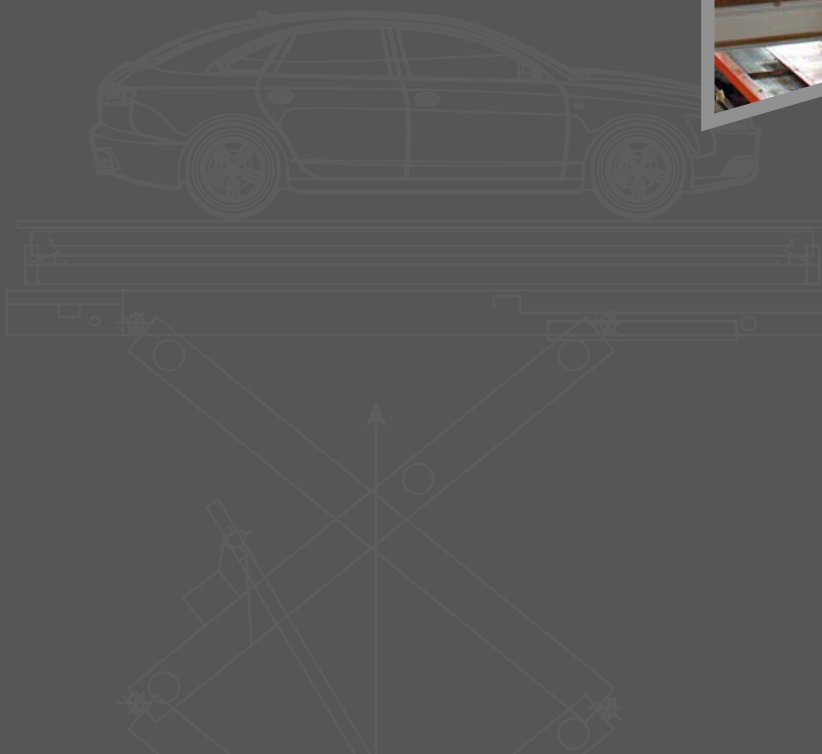
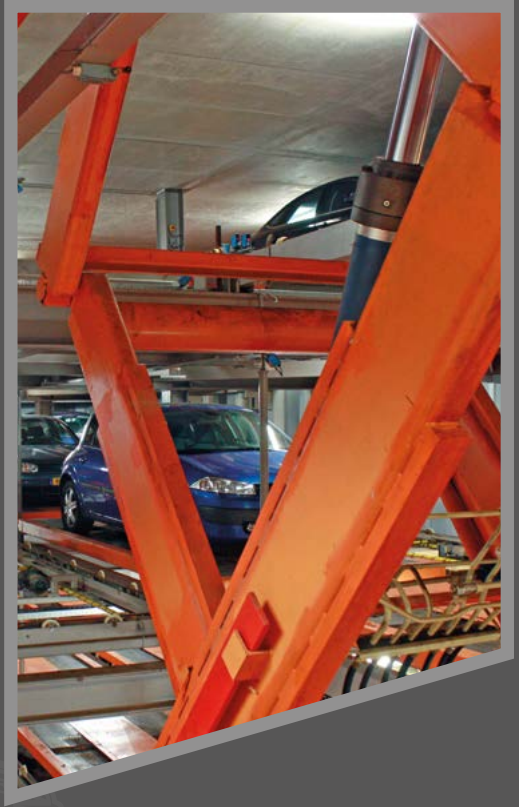


# Technical Details

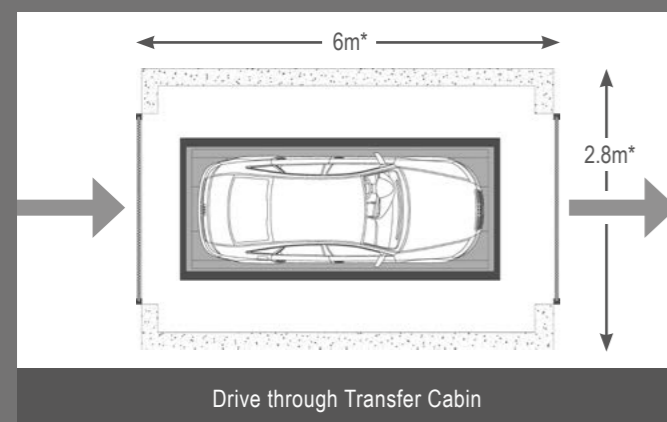


A 5BY2 system is typically comprised of transfer cabins, carriers and pallets, elevators or lifts, turntables and a control system.

### Transfer Cabin

The transfer cabin is the only area that can be accessed by users of the parking system. This is the room where the vehicle is driven on and off the parking pallet, where the vehicle dimensions are checked and where the user's actions are monitored. There are also various forms of transfer cabins.

**Drive Through Cabin:** Vehicles enter using the Transfer Cabin front door, exit by using the Transfer Cabin back door with no requirement for a turntable.

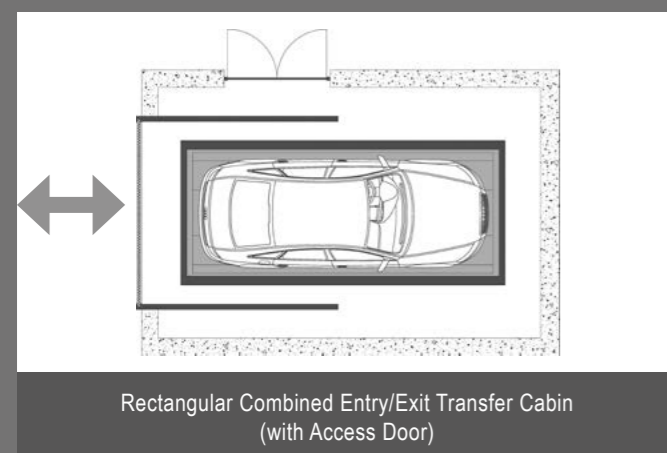


Drive through Transfer Cabin

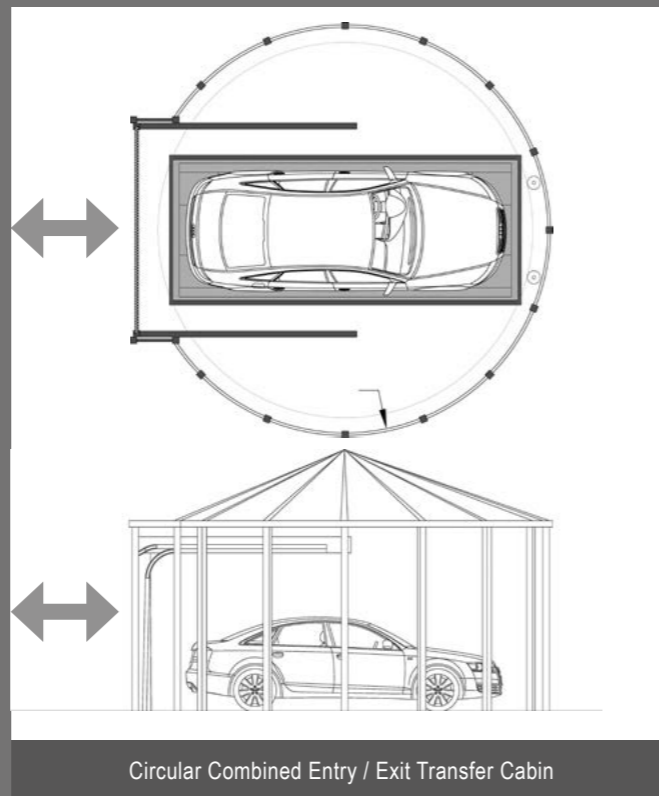
*\*Typical dimensions but not fixed*

### Combined Entry / Exit Cabin (with or without an elevator):

Variations include; either the car is turned in the garage such that the car can drive out easily, or the car is driven out backwards. For a turntable there are the following options: (i) the turntable stays at street level in the entrance while the elevator lowers into the garage; (ii) the turntable is placed on the elevator, turning the car after lowering into garage (iii) turntable is placed within the system. Once it is turned the car moves into the parking system.



Rectangular Combined Entry/Exit Transfer Cabin (with Access Door)



Circular Combined Entry / Exit Transfer Cabin

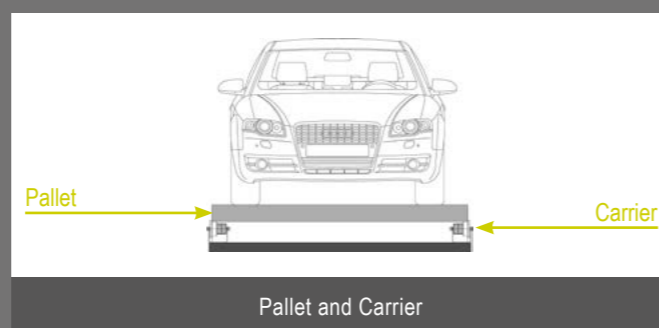
**Entry Only and Exit Only Cabin.** The entry Transfer Cabin is in a completely different location from the exit Transfer Cabin and the cabin can be on the same or different levels of the system. This tends to be more applicable in situations where there is a constant flow and not in residential or commercial developments where demand for either exit or entry can come in bursts.

Transfer cabins can be above, on the same level or below the parking system and can be manufactured from any material the client requires. Previous cabin construction materials include glass, steel, brick and concrete.

### Pallets and Carriers

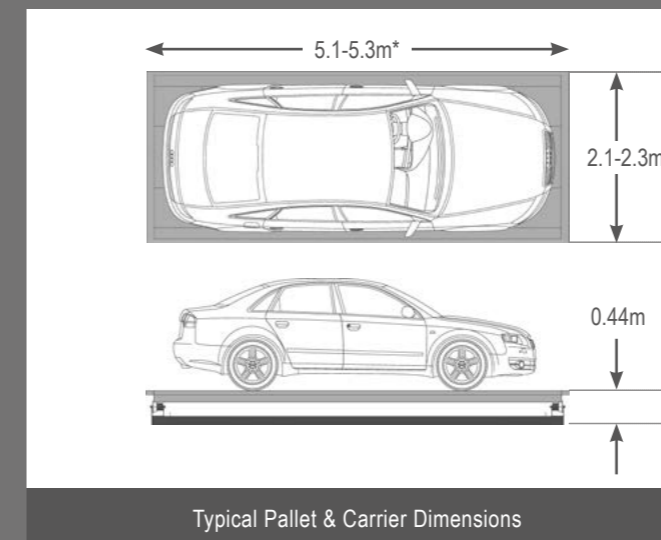
The pallets are horizontally stored in parking levels and sit on top of three different types of carriers:

- Lateral carrier, on which the pallets are moved laterally, or sideways.
- Longitudinal carrier, on which the pallets are moved longitudinally, or lengthways.
- Pop-up carrier, on which the pallets can be moved both laterally and longitudinally.



Pallet and Carrier

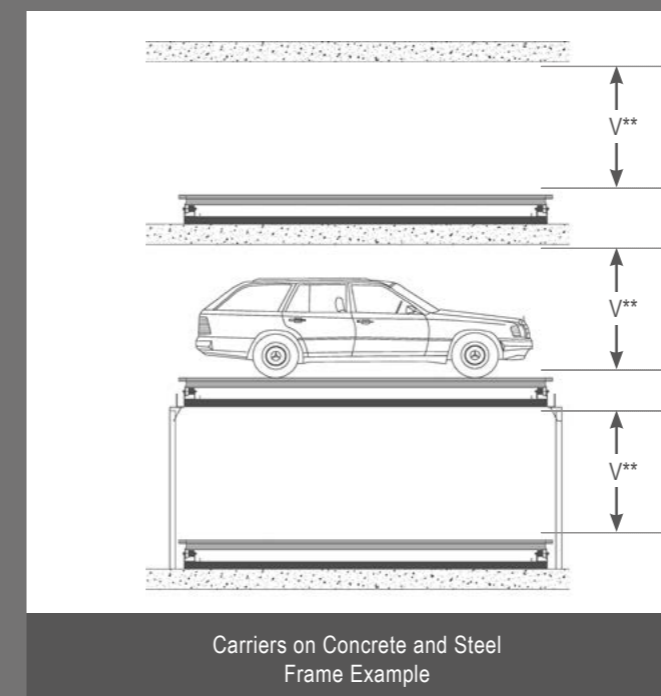
The carriers are positioned adjacent to one another and are able to move pallets, with or without cars, from one carrier to the adjacent one in either X or Y direction. This enables the densest parking available and also allows pallets to be manoeuvred around structural columns or blade walls. The choice of which type of carrier is installed, in which location, is dependent on system requirements and the site layout.



Typical Pallet & Carrier Dimensions

*\*Typical dimensions but not fixed*

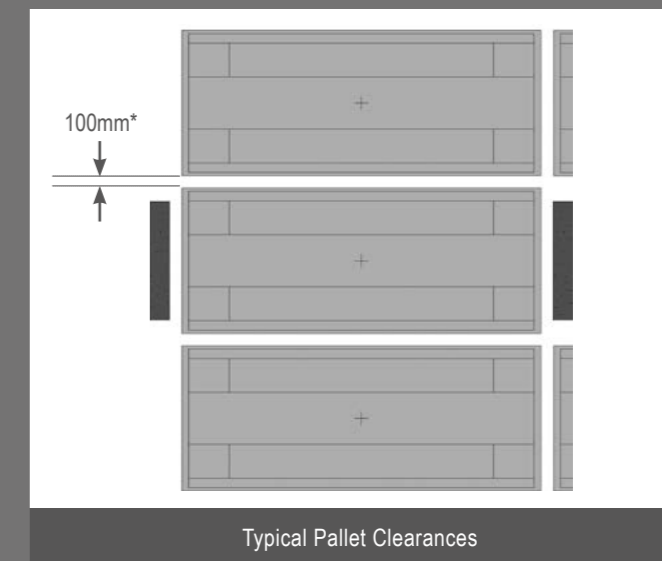
The carriers can be fitted directly to concrete floors, steel frames or a combination of both. Steel frames are typically two or three levels high and are secured on concrete floors.



Carriers on Concrete and Steel Frame Example

*\*\* variable height, to client's requirements*

Carriers are fitted with a number of sensors, motors, switches, wheels, belts and cams (depending on the type of carrier), which support and move the pallets in a controlled manner, with or without a vehicle, from one carrier to another. This process is repeated until a pallet has reached its desired location.

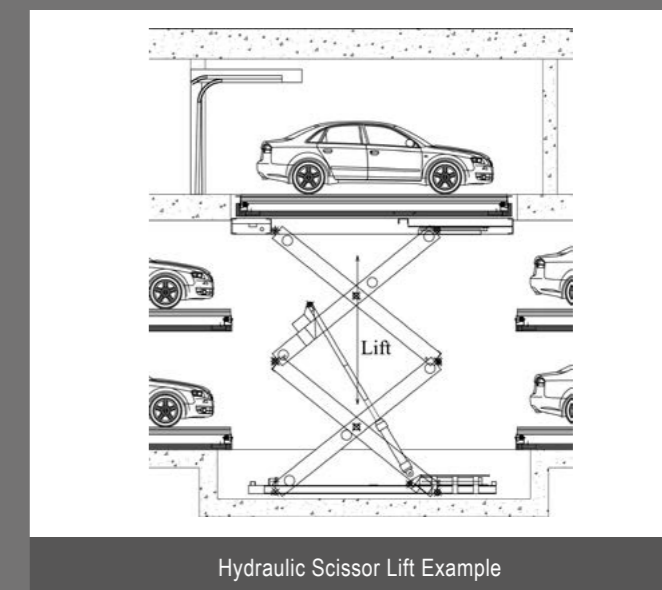


Typical Pallet Clearances

Carriers and pallets are typically spaced approximately 100mm from one another or structural members but this is flexible.

### Elevators

Elevators, or lifts, are used when the vehicles are parked within the 5BY2 system on different levels. The elevators can be either electrically or hydraulically operated and are typically located in the transfer cabin. The type and location of the elevator is dependent on the site and system requirements.



Hydraulic Scissor Lift Example

### Turntables

The turntable rotates the pallets so that a vehicle is delivered back in the transfer cabin facing the right direction for driving out without having to reverse. Turntables can be installed in the transfer cabins, on a lift, or internally within the system. Sometimes the turntable is also used in situation where the entrance is perpendicular to the orientation of the parking system.

## System Weight Capacity

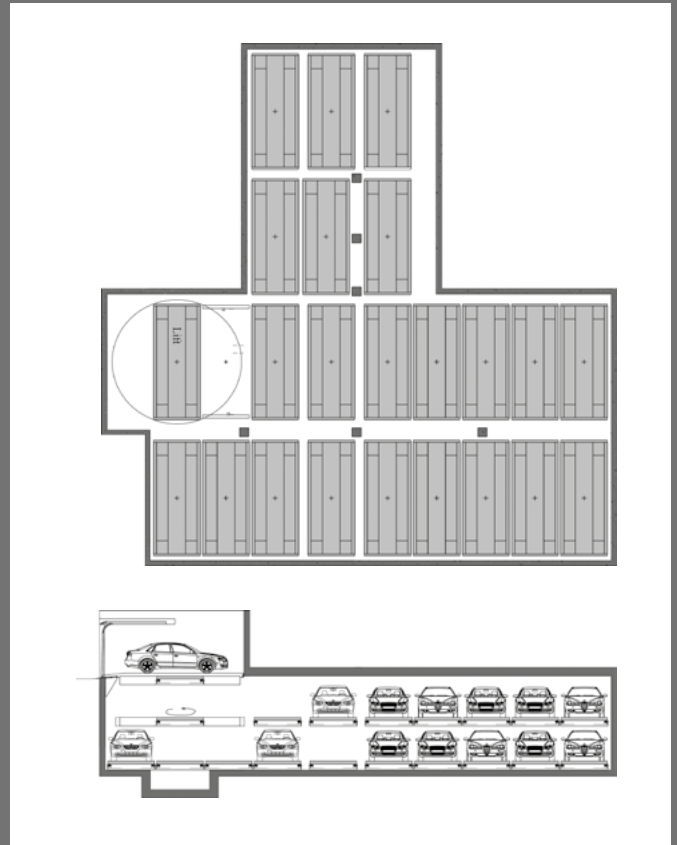
A standard 5BY2 system has a maximum vehicle weight of 2500kg; this will accommodate the majority of standard SUV and 4WD vehicles. However, certain more specialist vehicles may exceed this weight and these can be accommodated, subject to discussion with our engineering team.

The typical point load that is transferred to floor slab, based on a 2500kg vehicle is 1000kg per corner.

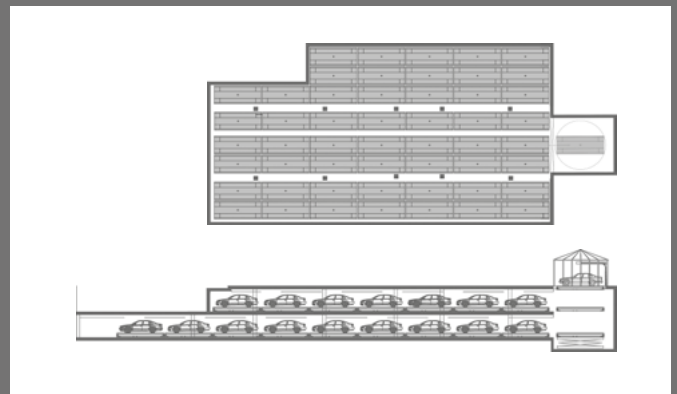
## Excavation Volume Savings

An actual case study comparing a conventional multi-level garage against a 5BY2 system for the same number of spaces showed a volume of 10,230m<sup>3</sup> for a conventional parking garage against a volume of 3,630m<sup>3</sup>, for a 5BY2 solution, saving 6,600m<sup>3</sup> or 65%.

## Example Layouts



Example Layout 1



Example Layout 2

**5BY2**  
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