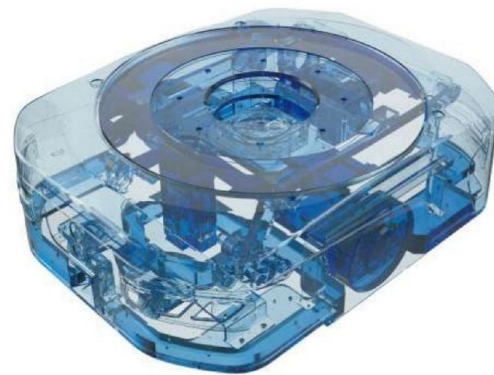


Smart Warehouse

- Logistic Automation
- AGV/AMR
- Micro Fulfillment Center
- Parking Robot



MAKE LOGISTIC FORWARD



Intelligent Warehouse Solutions Tailored for Various Industries



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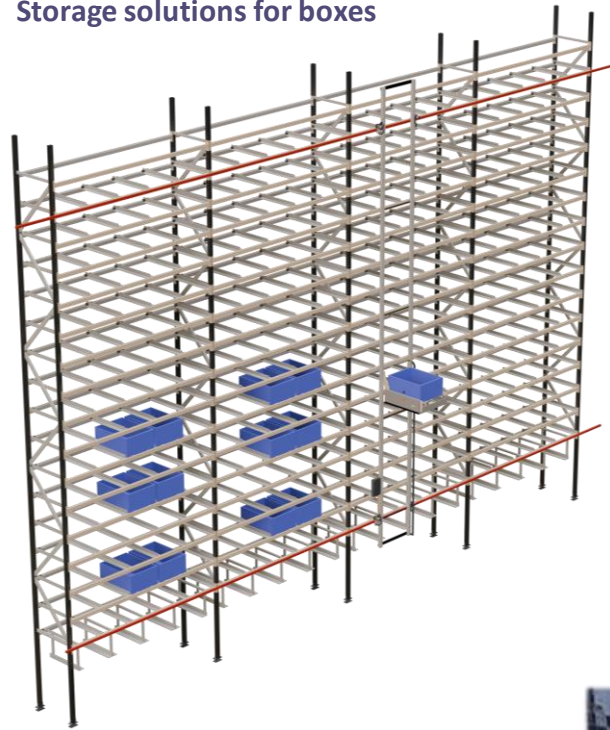
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Rail Mounted Shuttle System

Storage solutions for boxes



-  Real-time tracking
-  Operational speed and Productivity
-  Maximum space utilization
-  Work safety and security
-  Long-term efficiency








Tote Shuttle System

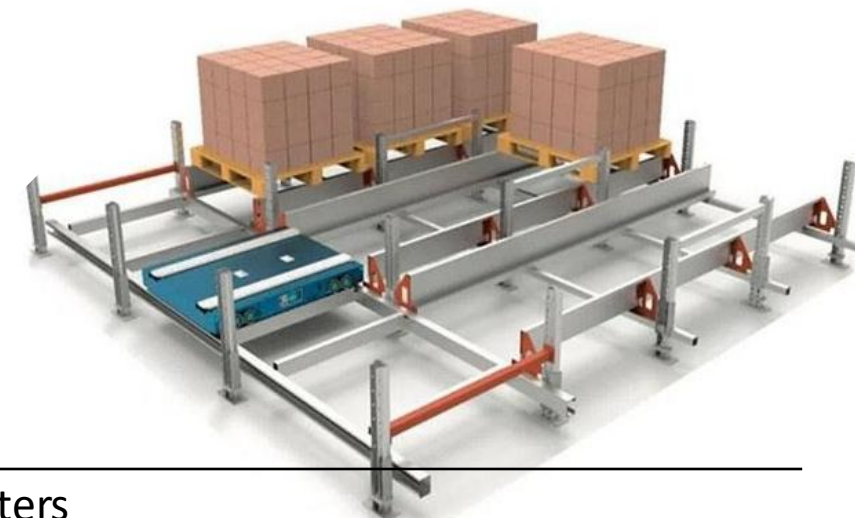
Product Parameters

Load Capacity	: 40kg	Roadway Width	: 950mm (single depth)/ 1070mm (double depth)
Size (mm)	: L1427*W1005*H9300	Angle Accuracy	: ±1°
Min Pickup Height	: 400mm	Battery Capacity	: 24V 100Ah
Max Pickup Height	: 8700mm	Operate Time	: 8h
Method of Collection	: Forking + laser positioning + hole positioning	Charging Interval	: 2h
Container size range- Length	: 400~600mm	Charging Mode	: Automatic/manual
Container size range- width	: 300~400mm	Working Temperature	: 0°C-40°C
Container size range- height	: 130~300mm	Work Noise	: < 75Db
Communication Mode	: Wi-Fi 5GHz 802.11n		

4 Way Pallet Shuttle

Storage solutions for pallet

-  Inventory accuracy (real-time tracking)
-  Operational speed and productivity
-  Maximum space utilization
-  Work safety and security
-  Long-term efficiency



Shuttle Car

Product Parameters

Load Capacity	: 1000kg	Change rail time	: 3s
Speed No Load	: 1.2 m/s	Position accuracy	: ± 2mm
Accelerate Speed	: 1.5 m/s ²	Positioning method	: RFID+photometric sensor
Lift time	: 3s	Weight	: 350kg

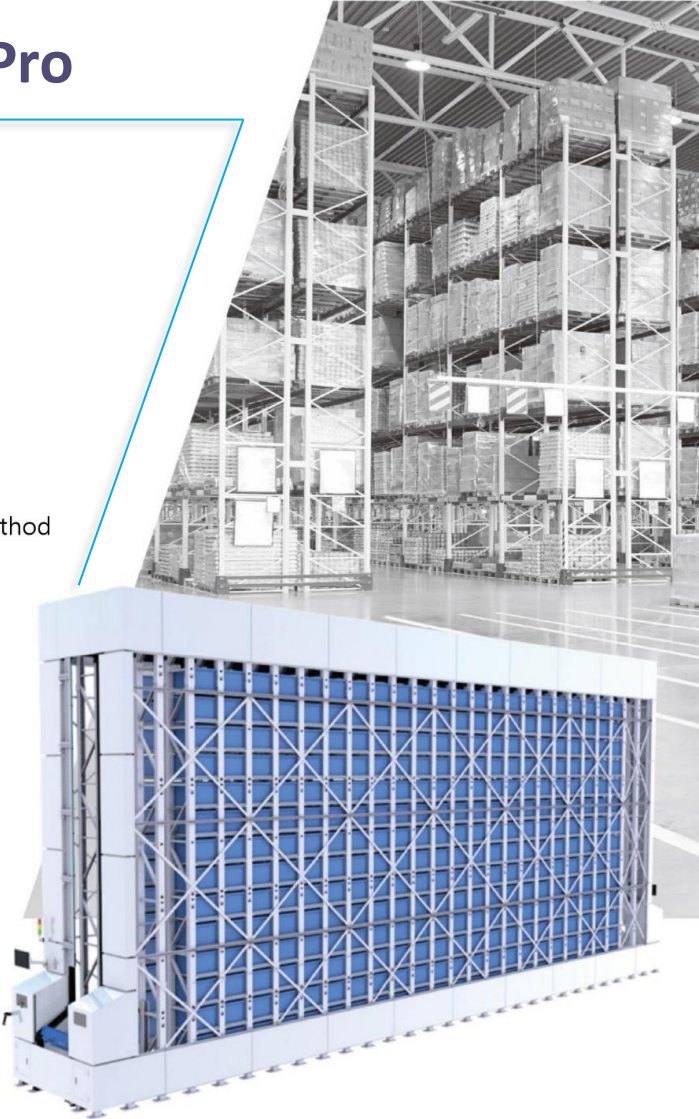
Omni Storage Mini



Omni Sorter



Omni Storage Pro



-  High density storage-retrieval system with totes and pallets
-  Errorless goods-to-person picking method
-  Real-time optimization on the Layout by the frequency of retrievals
-  Accurate material management, Dynamic inventory adjustment Without manual check

Tote Shuttle System

AUTO RE-BIN

AUTO RE-BATCH

Product Parameters	
Length	: 4000 – 12000 mm
Width	: 2500 mm
Height	: 2500 - 4500
Throughput	: 150 – 500 totes/h : Depending on the number Of robots
Payload	: Up to 30 kg
Robots	: 2 – 15
I/O Stations	: Configurable at sides or ends
Storage	: Support trays and totes L600 x W400 mm with variable height

Product Parameters	
Size (mm)	: L10000* W2000*H2200
Destination Size (mm)	: L450*W350*H140
Payload	: Up to 5 kg
Throughput	: 1000-1800 pcs/h Customizable with number Of robots and induction system
Destination	: 200
Robots	: 5-30
Item Size	: L380*W310*H200
Storage	: Customizable with top or Five-side scanning of Bar-code or QR code

Product Parameters			
Length	: 15.000 – 40.000 mm	Payload	: Up to 30 kg
Width	: 2.500 mm	Robots	: 2 – 15
Height	: 4.500 – 12.000 mm	I/O Stations	: 1 or 2 at sides or ends
Throughput	: Up to 400 totes/h at each station : Depending on the number Of robots	Storage	: Up to 8000 storage location per aisle Support trays and totes L600 x W400 mm with variable height

AGV Management System (RCS/WCS)



RCS FEATURES

Product Parameters

Web-based map editing	Web monitoring	Support HTML5	AGV control
Traffic control	Active route setting	Multiple simulation AGV control	Route optimization
BMS system	Classification of workgroups	Order monitoring	KPI indicators
Fool proof	Interlocking facility status management	Batch control of various type of AGVs	Emergency shutdown
Safe zone setting	Equipment health management	Emergency alert system	Trouble shooting
Order setting	Various API interface	Command control	Map edit
Language setting	Multi-zone setting	Multi-layer control	Logo edit
Equipment status report	Other brand AGV control	Control of over 1000 AGVs	User settings
RCS simulation	Cloud/local selectable	Globalization	UX-based

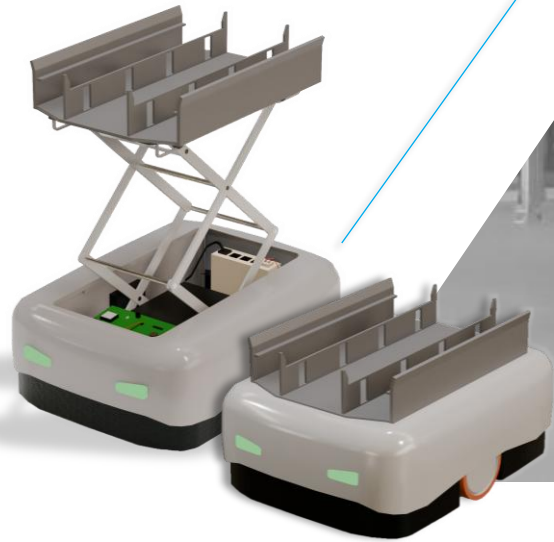
Big AGV



- Speed
Max 2m/s
- Battery
Battery Life 8h
- Charging
Charging time 1.5h
- Lifting Height
60 mm
- Load
Capacity 1000kg
- Navigation
Laser SLAM, QR

- Intelligent scheduling system and super computing power
- Highly compatible and customized
- High-performance design
- Multiple safety protection devices

Mini AGV



- Speed
Max 3m/s
- Battery
Battery Life 4h
- Charging
Charging time 1h
- Lifting Height
400 mm
- Load
Capacity 35kg
- Navigation
QR Code

Sorter AGV



- Speed
Max 2m/s
- Battery
Battery life $\geq 5h$
- Charging
Max 1.5h
- Battery
Capacity 48V,16.5Ah
- Load
1x30kg or 2x15kg
- Navigation
Inertial guidance, QR

Quick AGV



- Speed
Max 2m/s
- Battery
Battery life $\geq 6h$
- Charging
Charging time 1.5h
- Lifting Height
60 mm
- Load
Capacity 1000kg
- Navigation
Inertial, QR Code

Mini Load AGV



- High-density storage**
can be stored and released a small tote box
- High light weight design**
aluminum frame
- High durability equipment**
chain up-down structure
- Low center of gravity design**
goods in high places can be stored and released without shaking
- Speed
Max 1.2m/s
- Lifting Height
< 5000 mm
- Lifting Speed
Up-Down 0.5m/s
- Load
Capacity 30kg x 6ea
- Charging
Charging time $\leq 2h$
- Navigation
Inertial guidance, QR

Forklift Series

AMR Transport AMR

Speed
Max 1.5m/s

Lifting Height
1000 mm

Battery
Battery life 6h

Load
Capacity 1500kg

Charging
Charging time 2h

Navigation
Laser SLAM



AGF Counterbalance AMR



Speed
Max 1.5m/s

Lifting Height
3000 mm

Battery
Battery life 8h

Load
Capacity 1500kg

Charging
Charging time 2h

Navigation
Laser SLAM

Map Set-up (RCS/WCS)

Charger

Vehicle Route

Station

POD Area

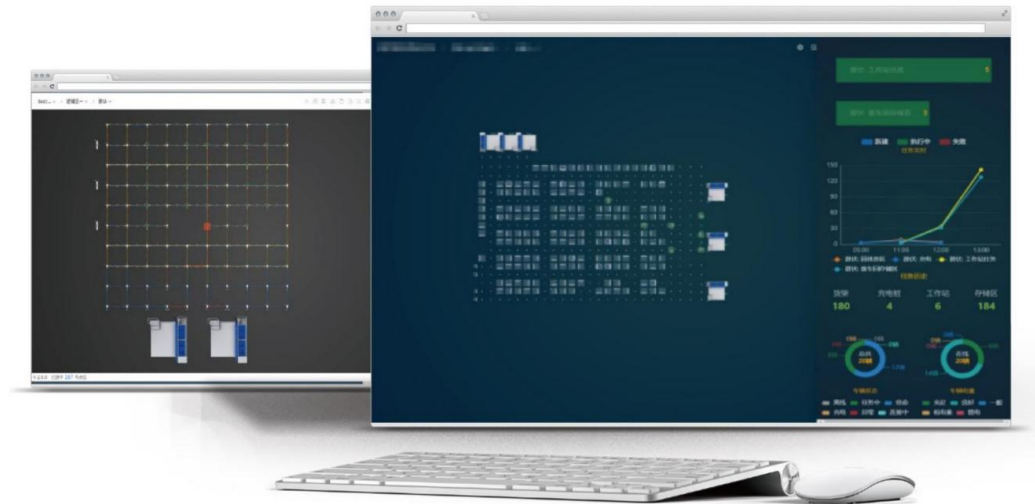
QR Code

Obstacle

Special Area

Elevator

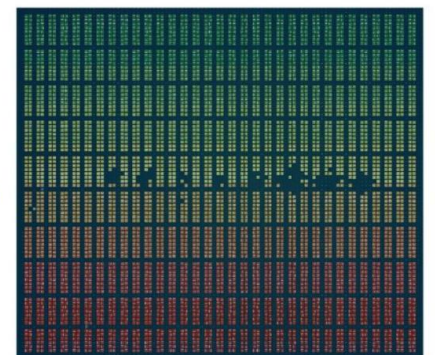
Other Area



POD Usage Frequency Measurement



optimization



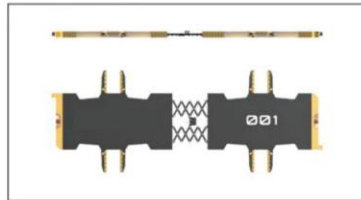
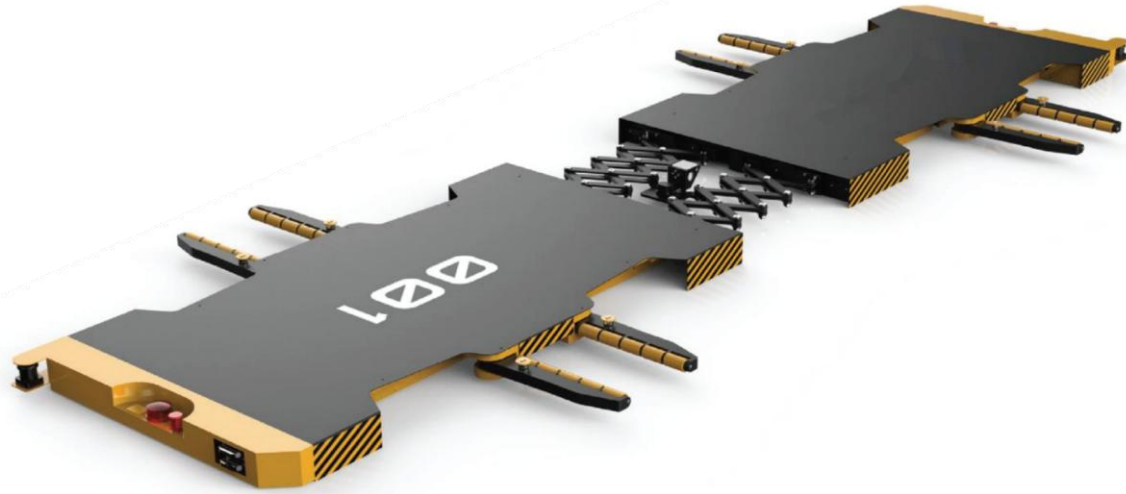
Full Specification

Autonomous Mobile Robots (AMR)
Automated Guided Vehicle (AGV)



	Model	Mini AGV	Big AGV	Quick AGV	Sorter AGV	Mini Load AGV	AMR	AGF
Platform Information	Dimension (mm)	L660*W460*H290	L1150*W820*H252	L915*W690*H293	L760*W480*H1000	L1600*W900*H5000	L1615*W991*H2285	L2472*W1112*H2259
	Navigation Mode	QR code	Laser SLAM, QR Code	Inertial, QR Code	Inertial Guidance, QR	Inertial Guidance, QR Code	Laser SLAM	Laser SLAM
	Weight (kg)	40	172	200	115	480	-	-
	Max. Capacity (kg)	35	1000	1000	1 x 30 or 2 x 15	30 x 6ea	1500	1500
	Communication	WIFI	WIFI	WIFI (LG U+/SKT)	WIFI	WIFI	WIFI	WIFI
Performance	Speed (m/s)	3	2	2	2	1.2	1.2	1.2
	Full Speed (m/s)	4	-	-	-	Up-down speed 0.5	1.5	1.5
	Body Rotation Diameter (mm)	680	1200	-	-	-	Min Turning Radius 1213mm	Min Turning Radius 3500mm
	Elevation Trip (mm)	400	60 (< 3s)	60	-	< 5000	1000	3000
	Positioning Accuracy (mm)	± 10	± 10	± 10	± 10	± 10	± 10	± 45
	Rotation Accuracy (°)	± 1	± 1	± 0.5	± 0.2	± 1	± 1	± 1
Power	Charging Option	Manual/Automatic	Manual/Automatic	Manual/Automatic	Manual/Automatic	Manual/Automatic	Manual/Automatic	Manual/Automatic
	Charging Time (h)	1	1.5	1.5	1.5	≤ 2	2	2
	Runtime (h)	≥ 4	≥ 8	≥ 6	≥ 5	≥ 5	6	8
	Battery Life (Charge Cycle)	≥ 2000 times	≥ 1500 times	≥ 2000 times	≥ 2000 times	≥ 2000 times	≥ 2000 times	≥ 2000 times
	Battery capacity	48V	48V	48V, 26.4Ah	48V, 16.5Ah	48V, 49.5Ah	48V, 42Ah	24V, 100Ah
Environment	Temperature (°C)	0~45	0~45	0~45	0~45	0~45	0~45	0~45
	Operating Environment	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor
	Work Noise	-	-	-	-	-	< 750 Db	< 750 Db

Parking Robot



Product Description

1st generation parking robot
The parking robot can handle vehicles weighing up to 2.5 tons, has a maximum driving speed of 1M per second, and realizes a flexible and intelligent parking lot in conjunction with the parking management system. Tongs type parking robot increases parking space efficiency to provide convenient and safe parking.

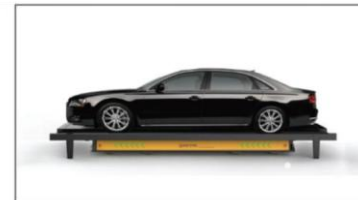


Environmental Requirements

Product Parameters

Temperature	: -10° ~ 40°
Humidity	: 30% ~ 95%
Ground activity	: < 3mm/m ²
Ground unevenness	: < 2mm
Gap space	: < 8mm
Friction factor	: > 0.65
Gradeability	: < 6mm
The width of the passage	: > 2.5 ~ > 5.7m
Ground concrete strength	: ≥ C 35

Parking Robot



Product Description

It is 3rd generation surface plate parking machine. It's usually used by parking or vehicle transporting in factory. Parking robot can move to all directions because of its starting system 'Mecanum Wheel' that operates all eight wheels. Moving speed is fast.

There is no shaking when it moves, and the power of ground grip is strong because the height of robot is designed low-rise shape.

The noise of moving is relatively quite, the structure of up-down system being simply and stably more than before by changing from screw-type lifting method to servo motor driving method.

The power module is lithium ion battery that used for car. The stability and using time of battery are god better. Parking robot combines 'parking management system' and 'operating system', therefore, its flexibility, parking efficiency, convenience of stored and released are good.

Environmental Requirements

Product Parameters

Temperature	: -10° ~ 40°
Humidity	: 30% ~ 95%
Ground activity	: < 3mm/m ²
Ground unevenness	: < 2mm
Gap space	: < 4mm
Friction factor	: > 0.65
Gradeability	: < 6mm
The width of the passage	: > 5.7m
Ground concrete strength	: ≥ C 36



Parking Robot



Product Description

'The elevating parking robot' is recently developed large parking robot. The vehicle transport shuttle is designed thin form half height. So it can not only carry low body vehicles, but also put in and out with a two-story structure,

It is more effectively and economically than general car parking lot, and it can put in and out vehicles more easily than mechanical tower parking lot.

Environmental Requirements

Product Parameters

Temperature	: -10° ~ 40°
Humidity	: 30% ~ 75%
Ground activity	: < 8mm/m ²
Ground unevenness	: < 5mm
Gap space	: < 20mm
Friction factor	: > 0.5
Gradeability	: < 15mm
The width of the passage	: > 5.8m
Ground concrete strength	: ≥ C 35

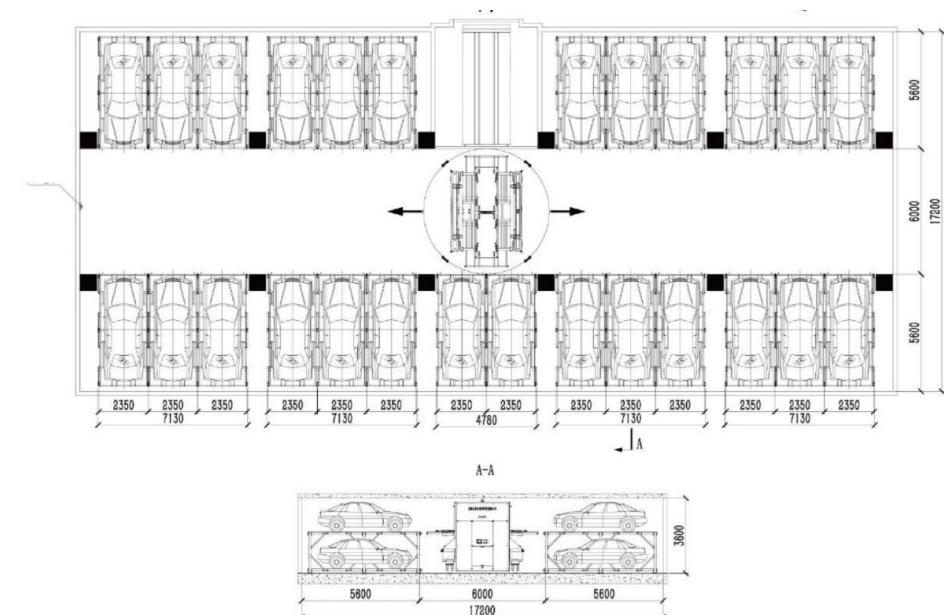


Parking Robot

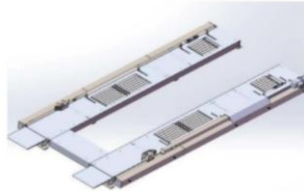
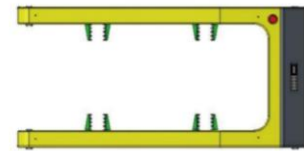
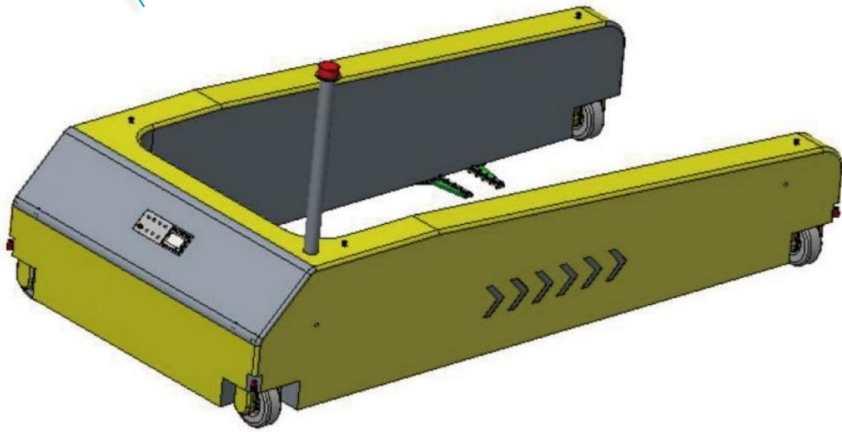


Product Parameters

Rated Load	: 2.5 ton	Max driving time	: 4 h
Body length	: 6,000 mm	Vehicle towing	: Non-surface plate
Body Height	: 1,400 mm	Applicable vehicle	: Wheelbase 2400~3200mm
Body Width (inside)	: 2,300 mm	Induction method	: Laser method
Body Width (outside)	: 3,000 mm	Induction precision	: ± 20 mm
Body weight	: 3.5 ton	Driving function	: Forward, backward, Horizontal movement
Rated running speed	: 1m/s	Braking method	: Electromagnetic break
Lifting height	: 150 mm	Communication	: WIFI / 5G
Charging method	: Automatic + manual	Ingress protection	IP 54



Outdoor Type Parking Robot



Option: vehicle alignment

Product Parameters

Rated Load	: 2.5 ton	Communication	: WIFI / 5G
Body Length	: 6.000mm	Charging method	: Automatic + Manual
Body weight	: 3.5 ton	Induction method	: Laser
Body Height	: 1,400mm	Induction precision	: ±20mm
Body width (inside)	: 2.300mm	Applicable vehicle	: Wheelbase 2400~3200mm
Body width (outside)	: 3.000mm	Braking method	: Electromagnetic break
Rated running speed	: 1m/s	Driving function	: Forward, backward, horizontal movement
Lifting height	: 150mm	Vehicle towing	: Non-surface plate
Max driving time	: 4h	Ingress protection	: IP 54

Container AMR



MAJOR CUSTOMER
