

PUZZLE 3LP SERIES



Technical Information and Product Specification

Version 3.2



3 Level Puzzle Solutions

3 LEVEL PUZZLE SERIES

Solution Overview

The 3 Level Puzzle series is a versatile mechanical parking solution designated to utilize available parking space fully. Every space in this Puzzle Lift is independently accessible. This highly modular design is fully customizable to fit into tight locations. The system can be used with standard vehicles or customized for heavy fleet vehicles. Enhancements include Tandem and Pit configurations, Galvanization, Flat Pallets and High Weight Capacity Pallets. All systems are EV Charger ready with all spaces capable of Level 1 or Level 2 EV Charging configuration.



Application

These systems are designated to be used only by trained users; temporary and general public parking require an attendant for this solution. Typical applications include multi-family residential, office, and fleets in densely populated areas. Puzzle Lifts do not require an attendant if users have appropriate training.

General Notes

The equipment size is larger than the car length and width noted in above. See the Trival Car Fit Guide for vehicle makes & models that will fit on each platform/level. Recommended heights for upper level: 5'-5" sedans and 6'-6" for SUVs. Standard heights for ground level: 6'-8". Ground-level heights can be customized upon request to accommodate the target clear heights. Smaller platform sizes are available upon request. Tolerances in dimension: 6" for length and width, 3" for height, 6" of clearance from the rear face of the puzzle column to any wall or column behind is required. 10" is recommended for door swings on sides of lifts that are adjacent to walls. A 4.5" recess is recommended for Standard pallets. A 6" recess is required for flat pallets. Use the largest platforms whenever possible to create the best user experience and accommodate a larger range of vehicle sizes. Alternative Trivial flat pallets and recess platforms into the slab (4.5") create a better user experience. The typical dimensions of puzzle lift spaces are 8'-6"x20' but will be determined by the final design.



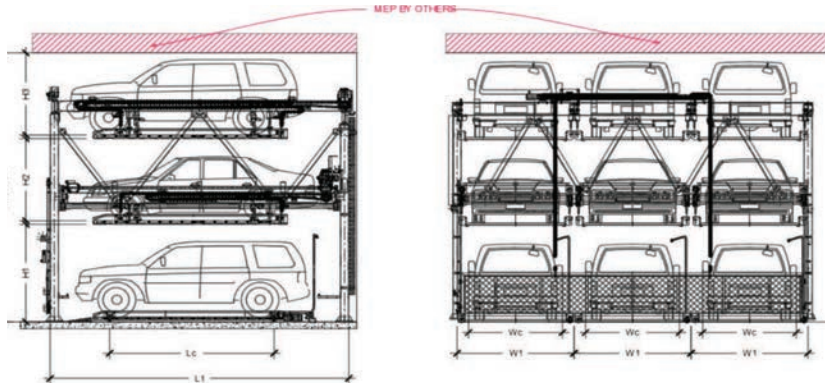
Customer Requirements

As mechanical systems, these systems require routine inspection and maintenance. Failure to follow recommended maintenance schedules and requirements will reduce the system's life and can result in poor reliability. All systems require safety fencing per NFPA-79 for the safe operation of the equipment. Fire alarms, sprinklers, lighting, ventilation, and drainage are not included. Per the approved design submittal, appropriately rated power and disconnect is outside the scope of this solution.

3 Level Puzzle Measurements

STANDARD SYSTEMS

3 Level - Standard



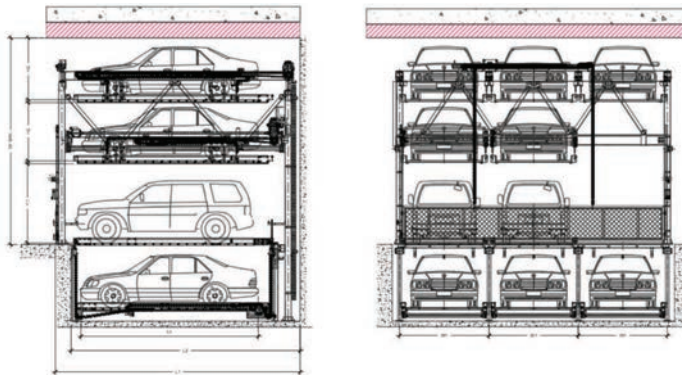
3LP

Standard Measurements	Length	Width	Height
Equipment	21 ft L1	8 ft - 6 in W1	20 ft Min
Vehicle	17 ft 1 in Lc	6 ft - 10 in Wc	

Recommended Height		
Level 3	6 ft - 6 in	H3
Level 2	5 ft - 5 in	H2
Ground	6 ft - 8 in	H1

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3 Level - w/ Pit



3LPWP

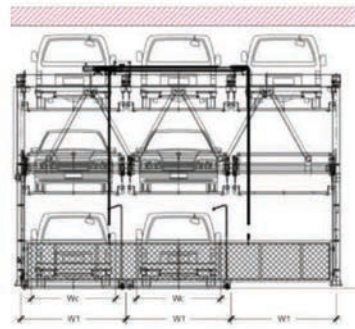
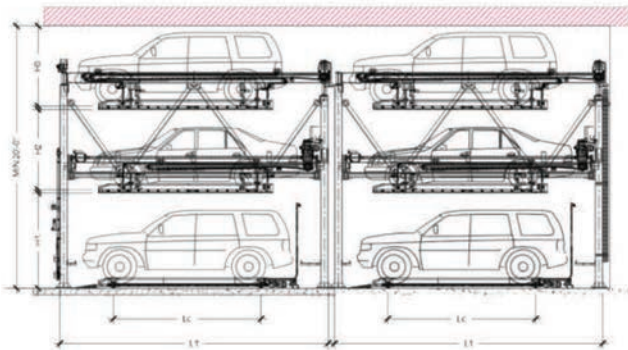
Standard Measurements	Length	Width	Height	Depth
Equipment	22 ft 6 in L1	8 ft - 6 in W1	20 ft Min	
Vehicle	17 ft 1 in Lc	6 ft - 10 in Wc		
Pit				7 ft - 2 in P1

Recommended Height		
Level 3	6 ft - 6 in	H3
Level 2	5 ft - 5 in	H2
Ground	6 ft - 8 in	H1
Pit	5 ft - 10 in	P2

3-Level Puzzle with Pit Solution is considered to maximize the vehicle occupancy in an eligible floor plan. Additional excavation is required to construct the Pit spaces. 3-Level Puzzle with Pit solution can generate 60% more parking

TANDEM SYSTEMS

3 Level - Tandem



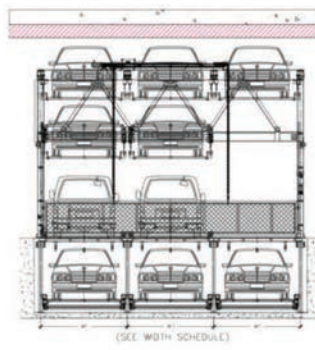
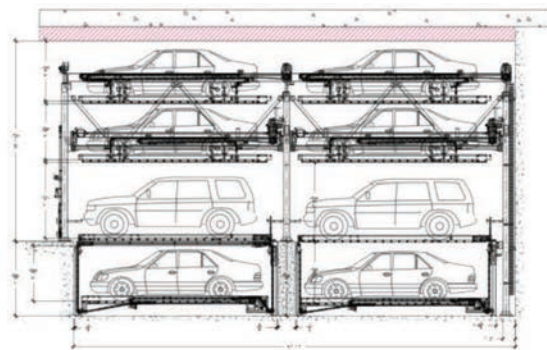
3LPT

Standard Measurements	Length	Width	Height
Equipment	41 ft L1	8 ft - 6 in W1	20 ft Min
Vehicle	17 ft 1 in Lc	6 ft - 10 in Wc	

Recommended Height		
Level 3	6 ft - 6 in	H3
Level 2	5 ft - 5 in	H2
Ground	6 ft - 8 in	H1

3-Level Puzzle Tandem system is considered if available parking floor space can accommodate two rows of the parking modules in an integrated Puzzle Lift system. Systems as wide as 12 spaces are possible if columns are arranged efficiently.

3 Level - Tandem w/ Pit



3LPTWP

Standard Measurements	Length	Width	Height	Depth
Equipment	43 ft L1	8 ft - 6 in W1	20 ft Min	
Vehicle	17 ft 1 in Lc	6 ft - 10 in Wc		
Pit				7 ft - 2 in P1

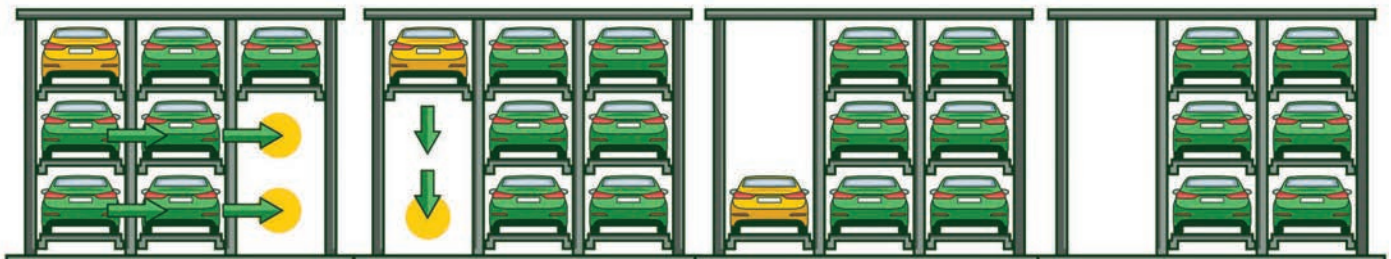
Recommended Height		
Level 3	6 ft - 6 in	H2
Level 2	5 ft - 5 in	H2
Ground	6 ft - 8 in	H1
Pit	5 ft - 10 in	P2

3-Level Puzzle Tandem with Full-Space Pit solution is a value added option when all the parking footprint area is eligible for Pit construction. This can increase space count by more than 65-70% than a standard 3-Level Puzzle Tandem system, when required excavation is available.

3 Level Puzzle Technical Information

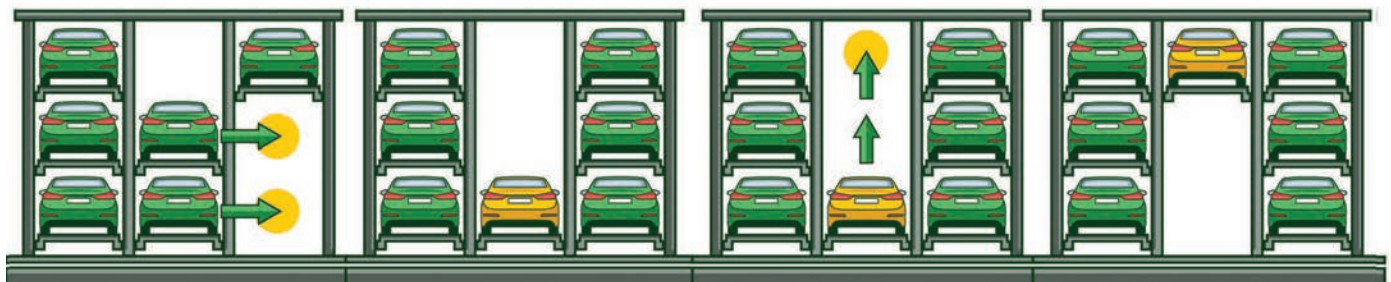
3 LEVEL PUZZLE FUNCTIONALITY OVERVIEW

3 Level Puzzle Standard



When arriving at the system, the user calls their space by the kiosk. After their space is retrieved, the user will carefully depart in their vehicle, exiting the system and closing the gate with the fob. Upon returning, the user's calls their empty space with the fob. Once the space is retrieved, the gate will open, the drives into the lift and parks their vehicle, exits the lift and uses the kiosk to close the gate.

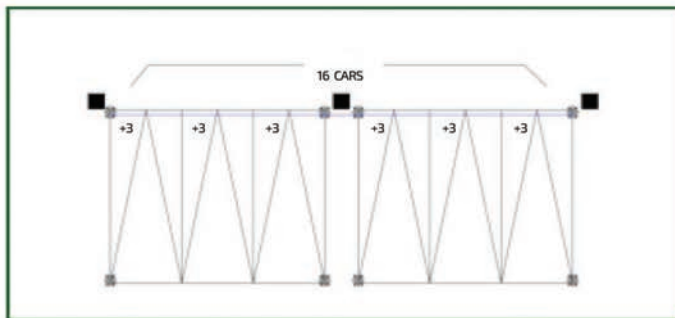
3 Level Puzzle with Pit



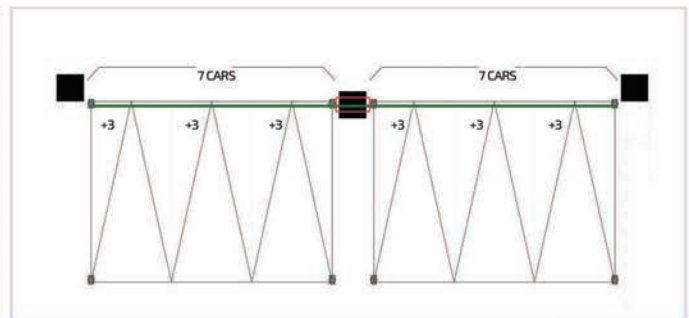
When a user arrives with their vehicle, they use the fob to call their space. Once their space is ready, they carefully park their vehicle, exit the system and close the gate. The vehicle is then placed back into the Pit for storage. Pit system function the similar as a 3LP with the exception that vehicles can be stored in the pit and ground spaces move to allow for pit vehicles to be lifted to ground level.

SITE CONSIDERATIONS

Column Placement



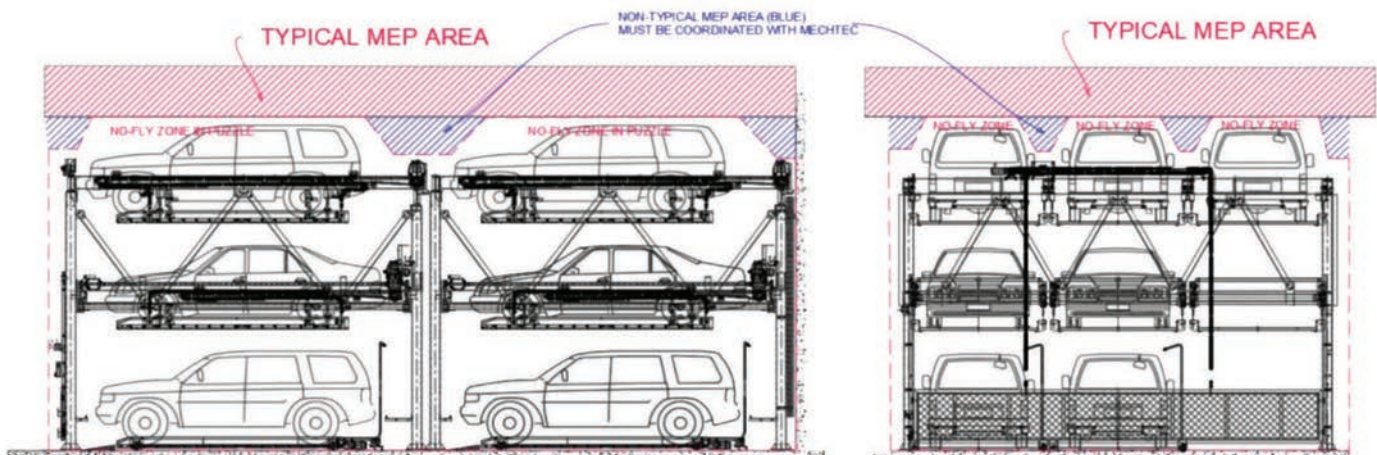
Good Column Placement, 16 Cars



Inefficient Column Placement, 14 Cars

In designing a parking plan, the architect shall coordinate with Trivial for building column locations. Building columns shall be situated outside the “footprint” of a parking module without overlapping with the area used by the system. Parking modules can be grouped without column interference to optimize the number of parking. Standard 3LP Puzzle Lifts are free-standing and do not connect to building columns.

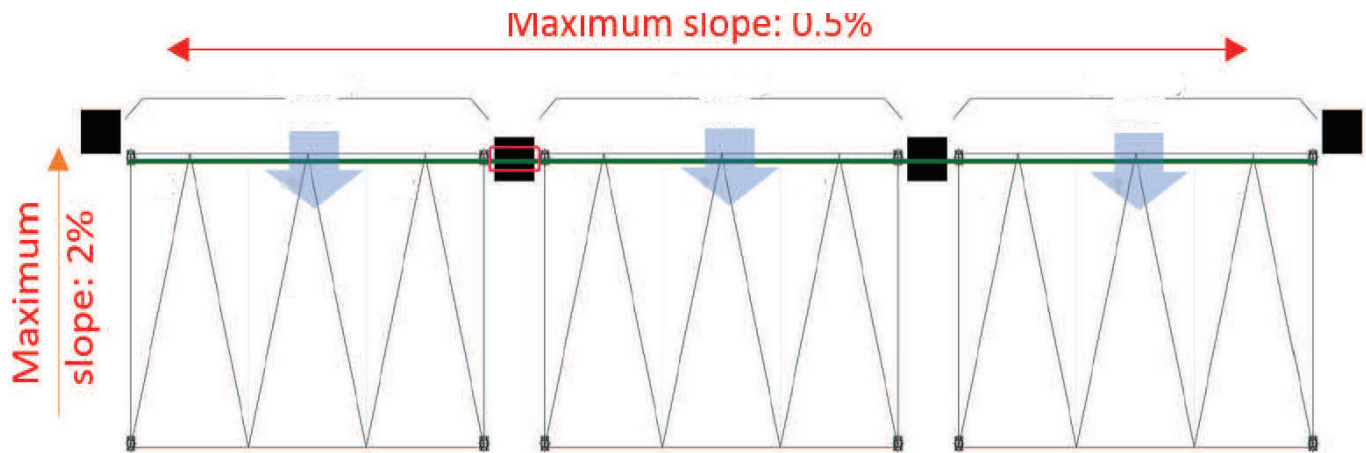
Building MEP Placement



A Verified Architect MEP Plan and Field Inspection are required to ensure no conflicts. MEP Locations (shaded areas) around the Parking Spaces.

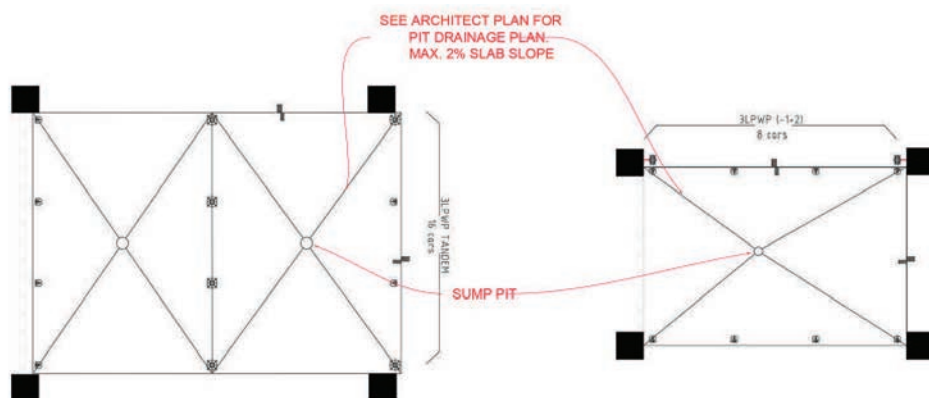
3 Level Puzzle Technical Information

3 Level Puzzle Slope



Slab Elevations: -0", +1" Cannot be higher than designed; Can be up to 1" Lower than designed. Slab Slope: 0.5%/2.0-%: 0.5% slope maximum perpendicular to vehicle parking direction of system. 2.0% maximum parallel to vehicle parking direction of system.

Pit Sump and Drainage



An appropriate drainage plan is required for the puzzle system in Pit design to alleviate the risk of water hazards. Surface of Pit's concrete slab shall follow the general required site conditions, such as slope, drainage, and flatness of concrete slab surface.

Electrical Specifications

There is one control panel per group. The control panel can be wall-mounted on an adjacent wall or to the steel frame of the system. The control box must be within line of sight of the system and requires 3 feet of front clearance. Each control panel requires a 3-phase/208v/40amp disconnect with neutral (480v also available) for standard systems and network (RJ45 data port) connection. Larger systems with pits and tandems will sometimes require a higher amp disconnect. The final electrical requirement will be prescribed as per the submittal based on the final design. System programming is provided by Trivial and will not require upgrades or patches for the system's lifetime. The system can maintain the program for one month without an electric supply. All systems must be inspected by an Internationally certified third party i.e., Intertek, to ensure the final installed systems meet National NFPA 70 & 79 and Local codes.



Environmental

The system is rated for an ambient air temperature for operation of between 14 to 131 °F (-10 to 55 °C) and Ambient Air Temperature for Storage -13 to 158 °F (-25 to 70 °C) with a relative humidity between 10 to 95%, without condensation. An optional winterization package is available. Relative humidity Operating altitude between 0 to 6561.68 ft (0 to 2000m). An optional high-altitude package is available. IP degree of protection is rated at IP54. The system is not rated to be used stand-alone without a roof and weather-resistant side protection.



PUZZLE 3LP SERIES

Trival fully reserves its rights to make changes, without notice, to this specification as required due to supply chain availability, technological progress and local requirements to fulfil its obligations



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