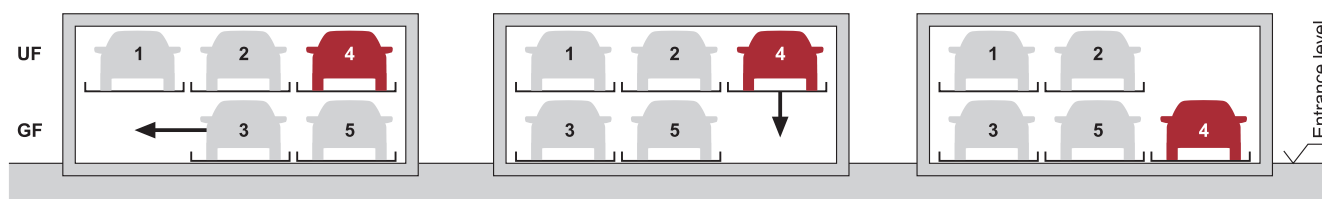


- 10 GW = Grid unit width **must** strictly conform to dimensions quoted.

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Function with standard numbering and identification of parking levels

e.g. for parking space No. 4: Check first that all doors are closed, then select No. 4 on operating panel.

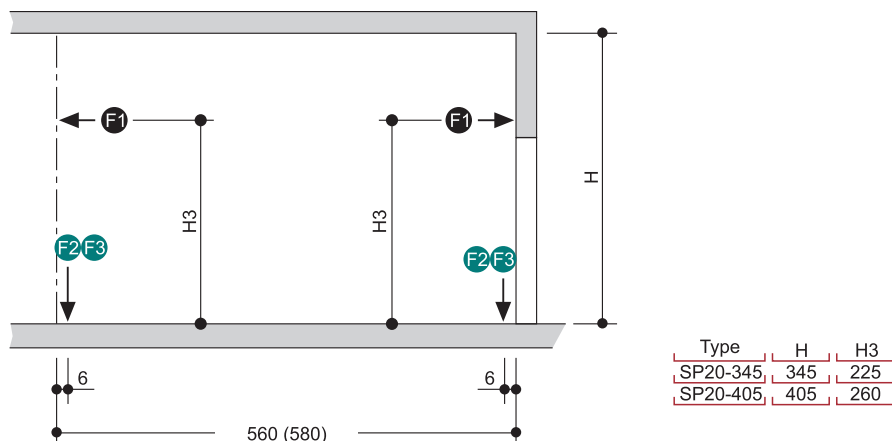


For driving the vehicle off platform No. 4 the ground floor parking platforms are shifted to the left.

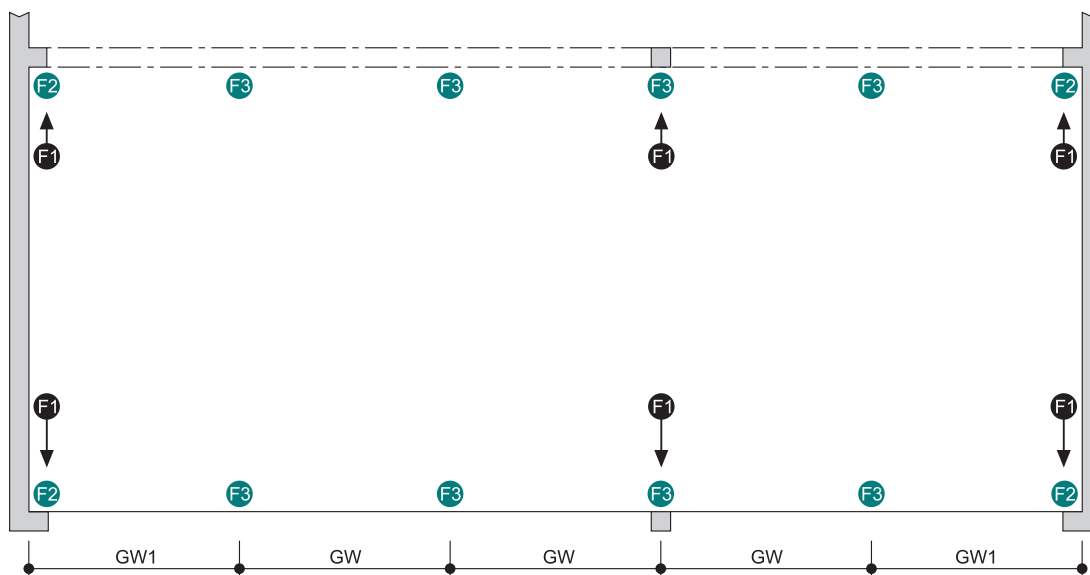
The empty space is now below the vehicle which shall be driven off the platform. Platform No. 4 will be lowered.

The vehicle on platform No. 4 can now be driven off the platform.

Load data



Load data – top view



! The system is anchored to floor and walls. The drilling depth in the floor is approx. 15 cm. The drilling depth in the walls is approx. 12 cm. Floor and walls are to be made of concrete (grade of concrete min. C20/25). The dimensions for the points of support are rounded values. If the exact position is required, please contact INDAC Parking Systems.

¹⁰ GW = Grid unit width **must** strictly conform to dimensions quoted.

¹² All forces in kN (static loads)

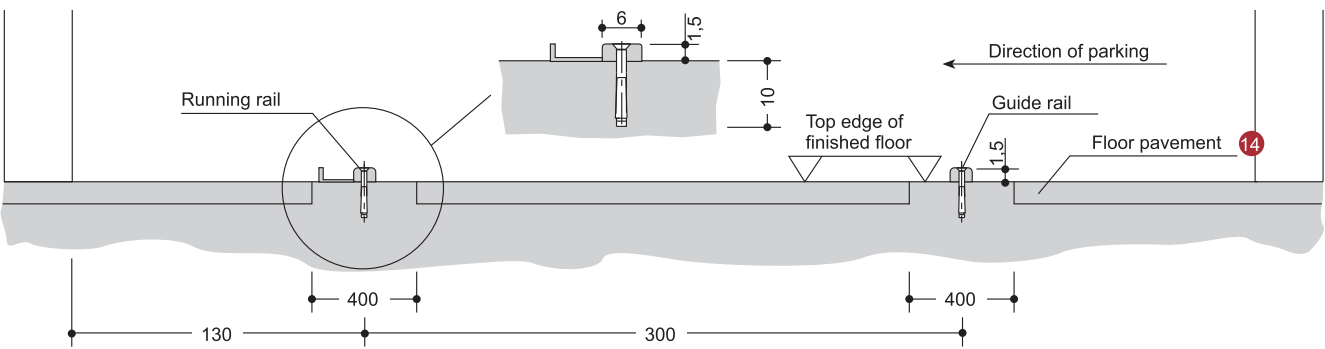
Recess/Rail system

Dependent upon the structural conditions of the garage, several different options are available for installation of the rails.

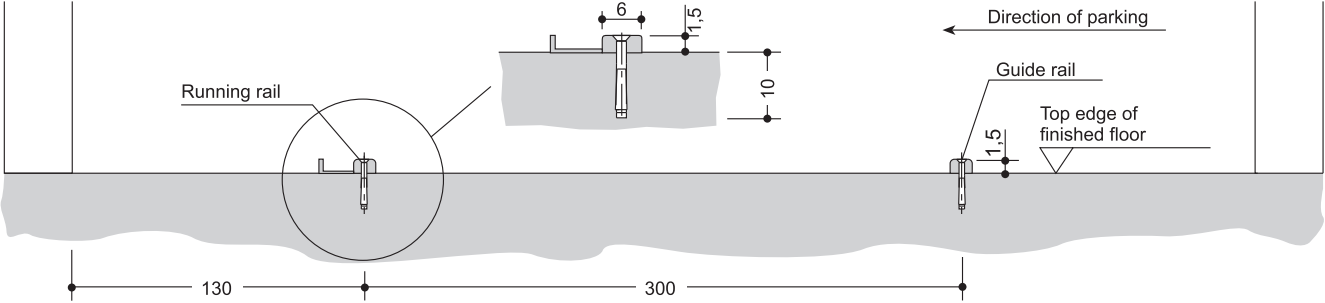
Rail load by moving GF platform

- For surface load 2000 kg: 6,5 kN per wheel

Laying on strip foundation 13



Laying on finished floor 13

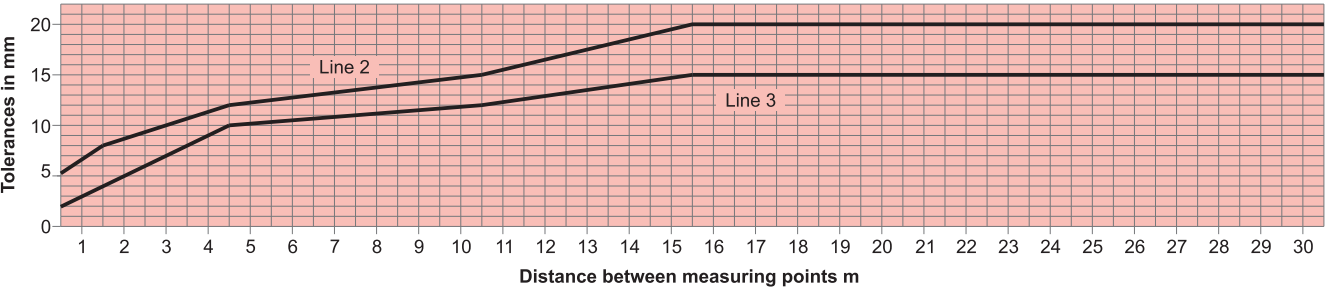


- 13 Tolerances for the evenness of the driveway must be strictly followed as mentioned in below table of evenness and tolerances. No expansion joints are permitted within the area of the rail system.
- 14 We do not recommend tar flooring.

Evenness and Tolerances (abstract from DIN 18 202, table 3)

The distance between the lower flange of the Parking Pallets and the garage ground must therefore not exceed 2 cm. To adhere to the safety regulations and recommendations and to get necessary even ground, the tolerance of evenness must not be exceeded. Therefore exact leveling of the ground by the client is essential.

Column	1	2	3	4	5	6
Line	Reference	Vertical measurement as limits in mm with measuring points distances in m to 15				
		0,1	1	4	10	15
2	Unfinished to surface of covers, subconcrete and subsoils for higher demands, e.g. as foundation for cast plaster floor, industrial soils, paving tiles and slabstone paving, compound floor paving. Finished surfaces for minor purposes, e.g. warehouses, cellar.	5	8	12	15	20
3	Finished grounds, e.g. floor pavement serving as foundation for coverings. Covering, tile coverings, PVC flooring and glued coverings.	2	4	10	12	15



15 Intermediate values are to be taken out of the diagram and must be rounded-off to mm.

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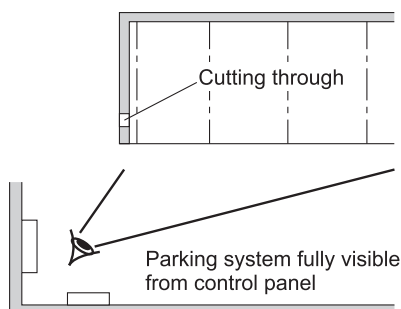
Electrical details

Control Panel

The control panel must be accessible at all times from outside.

Dimensions approx. 100 x 100 x 30 cm.

Cutting through of wall from control panel to parking system (contact the local agency of INDAC Parking Systems for clarification).



Electrical supply to the control panel/foundation earth connector

A 3phase, 415V ($\pm 10\%$), 50Hz ($\pm 2\%$), 4 wire (3PH+N+PE) electrical supply to the control panel through a 4 pole RCBO (or MCB+ELCB), 25Amp. IDN (sensitivity/leakage current) 100 mA.

Supply line cable 5x4.0 mm², copper (3PH+N+PE) with marked wire and protective conductor. Local regulations must be taken into consideration.

The functionality can be monitored on site by our fitters together with the electrician. If this cannot be done during installation for some reason for which the customer is responsible, the customer must commission an electrician at his own expense and risk.

Safety of Machinery. Electrical Equipment, grounding of the steel structure is necessary, provided by the customer (distance between grounding max. 10 m).

Operating device

Easy-to-survey positioning (e.g. on column).

Protection against unauthorized use.

May also be recessed in wall if required.

Technical details

Field of application

Generally parking system is suitable for the same car length for which the wheel stop is adjusted at the time of installation. In case different car is to be parked, wheel stop adjustment/confirmation from INDAC Parking Systems shall be required.

Care

To avoid damages resulting from corrosion, make sure to follow our cleaning and care instructions and to provide good ventilation of your garage.

Environmental conditions

Environmental conditions for the area of multiparking systems: Temperature range 5°C to +40°C. Maximum outside temperature of +45°C.

If the local circumstances differ from the above, please contact INDAC Parking Systems.

Numbering

Standard numbering of the parking spaces:



Different numbering is possible only 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.

To be provided by the customer

Safety fences

Any constraints that may be necessary in order to provide protection, for pathways directly in front, next to or behind the unit. To be provided prior to start installation of car parking systems.

Numbering of parking spaces

Consecutive numbering of parking spaces.

Building services

Any required lighting, ventilation, fire extinguishing and fire alarm systems as well as clarification and compliance with the relevant regulatory requirements.

Wall cuttings

Any necessary wall cuttings.

Electric supply to the control panel/foundation earth connector

Suitable electrical supply to the control panel must be provided by the customer during installation. The functionality can be monitored on site by our fitters together with the electrician. If this cannot be done during installation for some reason for which the customer is responsible, the customer must commission an electrician at their own expense and risk.

Safety of machinery, electrical equipments, grounding of the steel structure is necessary, provided by the customer (distance between grounding max. 10 m).

Door suspension

The lintel height H2 (see page 2) is absolutely necessary. With differing heights, additional fixings are required at extra charge.

Door shields

The lintel height H2 (see page 2) is absolutely necessary. With differing heights, additional fixings are required for an additional cost.

Floor/Rails

Flooring structure in accordance with our instructions, please see page 5 (recesses, rail systems.)

Recesses, tolerances for the evenness of the driving lane must adhere to table mentioned on page no 5.

Stuffing of rail system with cement floor for the whole length.

Bringing in of floor pavement.

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Description

General discription

car parking system providing independent parking spaces for cars, one on top of the other and side by side.

Dimensions are in accordance with the underlying dimensions of height and width.

The parking bays are accessed horizontally (installation deviation $\pm 1\%$).

Along the complete width of the parking automat an entrance lane (driving lane in accordance with local regulations) must be available. Parking spaces are arranged on two different levels, one level on top of the other.

The platforms of the upper floor (UF) are moved vertically, the platform on the ground floor (GF) horizontally. At entrance level (GF) there is always one parking space less available. This vacant space is used for shifting the ground floor (GF) parking spaces sideways, thus enabling the upper platform (UF) parking space located above to be lowered to entrance/ground level. Consequently, a unit of three parking spaces (1 on the ground floor, 2 on the upper floor) is the smallest unit available for this parking system.

The Puzzle Parking SP20 allows parking of passenger cars and station wagons.

For safety reasons the platforms can only be moved behind magnetically locked doors, installed at the entrance.

All necessary safety devices are installed. This consists mainly of a chain monitoring system, locking lever for the upper platforms and magnetic door locks.

The doors can only be opened if the selected parking space has reached the park position.

A steel framework mounted to the floor consists of:

- Rigid supports
- Steel pillars with sliding platform supports
- Cross and longitudinal members
- Running rails for the transversely movable ground floor (GF) platforms

Platforms consist of

- Side members
- Cross members
- Platform base sections
- 1 wheel stop (on the right per parking space)
- Screws, small parts, etc.

Lifting device for upper floor (UF) platforms

- Gear motor
- Chain wheel
- Chains
- Limit switches
- The platform are suspended on four points and guided along the supports using plastic sliding bearings

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

- Geared motor with sprocket
- Chains
- Running and guide rollers (low-noise)
- Power supply via cable

Control system

- Central control panel (operating device) used to select the desired parking space
- With series installation, the doors are opened manually
- Electric wiring is made from the electric cabinet by the manufacturer

Description

Laterally movable safety doors:

Size

Sliding door, dimensions: approx. 2500 mm x 2000 mm (width x height).

Frame

- Frame construction with vertical centre stay made from extruded aluminium sections

Safety doors

Doors and door suspensions are not included in the standard version but can be delivered at additional cost as special equipment.

Door actuation

- Manually, i.e. the door is opened and closed by hand

For safety reasons the movement of the platforms as always mode behind locked doors.

Door 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 consists of 2 plastic rollers mounted to a base plate, which is anchored to the floor

We reserve the right to change these specifications without prior notice.

INDAC Parking Systems 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.

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