

# PICKING AGV



# Bin Picking Robot

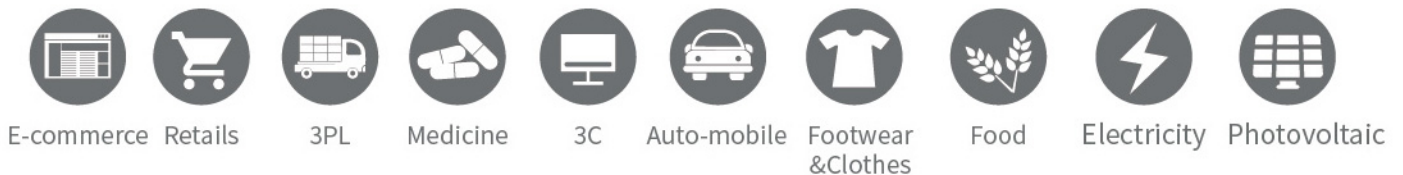
# GUOZI Picking Robot PICKING AGV

## The Creator of Bin Picking Robot

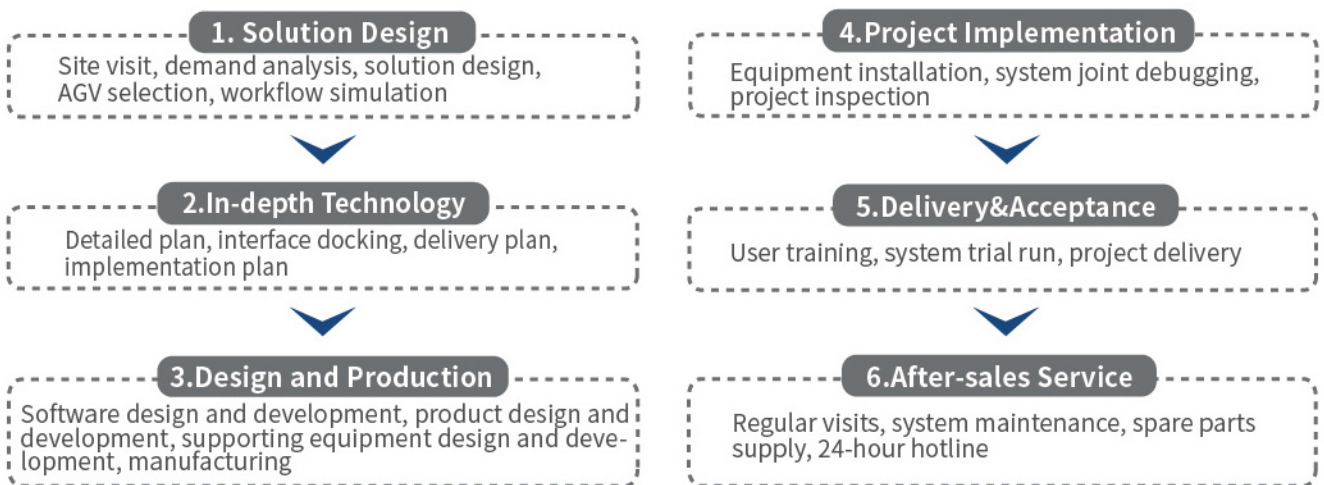
The Picking AGV system is independently developed by Guozi Robotics, covering AGV layout design, supporting equipment design, control algorithm, AGV dispatching system, warehouse management system. Guozi has a number of domestic and international patents and focuses on providing intelligent, flexible, fast ROI, customized warehousing and industrial automation storage solutions.

## The 1st Application Project in the Whole Industry

In 2017, the world's first application project of the picking robot system landed overseas. Now the Picking AGVs have been widely used in various industries:



## Service Process



## Efficiency Value



**Implementation cycle**  
7 days to 3 months



**Return ratio**  
average 1.5-2 years



**Storage capacity**  
increased by 40%-140%



**Work Efficiency**  
100-400% higher than traditional labor

## Product Advantages

AI

### Intelligent

Intelligent decomposition and optimization of orders, automatic planning and deployment of AGVs, and rapid picking of SKU boxes.



### Efficient

Instead of manually searching for goods, up to 8 material boxes can be handled at a time. It can also be used with PICK-LAND (Picking automatic loading and unloading station).



### Safe

Equipped with safety laser, emergency stop button, sound and light alarm, warning signs, etc., guarantees the 360° safety of personnel and equipment.



### Lasting

Single AGV can run continuously for 8 hours and will go charging automatically to achieve 24-hour uninterrupted operation.



### Flexible

Support dynamic path planning, flexibly dispatch the number of AGVs according to the order quantity, and ensure optimal operating efficiency.



### Custom-made

Fully independent research and development of software and hardware, which can be customized according to user's needs to meet changing market needs



### Expanded

High rack storage, the maximum lifting height can be customized up to 5.2m, and the storage capacity is highly utilized.



### Connected

Support 5GHz frequency band WIFI roaming, optional 5G network communication.



### Universal

It can handle cartons and plastic boxes of different sizes, and some models are also compatible with multi-standard material totes.

## Working Process

Picking AGV has more than 5 storage positions for material boxes, with 30/50kg payload of a single bin, the maximum lift height can be up to 5.2m. At least 5 target bins can be transported in a single trip, and the total load can reach 250kg, which greatly reduces the number of trips and improves the picking efficiency.

### Picking is used for outbound and inbound operations of bins

#### Outbound

When a picking task is generated, Picking AGV can transport the target bins to the picking workstation/loader/conveyor line according to the command.

After the picking task is completed, the Picking AGV unloads the bins back to the shelf storage area or continues the next picking task.

#### Inbound

When a replenishment task is generated, the Picking AGV will move the designated bin to the replenishment workstation for manual/mechanical replenishment. Or move the bins directly from the conveyor line/Skyport to the shelf storage area.

After the replenishment is completed, the Picking AGV unloads the bins back to the designated shelf storage area.

# Product Parameters



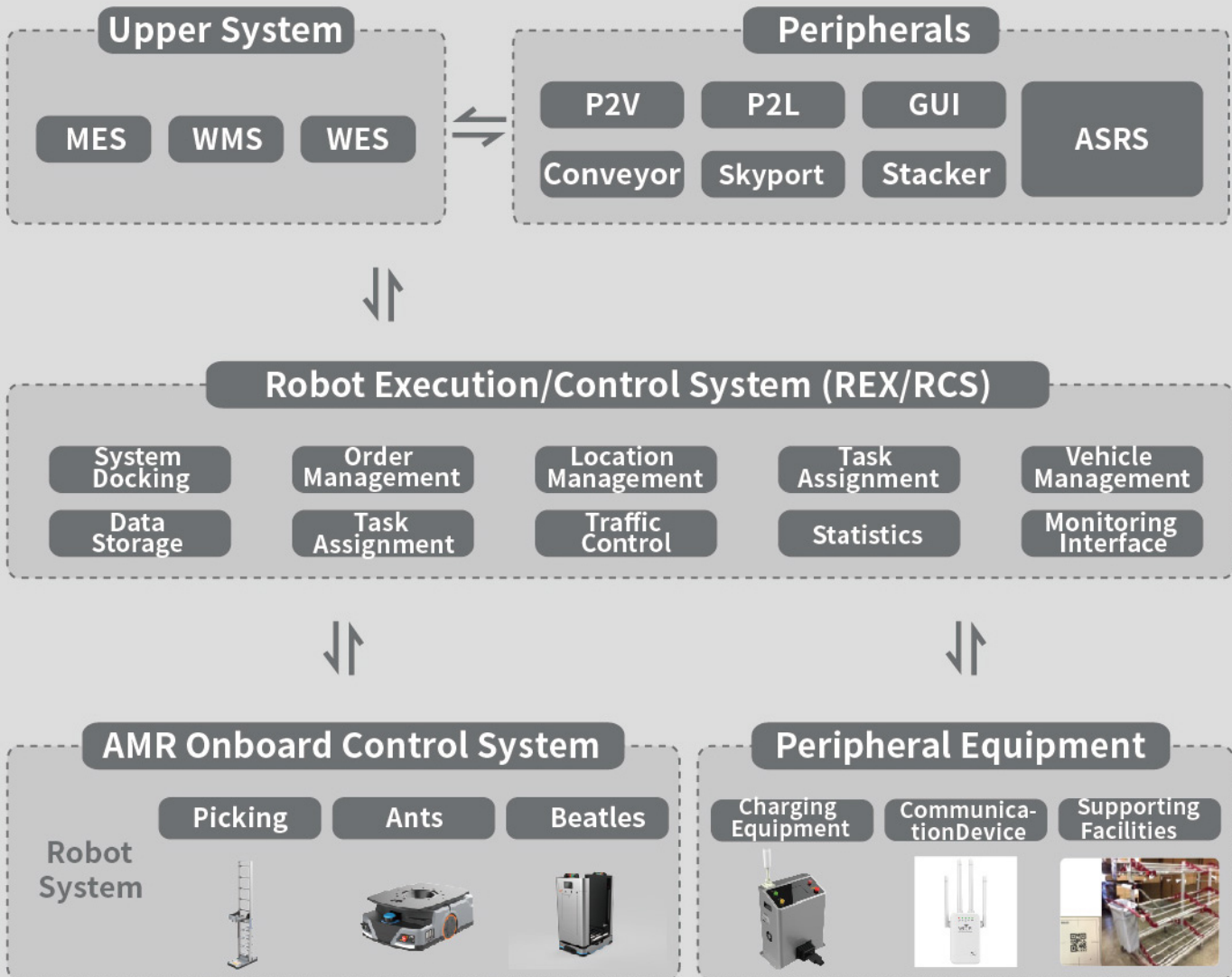
	P4	P4-D (Double Deep)	P4-F (Hold)
Dimensions (L×W×H)(mm)	1736×880×5275	1739×880×5275	1720×880×5275
Picking Method	Hook	Hook	Hook
Self Weight	540	550	540
Rated Load (kg)	250	250	250
Fork Rated Load (kg)	30	30	30/50
Bin Storage Number	≤8	≤8	≤8/≤5
Compatible Bin Type	Carton/plastic	Carton/plastic	Carton/plastic
Navigation Method	QR code/Reflector	QR code/Reflec	QR code/Reflector
Positioning Accuracy (mm)	±10	±10	±10
Maximum Running Speed(m/s)	1.5	1.5	1.5
Pick-up Height Range(mm)	310-4945	310-4945	430-4915
Rated Lifting Speed (m/s)	0.5	0.5	0.5
Communication Method	WiFi 5GHz (optional 5G communication)	WiFi 5GHz (optional 5G communication)	WiFi 5GHz (optional 5G communication)
Battery Type	Lithium Iron Phosphate	Lithium Iron Phosphate	Lithium Iron Phosphate
Charging Method	Auto-charging	Auto-charging	Auto-charging
Rated Operating Time (h)	8	8	8
Material Bin Size(L×W×H) (mm)	(300-610)*(360-400)*(100-400)	(300-610)*(340-400)*(100-400)	(300-700)*(300-550)*(100-400)



P4-X (Adaptive Fork)	
Dimensions (L×W×H)(mm)	1739×880×5275
Picking Method	Hook
Self Weight	550
Rated Load (kg)	250
Fork Rated Load (kg)	30
Bin Storage Number	≤8
Compatible Bin Type	Carton/plastic
Navigation Method	QR code/Reflector
Positioning Accuracy (mm)	±10
Maximum Running Speed(m/s)	1.5
Pick-up Height Range(mm)	325-4945
Rated Lifting Speed (m/s)	0.5
Communication Method	WiFi 5GHz (optional 5G communication)
Battery Type	Lithium Iron Phosphate
Charging Method	Auto-charging
Rated Operating Time (h)	8
Material Bin Size(L×W×H) (mm)	(300-600)*(200-400)*(100-400)



Skyport ( Picking Auto-loading Station)	
Dimensions (L×W×H)(mm)	2560*950*4960
Docking Method	Two Sides AGV Head Docking
Loading and Unloading Box form	Lifting
Max. Compatible Bin Size (mm)	600*400*400
Max. Weight of Bin (kg)	30kg
Docking Layers	6
Bin Storage Quantity	6 (can be customized)
Total Efficiency of Loading and Unloading	800bins/h



## WES

◎ Support various warehouse management functions such as good inbound&outbound, picking, inventory check, etc.

◎ Support a variety of intelligent warehouse management needs, real-time allocation of orders for popular products and unpopular products, and full traceability.

◎ The connection with the upper system is realized through the standard interface, the separation of warehousing business and robot control is quickly realized.

## REX (RCS)

◎ By decomposing the order tasks from the upper system, hundreds of AGVs can be dispatched and coordinated.

◎ Support AGV task assignment, path planning, traffic control, autonomous charging and other functions.

◎ It can be connected with the barcode scan function, providing complete control, information flow and other functions.

## Robot System

◎ The independent and stable robot system has the characteristics of high performance and precision.

◎ Support multi-mode positioning algorithm, high-precision navigation algorithm suitable for various chassis structures.

◎ Adapt to the software and hardware requirements of project customization, and provide stable and reliable network communication functions.

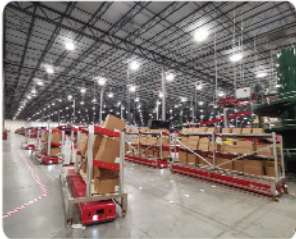
## Application Case of a Stationery Product Warehouse

**Project Location:** United States

**Solutions:** a total of 1000+ Picking AGV and Cart AGV (STAR SYSTEM)

### Before

- ◎ The warehouse area is large, the picking workload is heavy, and the picking efficiency is low.
- ◎ There are many types of SKUs, and the accuracy of order picking needs to be improved.
- ◎ High cost of personnel management and low efficiency of inventory management.



### After

- ◎ Adopting popular and unpopular product partition layout realized the combination of human and machine during the peak period and fast processing of popular SKUs.
- ◎ It avoids the waste of special custom shelves for shelf-to-person method, and the shelf height can be up to 3 meters, which improves storage utilization.
- ◎ Transport target SKUs instead of the whole shelves, and the picking granularity is finer, which significantly improves picking efficiency.
- ◎ Using a more efficient workstation mode that decouples people from AGVs, makes the efficiency of pickers is much higher than that of shelf-to-person equipment.
- ◎ The system outputs data-optimized solutions for different business features.
- ◎ The overall operating efficiency of the system is 40% higher than that of traditional shelf-to-person equipment.

## Application Case of Intelligent Warehousing and Logistics Center of a Sports E-Commerce Platform

**Project Location:** North America

**Solution Equipment:** 400,000 Storage Locations, A Total of 480 Picking AGVs

### Program Overview

Guozi has helped the North American sports e-commerce platform land the first intelligent warehousing and logistics center. The customer is one of the world's largest authorized sporting goods retailers. Guozi has deployed 400,000 storage locations in the logistics center and used 480 Picking AGVs to serve the customer's e-commerce business. The platform logistics center has sped up, reduced costs, increased efficiency, and expanded capacity. Due to the large number of SKUs in the warehouse and the high timeliness requirements for logistics, Guozi inventively designed steel platform shelves for the logistics center, transforming into a double-layer warehouse, directly doubling the storage space and increasing the storage capacity by 100%, effectively alleviating the storage and stocking pressure of the logistics center. The dispatching system conducts centralized dispatching of hundreds of Picking AGVs to efficiently complete precise product selection, safe handling, and optimal distribution, saving labor and improving the operating efficiency of the entire logistics center.

