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WAP Intelligence Storage Equipment (Shanghai) Corp., Ltd.



- WAP SHUTTLE
- CASE STUDY
- AUTOMATED SHUTTLE SYSTEM
- AWARDS & CERTIFICATES

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WAP SHUTTLE

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It is a high-density storage system that can be used in FIFO or LIFO designs, it is also used in warehouses that work with medium or high turnover products. It consists of three main elements: Racking, Shuttle and Forklift.

The principle of operation is based on the movement of a Shuttle car that moves through a system of rails inside the tunnels. Depending on the movement that the car is doing, it can retrieve or store pallets. The Shuttle performs the movements automatically, since there is no need for the forklifts to enter the work aisles, the operator simply uses the radio transmitter to give the Shuttle instructions on the command to be carried out.

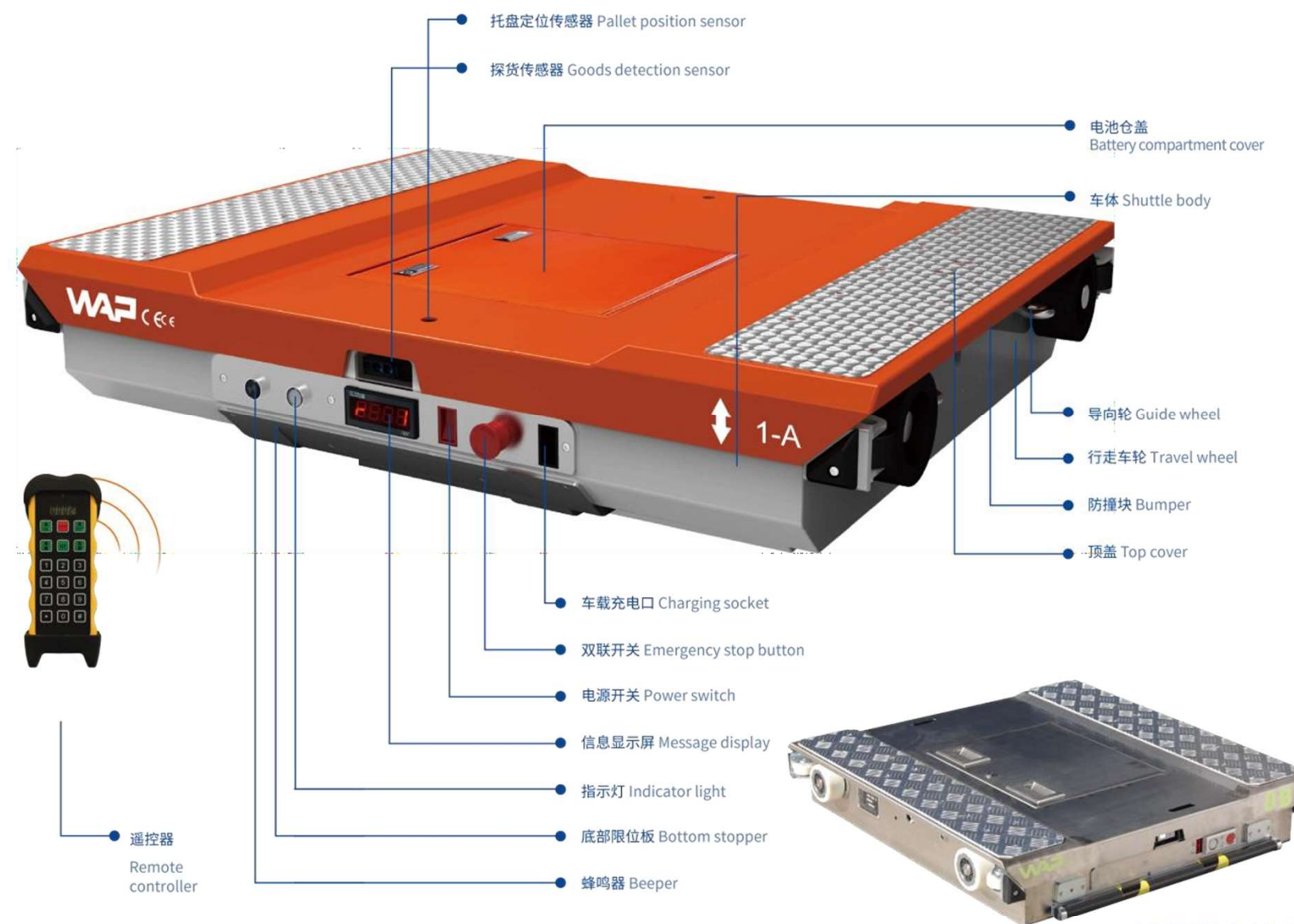
This efficient storage method offers new options to increase the efficiency and utilization of warehouse space.

Operating Environment

Operating ambient temperature (cold storage type): -30°C to +5°C
 Working ambient temperature (standard type): -5°C to +40°C
 Ambient temperature for charging and storage of shuttle: +5°C to +30 °C
 Light conditions: ≤3000 Lux
 Relative humidity condition: ≤85%

Basic Function

Single/continuous automatic pickup
 Automatic pickup of specified quantities
 Goods moving to change sides
 Manual in and out, lift, etc.
 Automatic return with insufficient power
 Remote control can control multiple shuttles



低温型穿梭车

CE 台车设计获CE认证
 The shuttle car is CE certified

Operating Environment

Operating temperature (room temperature type): +5°C~+40°C

Operating temperature (cold storage type): -20°C~+5°C

Rated load: 1.5T

No-load speed: 1.2m/s

Full load speed: 1.0m/s

Acceleration: 0.3m/s²

Jacking mode: mechanical jacking

Positioning method: RFID / photoelectric

Positioning accuracy ±3mm

Power supply mode: lithium battery

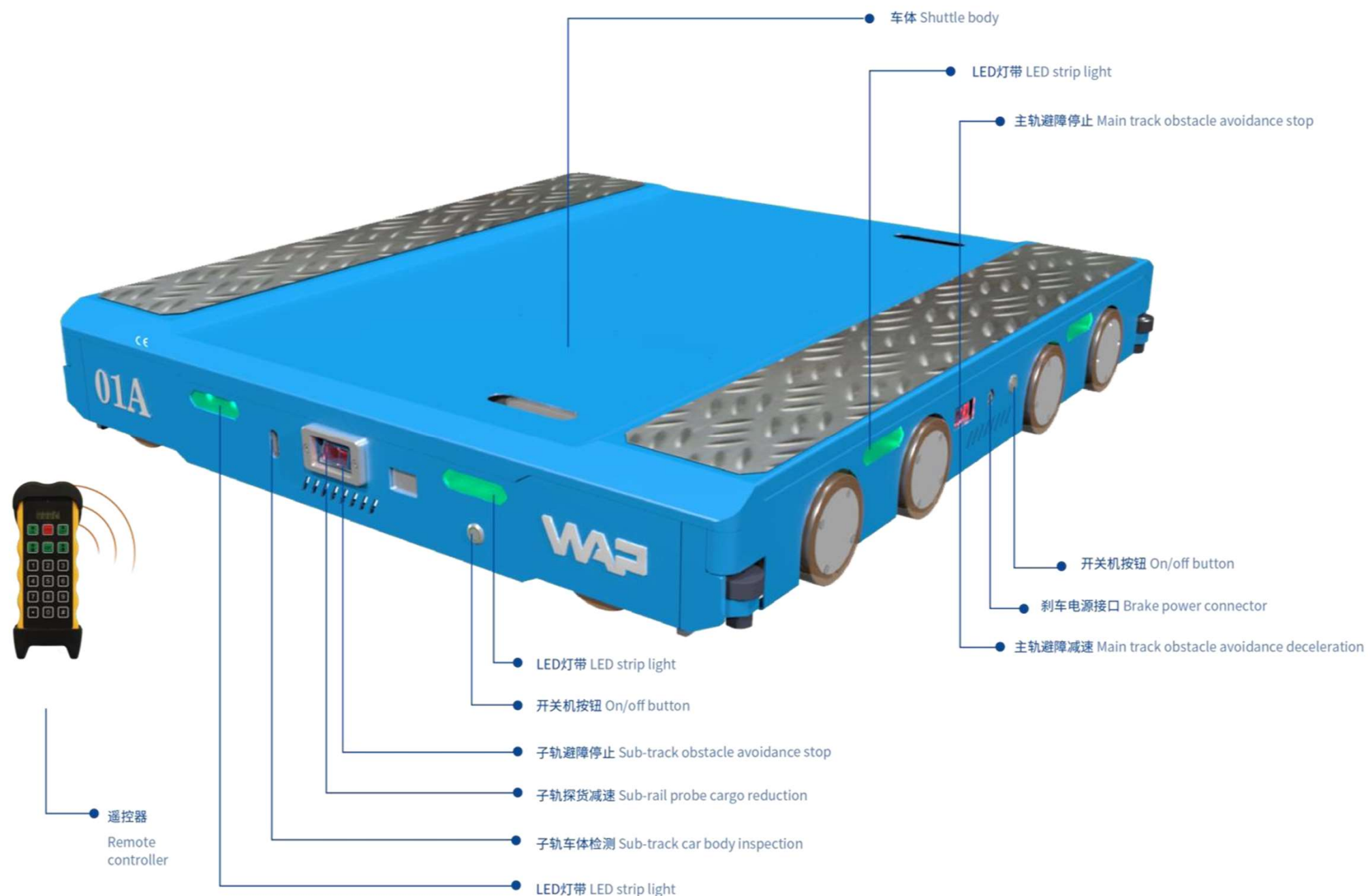
Battery life (full load): ≥8 hours

Charging time: ≤2 hours

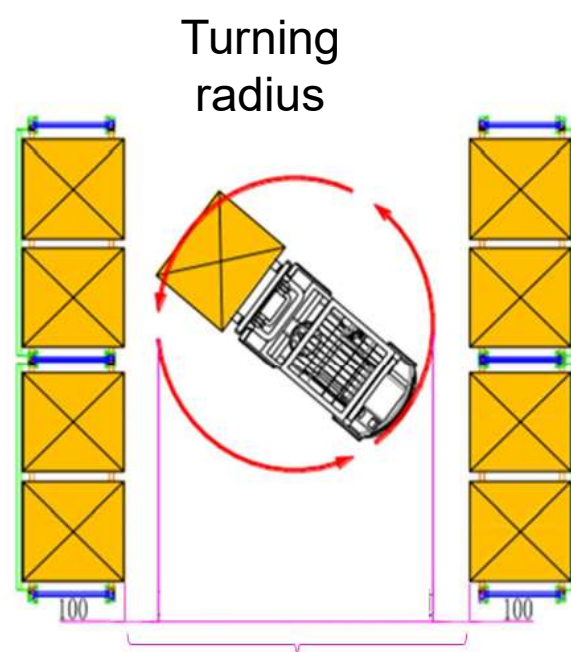
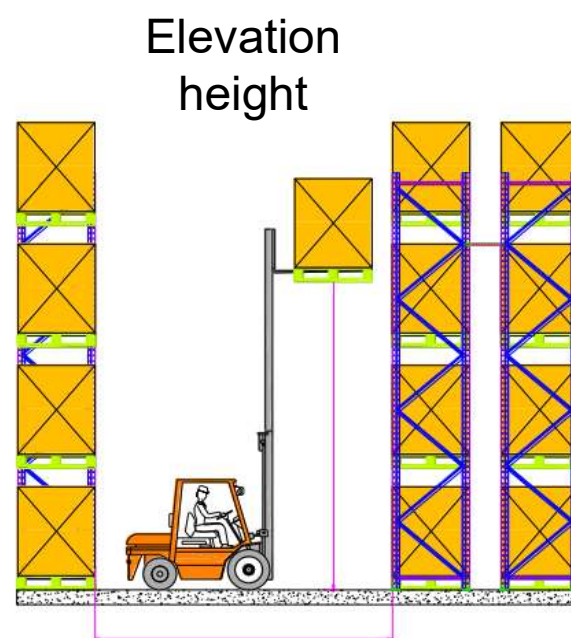
Charging mode: automatic charging

Control mode: automatic / manual

Communication mode: WiFi



IMPORTANT DESIGN POINTS

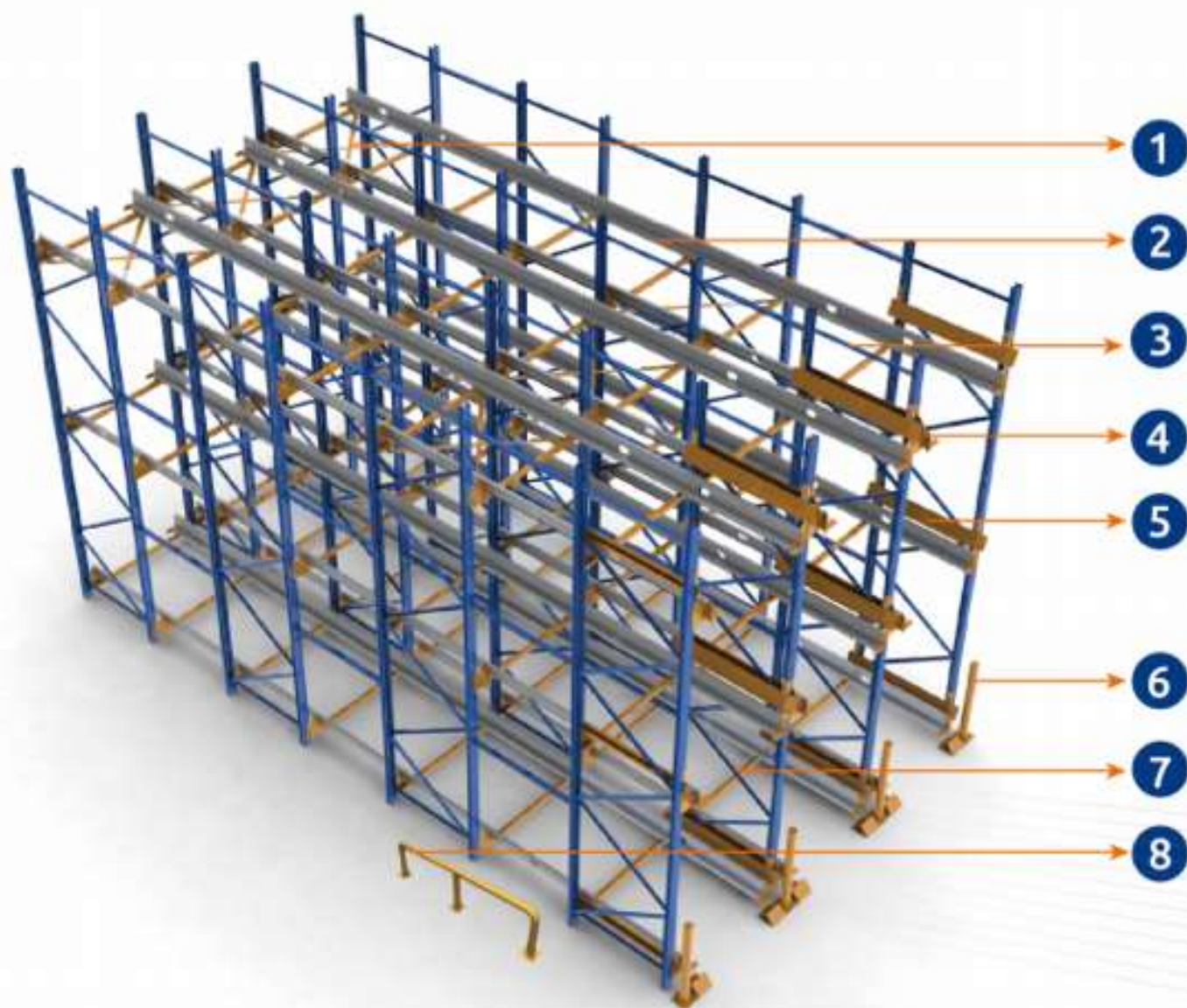


Tarimas adecuadas Suitable pallets



Tarimas inadecuadas Unsuitable pallets

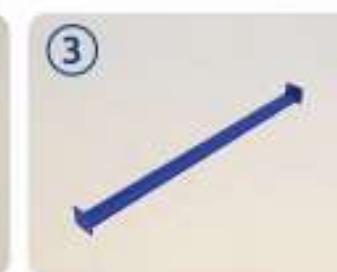




Cross bracing



Rails



Row spacer



Bracket protector



Guider for pallet



Pole protector



Support beam



Fence protector

Benefits



High Usage of Floor Space

Forklift truck aisles can be reduced, it utilizes the floor space efficiently



Customized Operation Mode

- Pallets can be stored at unlimited depths.
- Suitable for cold or refrigeration environments.
- A different SKU can be stored in each lane.
- Good for storage expiration control
- Warehouse operation mode is designed to meet the requirements for environment, products and operation.



Improved Safety, Less Damage

Loads are handled in a safer way during daily loading or retrieval, it helps reduce damage to goods and racking during operation.



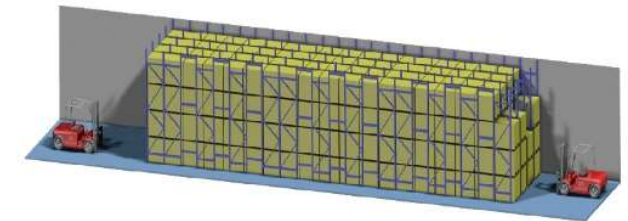
Automatic Operation Reduces Labor Cost

- Increase operator productivity at 40 or more pallet movements per hour.
- Increase rate of return on investment.

Applications

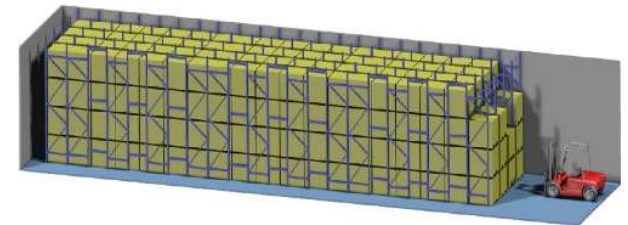
FIFO

Forklifts have access to both ends of the tunnels.



LIFO

Forklifts handle LIFO products when the racking system has one aisle.



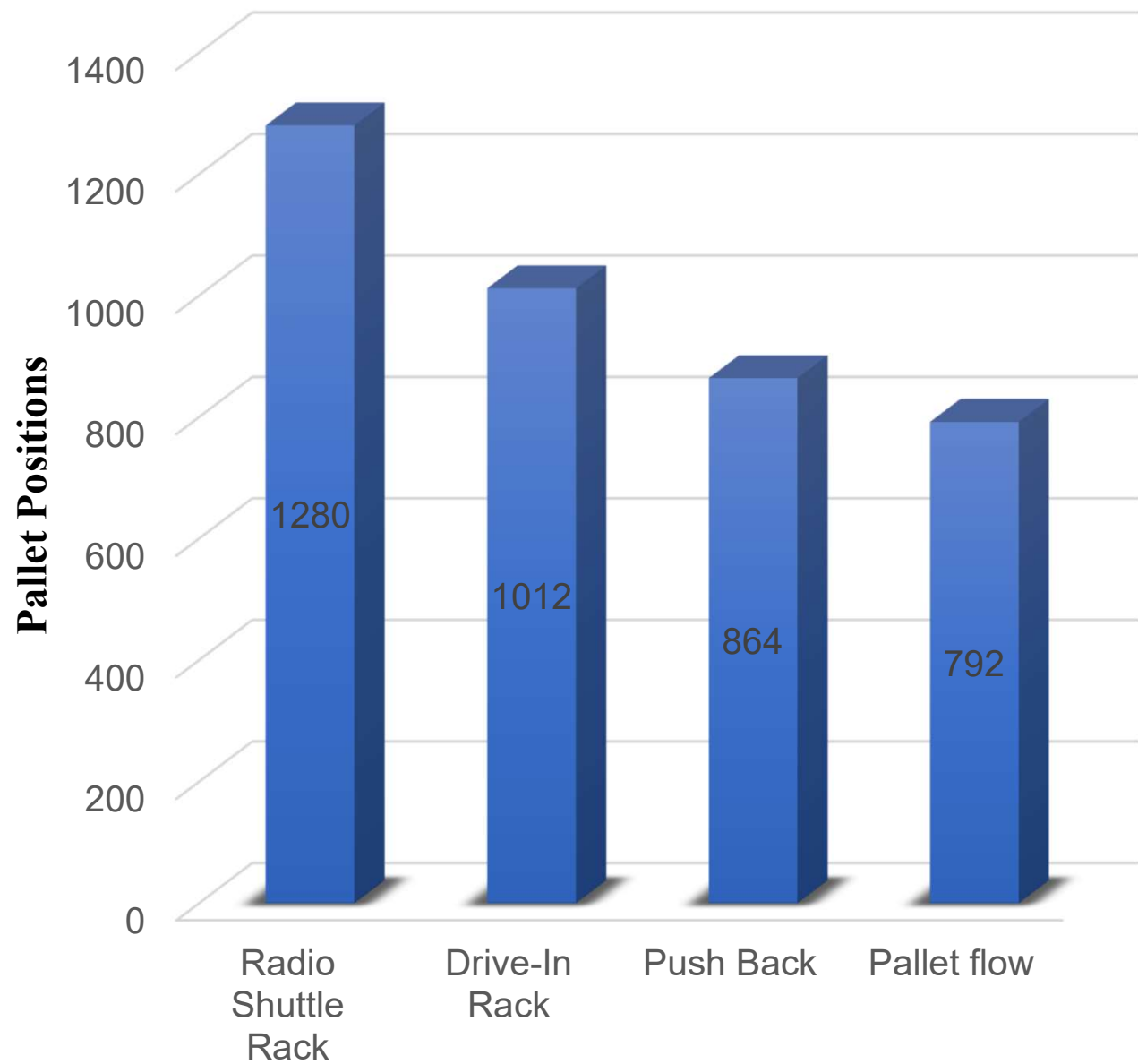
Storage & Retrieval:

The Shuttle works by taking the pallets to their position inside the rack or takes them out of the rack for its next work process.

Moving:

The Shuttle can be placed or transported within any lane with the help of a forklift. The number of shuttles depends on the depth of the tunnels, the quantity of goods, the throughput, the frequency of loading and unloading, etc.

Storage quantity



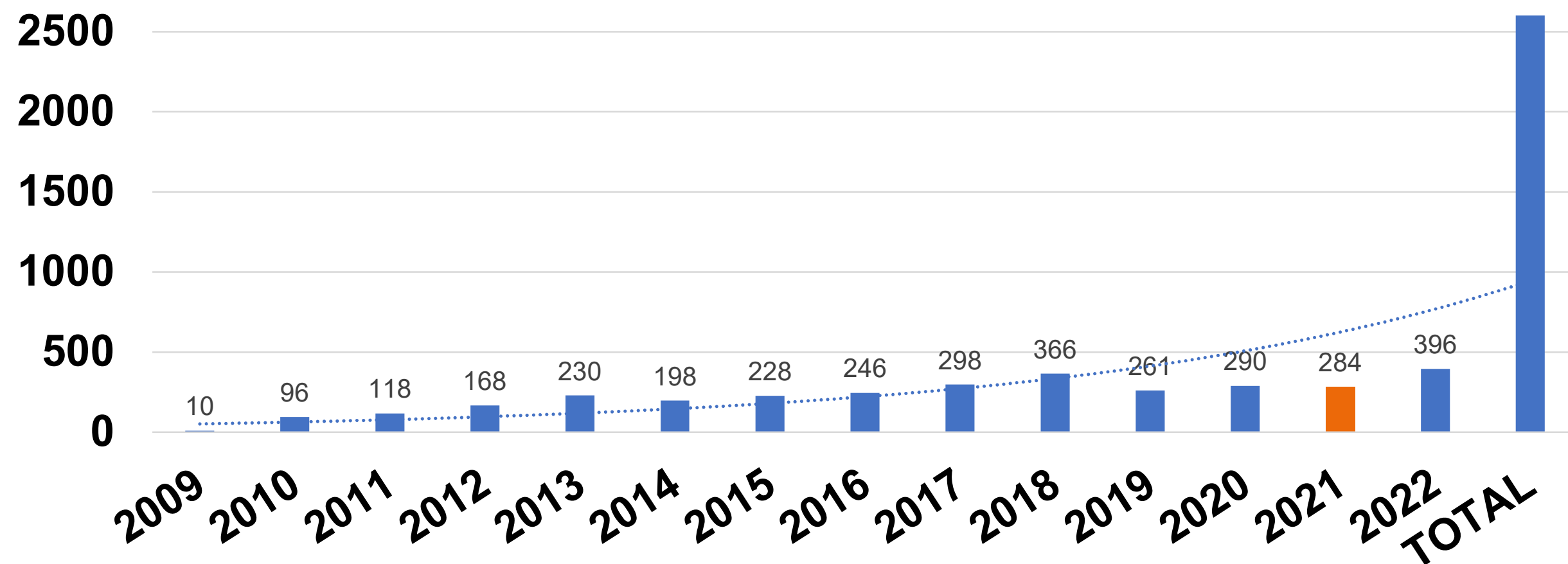
Type of storage system

	Shuttle	Drive-in	Push back	Pallet flow
Density	High	Medium	Medium	Medium
Access	High	Low	Low	Low
Safety	High	Low	Low	High
Application	FIFO & LIFO	LIFO	LIFO	FIFO & LIFO

- Shuttle reduces the number of forklifts, **saving long-term operator costs.**
- If productivity increases, the entire setup can be **transformed into a fully automated warehouse** by simply adding a few equipment (conveyors, WMS, conveyor / elevator).
- For cold storage, the elevator option adds automation and reduces the use of lift trucks. Reduced use of lift trucks inside a freezer can dramatically **reduce energy consumption.** Average lift trucks operating in a refrigeration or freezer application can lose up to 50% of battery charge and life cycle due to temperature.



Shuttles Sold

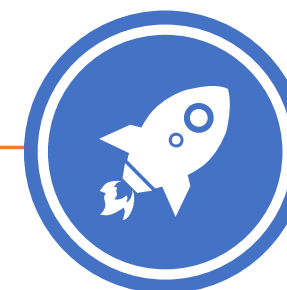


OVER 3500 UNITS SOLD & RUNNING



- FOC Training
- Layout and quotation
- Instruction manual
- Site supervision
- Remote support

METHOD OF SUPPORT



- Installation method
- Accuracy test
- Acceptance criteria
- Operation training
- Maintenance training
- Frequent question handling training

CONTENT OF RESOURCES

The background of the image shows a high-angle view of a warehouse interior. On the left and right sides, there are tall, industrial metal shelving units or racks. These racks are filled with numerous small, rectangular objects, likely boxes or components, arranged in neat rows. The racks are made of dark metal with horizontal beams. In the center of the image, there is a large, solid orange shape that resembles a stylized 'X' or a large arrow pointing outwards. Overlaid on this orange shape is the text 'AUTOMATED RADIO SHUTTLE SYSTEM' in white, bold, uppercase letters. The text is centered and occupies the middle portion of the orange shape.

AUTOMATED RADIO SHUTTLE SYSTEM



Racking structure



Cranes

Transport shuttle and pallets to destination channel for storage or retrieval



Conveyor

Transporting the pallets to the meeting point with the operator, thus avoiding contact between the crane and the operator

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Software

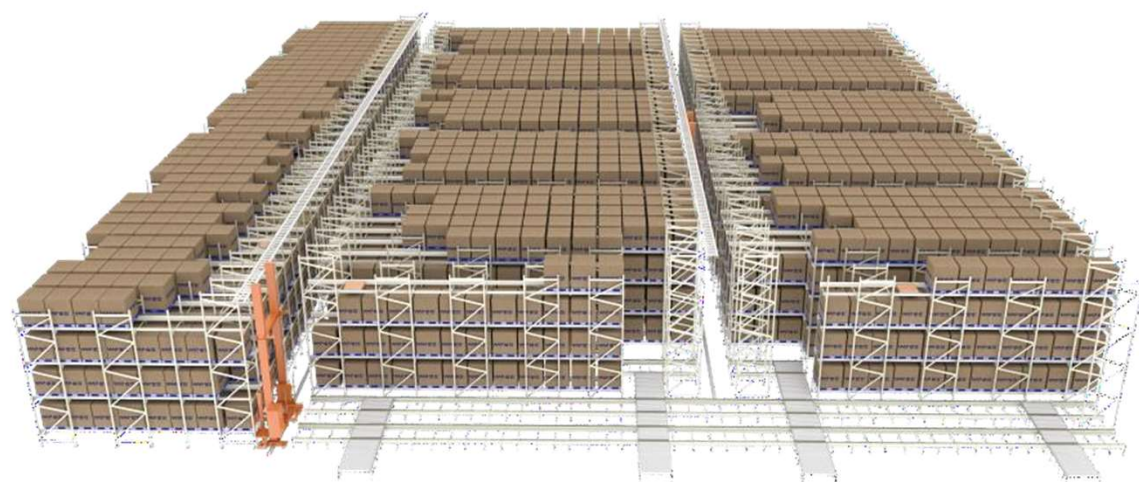
Whole system is controlled by WMS, personnel operate in front of monitor to implement storage and retrieval.



Shuttle Car

Transport the pallets along the rails, taking them in or out of the tunnel to their destination position

SHUTTLE RACKING FOR ASRS SYSTEM



Modularized and flexible layout planning



Best stability compared to other dense automatic warehouses



Small number of equipment types Low after-sales maintenance cost



Adopt advanced cargo compartment positioning accurate identification and efficient operation



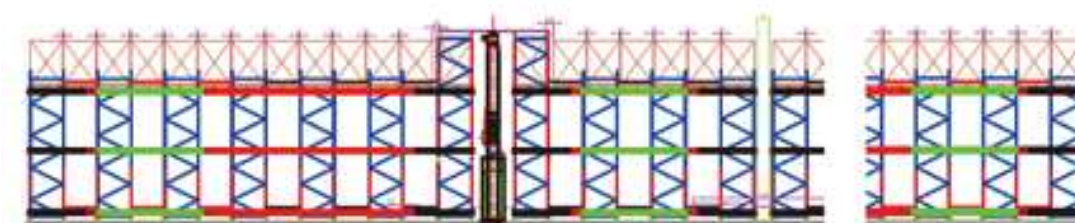
Improve 30%~40% warehouse utilization rate than ASRS

ADVANTAGES

- ★ High product maturity
- ★ Years' experience of shuttle applications
- ★ Lower overall cost since stacker crane can travel in two directions and carry pallets and shuttle at the same time
- ★ Rich experience of stacker crane integrations
- ★ Worldwide project cases



CASE STUDY SHUTTLE + CRANE (ASRS)



Application

Finished product warehouse

Weight and dimension of pallet

W1200*D1200*H1830 1400KG/P

Through-put

Efficiency: 90 pallets/ hour

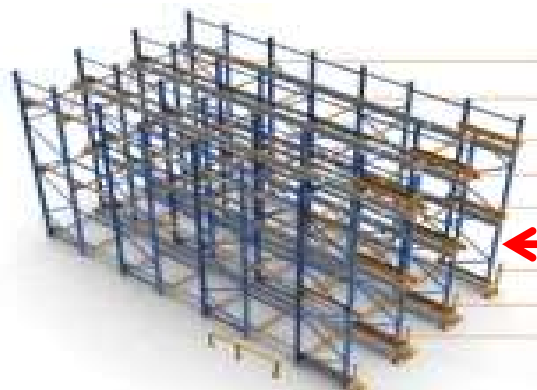
Warehouse area

6830m²

Storage capacity

7800

SHUTTLE AND CARRIER SYSTEM

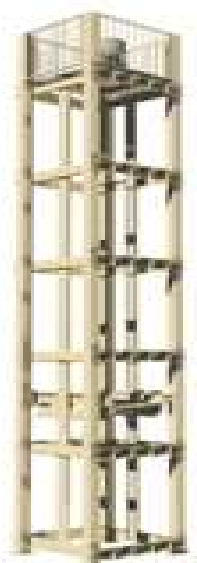


Racking structure



Shuttle car

Transport the pallets along the rails, taking them in or out of the tunnel to their destination position



Lift

Takes the carrier to different levels



Software

Whole system is controlled by WMS, personnel operate in front of monitor to implement storage and retrieval.



Carrier

Transports the shuttle + pallet to the destination channel

SHUTTLE CARRIER STORAGE SYSTEM



Enable high throughput conditions



Up to 90% warehouse use ratio



Fulfill storage and retrieve tasks automatically Manage



inventory database precisely by WMS



ADVANTAGES

- ★ 6+ years' experience of Shuttle Carrier Storage System implementation
- ★ 50+ running Shuttle Carrier Warehouses
- ★ System solutions for nationwide well-known enterprises
- ★ Shuttle carriers are powered by trolley conductor which enables high speed running all day.
- ★ Simultaneous loading and unloading of multi-storey carrier and shuttles to achieve maximum processing capacity
- ★ Multiple shuttle anti-falling methods