

Automatic parking. Parking system auto- SP

Data sheet

Parking system auto- SP

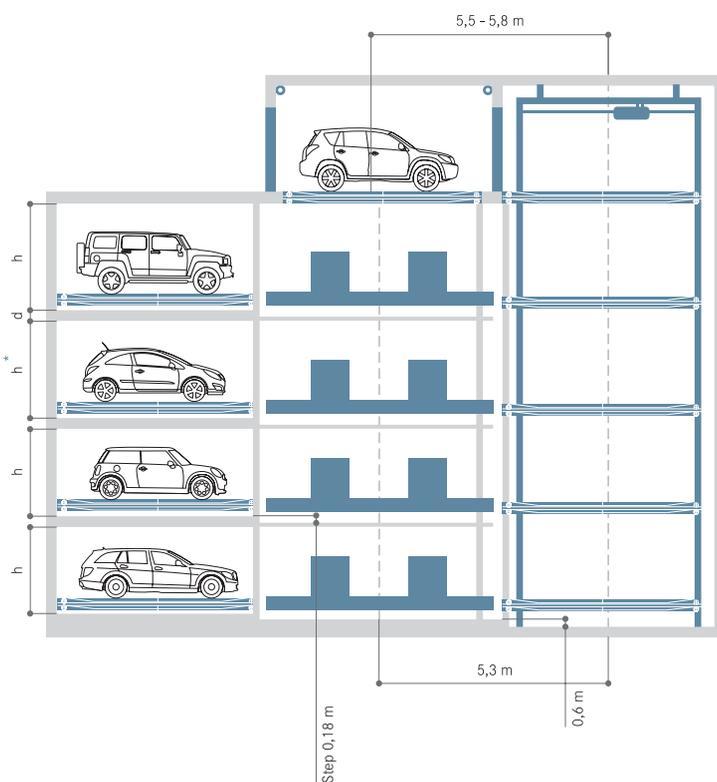
Universal parking system for high throughput capacity and a high number of parking places in an underground, above ground or mixed solution.

This parking system auto- SP was designed for a high number of parking places and a high throughput capacity. Due to its modular design it can be adapted to various building requirements. The combination of vertical car lifts passing all parking levels and horizontal shuttles servicing every parking level allows for various scopes of design.

Hundreds of parking places can be handled. This parking system model can be built above ground, under ground or mixed. Various vehicle heights can be parked.

The parking system auto- SP is suitable for public usage even there are peak hours with high traffic volume.

Parking places in a concrete structure, under ground



* Clear level height $h = \text{vehicle height} + 0,38 \text{ m}$



Transfer room

Vehicles will be parked head-in inside the transfer room and checked for correct position. The vehicle will then be parked via the turntable or directly via the storage and retrieval unit onto an empty shelf. To exit, the vehicle will be returned to the driver head-out. At no time is the driver ever allowed to interact with the automated mechanism.



Turntable

Once the vehicle is parked inside the transfer room, the position is checked and passengers having exited, the vehicle will be rotated to a head-out position and parked automatically. The turntable allows for any angle position for entry and exit.

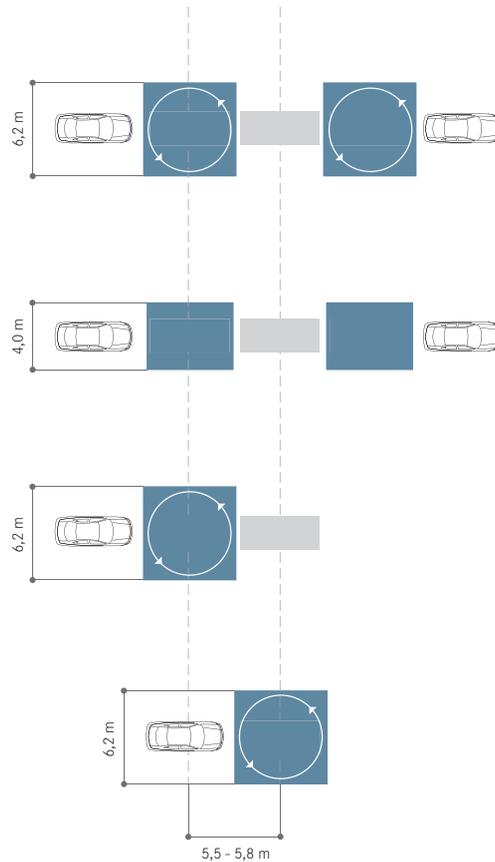
Transfer room: feasible solutions for transfer room arrangement

Independent transfer rooms with turntable on both sides of the car lift allow for flexible usage for entry and exit.

Independent transfer rooms on both sides of the car lift. The car lift can process the next request while the transfer room is still occupied. No need for a turntable in the parking system.

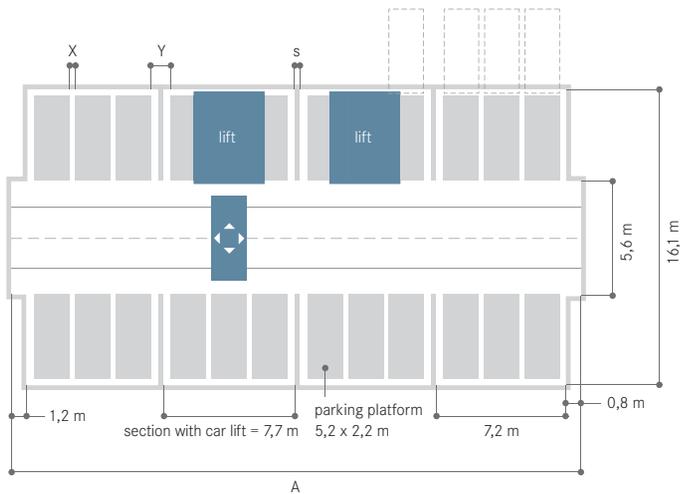
Independent transfer room with turntable. The car lift can process the next request while the transfer room is still occupied.

Transfer room located on car lift position. Entry and exit via the same transfer room. A turntable allows for entry and exit in driving direction. Lift pit + 1 m.



General system information

- Rack structure allows for double row or mixed row arrangement of the parking places.
- The pallet distance $X = 0,12$ m, the pallet distance $Y = 0,6$ m considering a wallplate of $s = 0,3$ m



The dimension of the room for the control cabinets is depending on the number of car lifts and the number of transfer rooms. 1 car lift with 1 transfer room needs a room size of 3,5 m length x 2,0 m width x 2,5 m high. 1 car lift with 2 transfer rooms needs a room length of 4,5 m.

Exemplary calculation of system length and height

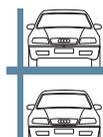
Total length for 12 rows of pallets including 2 car lifts and 3 wallplates of $s = 0,3$ m:
 $A = 1,2 + 2 \times 7,2 + 2 \times 7,7 + 0,8 = 31,8$ m

Clear overall height H for 2 parking levels for vehicles up to 1,60 m and 2 parking levels for vehicle height up to 2.00 m: (intermediate concrete slabs $d = 0,4$ m):
 $H = 2 \times 1,98 + 2 \times 2,38 + 3 \times 0,4 + 0,18 = 10,1$ m

For the car lifts an additional pit of 0,6 m depth is required.



Storage and retrieval unit (SRU)
 The automatic storage and retrieval unit moves on vertical and horizontal lines to service the various units off the racks. This system allows for the doubling of available parking compared to conventional garage operations.



Rack structure
 The system can be constructed around a free standing or in-house steel rack framework. The vehicles are delivered onto parking pallets situated on a rack. As an alternative a concrete rack structure can be used with pallet's rails bolted to the intermediate slabs.

