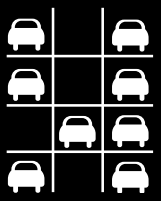
SILMAN
AUTOMATED
PARKING SYSTEMS

Integrated Parking Solutions
For High-Density Communities

DATA SHEET:

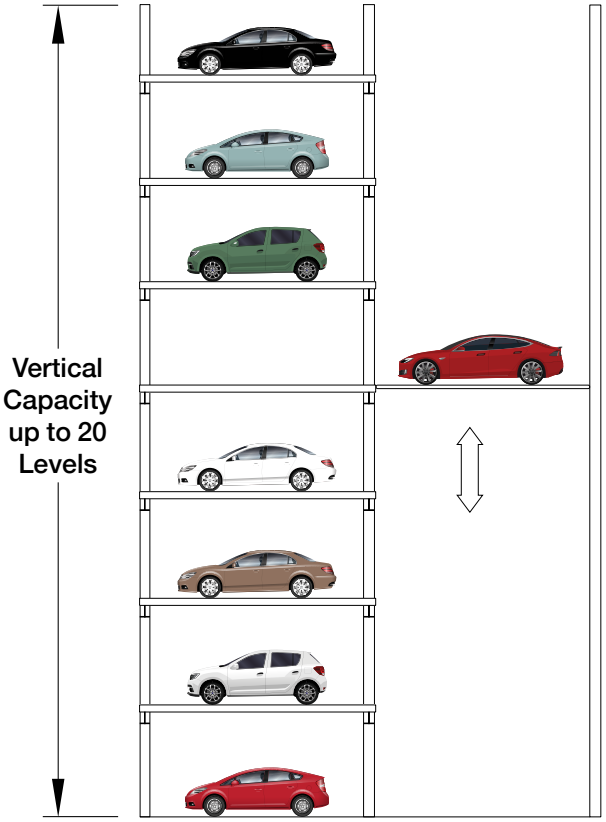
Tower System



Tower System

SilMan Automated Parking Systems (SAPS) is a leading provider of mechanical parking solutions, helping architects and developers create efficient spaces and build sustainable communities. When challenged by limited surface area, the Tower System maximizes capacity by optimizing vertical space.

All SAPS systems meet ASME B 20.1 v2024 and NFPA 79 v2024 standards.



System Overview

The Tower System deploys multiple mechanical operations to boost parking density. Vehicle rotation provides forward entrance and exit for driver convenience while minimizing drive aisles. This system is typically implemented as a standalone structure, offering an attractive strategy to expand leasable space.

The system accommodates up to 20 total levels of vertical capacity, including below-ground storage to -5 levels (-5 / +15), and can be customized to meet the specific requirements of your development.

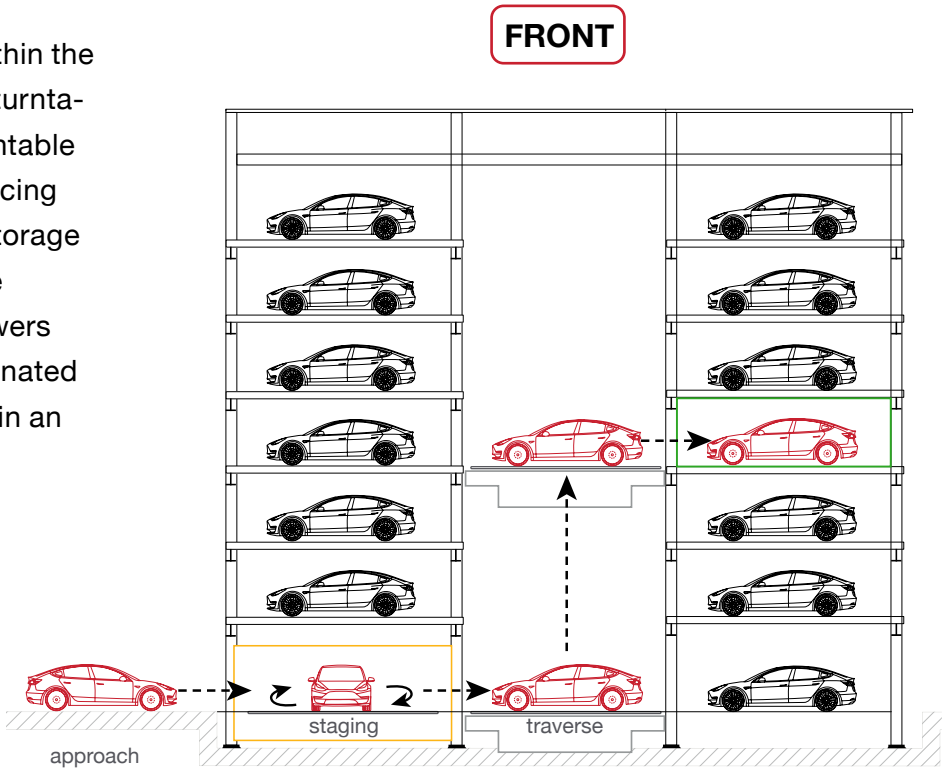
Watch for **Enhanced Performance** alerts throughout this document for ways to optimize your system operations and user experience.

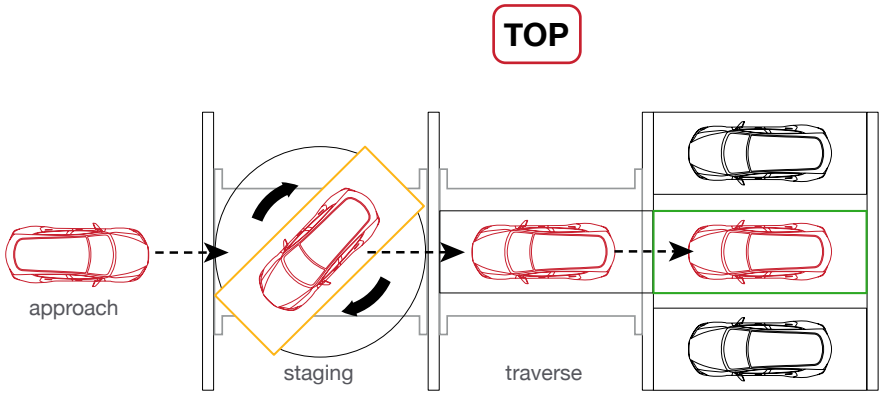
Tower System Operation

The Tower System is a custom solution that achieves efficiency for users and owners operating in constrained areas.

Drivers enter the staging area within the system, deposit vehicles onto a turntable, and exit the system. The turntable rotates the vehicle for forward-facing retrieval and is transferred to a storage pallet on a dedicated lift/traverse module. The system raises or lowers the pallet and vehicle to its designated level, moving laterally to place it in an assigned location.

Users store and retrieve vehicles from the ground level, where the system is alerted to their intent by a fob or touchscreen kiosk interface. An attendant is not required.





Tower System

System Details

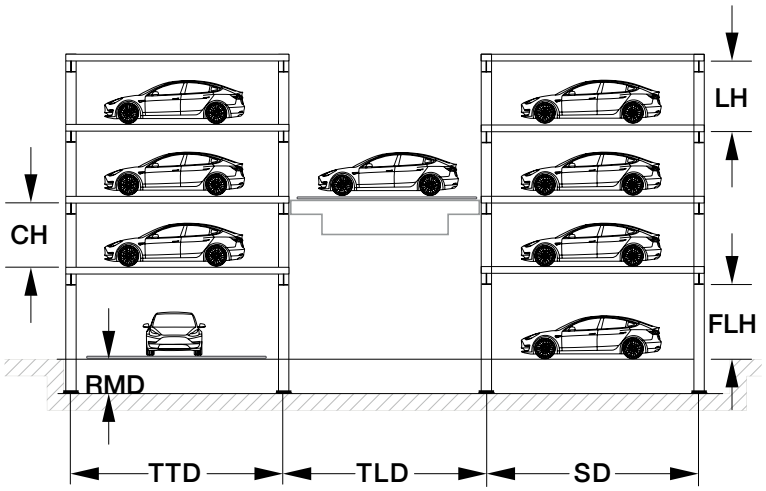
Dimensions

Center Line
Below Grade
Clearances

Detailed dimensions for the Tower System vary due to its flexibility. This section provides information for a “base model” example, including parking space and lift dimensions, outside dimensions, below-ground elements, and necessary clearances.

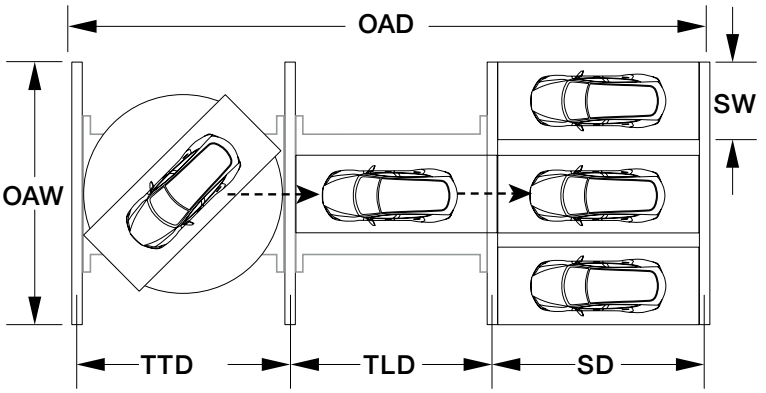
	Area	Dimension
TTD	Turn Table Depth	20’ - 4”
TLD	Traverse Lift Depth	20’ - 4”
SD	Storage Depth	18’ - 4”
FLH	First Level Height	7’ - 5”
LH	Level Height	6’ - 10”
CH	Clear Height	5’ - 4”
RMD	Required Mechanical Depth	3’ - 3”

FRONT



	Area	Dimension
OAD	Overall Depth	59'
OAW	Overall Width	25’ - 7”
SW	Space Width	8’ - 11”
TTD	Turntable Depth	20’ - 4”
TLD	Traverse Lift Depth	20’ - 4”
SD	Storage Depth	18’ - 4”

TOP



Tower System

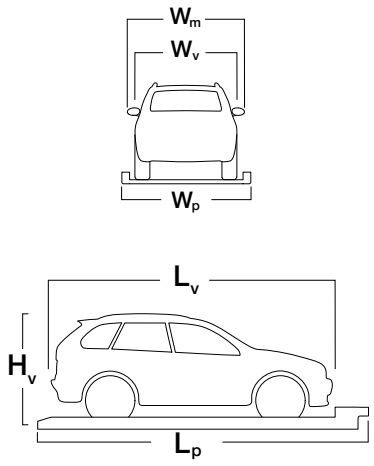
System Details

Vehicle Dimensions
Pallet Sizes

Standard Capacity

The Tower System is designed to accommodate a wide range of vehicle sizes and weights. This section outlines the standard vehicle dimensions that the system can handle, along with the corresponding pallet sizes and weight capacities.

	Dimension	Standard
	Vehicle Weight (lbs)	5,200
Wm	Vehicle Width - Mirror-to-Mirror (ft-in)	8’ - 6”
Wv	Vehicle Width - Wheel-to-Wheel (ft-in)	6’ - 10 ¾”
Wp	Pallet Width (ft-in)	8’ - 6”
Lv	Vehicle Length (ft-in)	17’ - 1”
Hv	Max. Height (ft-in)	7’ - 0”
Lp	Pallet Length (ft-in)	18’ - 1 ½”



Upgrades

- Vehicle capacity to 6,000 lbs
- Vehicle height from 5’ - 0” to 7’ - 0”
- Custom pallet sizes

For additional Options, refer to page 9.

Enhanced Performance: Our in-house design team consults directly with you to optimize vehicle size and weight parameters for your project.

System Details

Approach/Exit

Space Required to Access System

This section addresses the area needed for entry and exit to and from the system. For reference, here are sample turning radii for various vehicles.

Vehicle Make	Vehicle Model	Turning Radius
Chevrolet	Malibu	18’ - 6”
Tesla	Model Y	19’ - 10”
Nissan	Altima	18’ - 8”

System Finish

Standard Specifications

Finish Options

The choice of finish depends on the environmental conditions of the installation site. A powder coat is suitable for most environments, while galvanized steel is recommended for areas with harsh weather conditions.

Powder Coat

Galvanized

Electrical Specifications

Standard Specifications

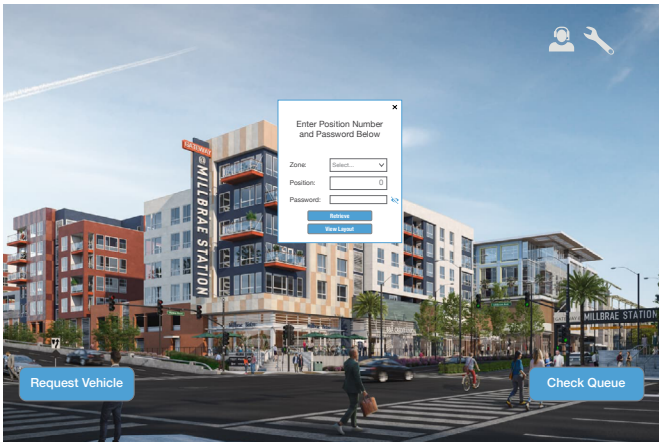
Automated parking systems are highly customizable. Each implementation varies significantly based on the unique characteristics of the project.

We recommend consultation with a SAPS parking professional to determine the parameters and demands of your system and the most appropriate electrical specifications and system requirements for optimal performance and compliance with relevant standards.

Enhanced Performance: Your user controls interface can be expanded to create a network of kiosk screens for convenient operation. A customized remote interface can also be created for property managers and owners to monitor and administer the parking system. Remote monitoring for quality service and performance is available with the SAPS full-service and support program.

Fob and Touchscreen Kiosk

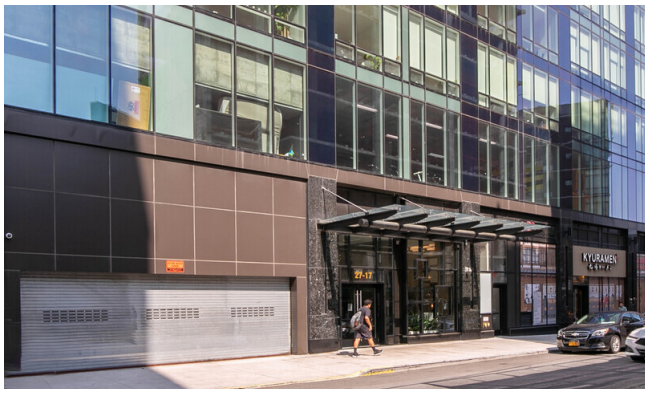
The Tower System is user-friendly, allowing drivers to alert the system of their intent to store or retrieve their vehicles using a fob or touchscreen kiosk.

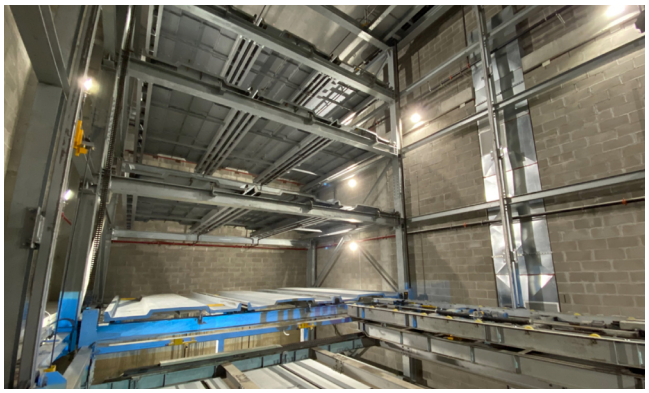


Impact on Building Systems

Construction

The Tower System is typically constructed as a self-supported freestanding structure that maximizes parking capacity and occupancy when surface space is limited. However, its versatility also enables seamless incorporation into building structures.





Noise Monitoring and Testing

During operation, the system is intermittently 25 dBA above the ambient garage noise level and is estimated to be 80 – 90 dBA, depending on the surrounding acoustics.

Slab, Embedment, and Drain Slope Requirements

Slab

Automated parking systems are highly customizable. Each implementation varies significantly based on the unique characteristics of the project.

For example, a -1/+2 configuration requires a minimum 6-inch (152 mm) thick slab with a compressive strength of 3,000 psi (20.7 MPa). However, since this technology can expand to 20 levels, additional slab thickness and/or compressive strength could be required, as determined by structural engineer analysis and the geographic location of the installation.

We recommend consulting with a SAPS parking professional to determine the requirements for specific implementations.

Embedment

No embedment is required for the installation of the parking system, simplifying the construction process and minimizing disruption to the existing structure.

Drain Slope

A drain slope of 2% (1/8 inch per foot) is recommended for proper drainage and to prevent water accumulation within the parking system. Collaboration with the Architect is essential to confirm that the drainage system is compatible with the parking system design and functions effectively.

Options

Tower System Options

- Remote monitoring and support
- EV charging
- Life-cycle support services

Appendix

Warranty

SilMan Automated Parking Systems offers a standard one-year warranty on all mechanical parking systems. This warranty includes a one-year service contract with quarterly onsite inspections to ensure optimal system performance and address any potential issues.

Maintenance, Service, and Support

SilMan is committed to providing comprehensive maintenance, service, and support for all of our automated parking systems. We offer a range of service plans to meet your specific needs, ensuring that your system operates smoothly and efficiently throughout its lifespan.

Retrieval Times

Retrieval times are an essential criteria for architects and developers when selecting a high-density parking system. When comparing retrieval times between mechanical parking and surface systems, it is crucial to consider the time spent walking and driving in a surface or ramp parking lot to make an accurate comparison.

Parameters affecting retrieval times:

- Size of system
- Distance of the vehicle from the pick-up location
- Number of users at a given time
- Retrieval activation method
- Number of entries and exits
- Advance queue via remote touchscreen kiosk or mobile app

User Safety

Gates and screens restrict access to the system while in use. Testing the safe operation of gates occurs during the commissioning process. Mechanical parking systems also contain uneven walk-ways and low head clearance, requiring the installation of safety signage before public use of the parking system.

Safety signage, lighting, etc. are outside the parking scope and is installed by others.

Items Beyond Parking System Scope

ADA Requirements

ADA compliance is typically outside the scope of work for mechanical parking systems. However, tower systems may accommodate ADA requirements in certain circumstances. Speak with a SAPS parking professional to assess your project and to learn more.

Fire Suppression and Safety

Fire control systems, safety signage, and lighting are not included in the Tower System and should be installed by qualified professionals to guarantee compliance with safety regulations.

Mechanical Parking is Building Value

The SAPS Tower System adds efficiency, revenue opportunities, and a touch of luxury to your project when challenged by limited interior and exterior spaces.

Moreover, SilMan's "One Team" approach delivers unique value as a mechanical parking system provider, offering self-performed services throughout every phase of your project.

SilMan Industries is a well-established automation and industrial service provider. Since 2015, the company has installed over 4,000 automated parking spaces in communities just like yours.

Contact a

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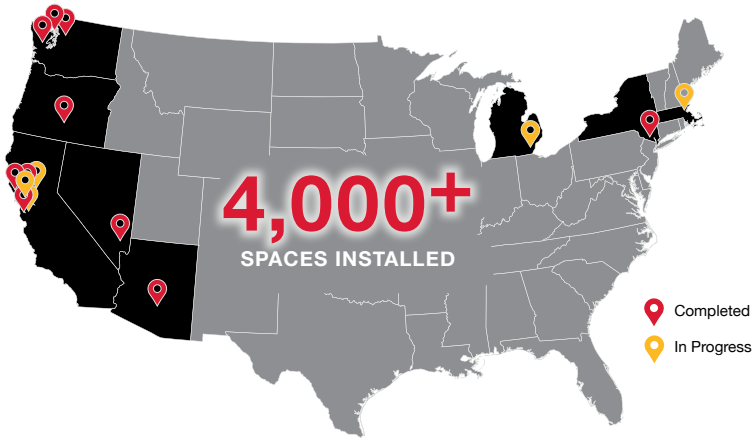

SILMAN INDUSTRIES

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