
Automated 3D Pallet Shuttle

High-density pallet storage solution featuring autonomous, multi-directional shuttles to maximise warehouse storage capacity, productivity and flexibility.



3D Automated Pallet Shuttle

Maximum high-density pallet storage and operational productivity

The 3D Automated Pallet Shuttle is an advanced system based on a multi-directional shuttle capable of navigating all the spaces in a pallet storage system. The shuttle transports loads along the aisles, entering storage channels and changing levels autonomously.



Advantages

- **High productivity** thanks to the shuttles' speed and operational versatility.
- **Increased storage capacity** through maximised use of space.

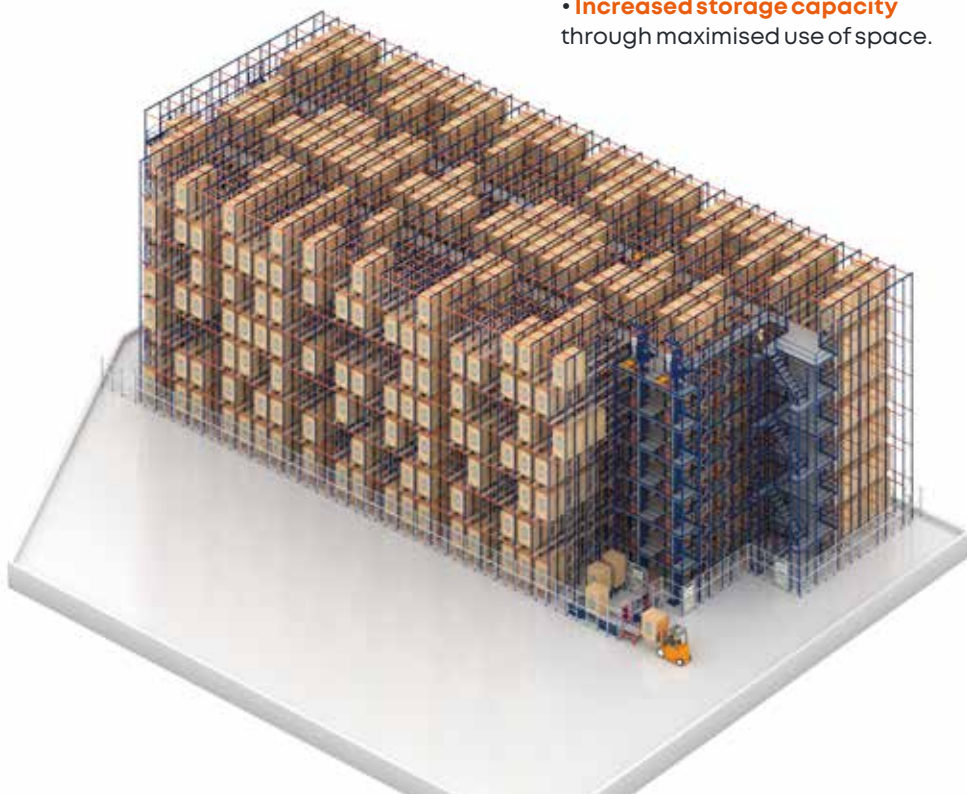
- **Greater diversification:** each storage channel can house more than one SKU and various pallet sizes.

- **Autonomous, intelligent operation** of the shuttles via fleet management software that oversees traffic and optimises shuttle routes.

- **Scalability:** the solution's modular design facilitates its future expansion in line with business growth.

- **Flexibility:** ability to add shuttles to boost throughput.

- The system provides **significant energy savings** in low-temperature warehouses.

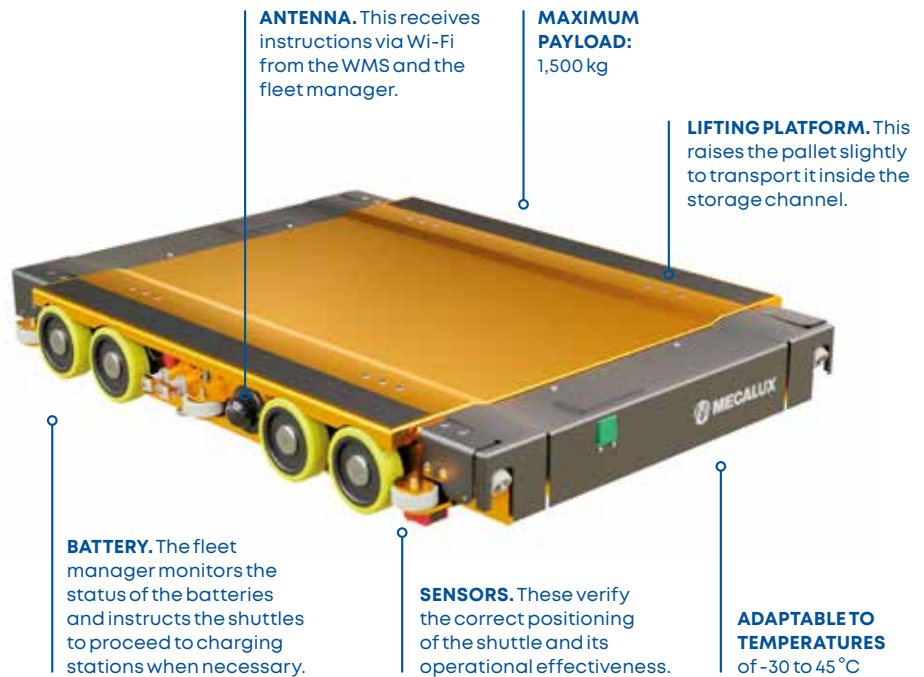


Components

The system consists of the following elements:

- **Racking** for housing the goods.
- **Shuttles**, which handle the pallets.
- **Lifts** to connect the different levels of the storage system.
- **Conveyors** for the inbound and outbound movement of goods.
- **Easy WMS warehouse management system** to supervise racking locations and control stock.
- **Fleet management software** for coordinating shuttle movements.

The motorised shuttle is designed to handle pallets of various sizes in a single channel. Additionally, it is equipped with an obstacle detection system, ensuring that loads are moved safely.



How does it work?

Mecalux's 3D Automated Pallet Shuttle can operate continuously, 24/7.



1. The shuttle picks up a pallet from the inbound conveyor in front of the racking.

Through a Wi-Fi signal, the WMS assigns the pallet the optimal location. The fleet manager determines the best route to reach that position.



2. Using the lift, the shuttle moves to the level of the assigned location.

Once at that level, the shuttle travels along the aisle following the direction of circulation determined by the fleet manager. This software coordinates traffic and, with the sensor system, regulates the speed of the shuttles.



3. The shuttle arrives at the indicated storage channel, raises the pallet slightly and enters the channel, depositing the load in the deepest available location.

The shuttle stores goods as compactly as possible, regardless of the size of the pallets in the channel.



4. After depositing the pallet, the shuttle leaves the channel. It can exit on the same side it entered or on the opposite end, travelling underneath the pallets.

The software indicates exactly when the shuttle should rejoin circulation and assigns it the next task.



3D Automated Pallet Shuttle

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Ideal technological solution for businesses seeking high-density storage and increased flows of goods in their logistics centres.



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in 23 countries

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