Lead Intralogistics Reform with AI
MOBILE ROBOT PRODUCT CATALOG

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HIKROBOT

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Hangzhou Hikrobot Co.,Ltd.

Hikrobot is a global product and solution supplier specialized in machine vision and mobile robot. Focusing on IIoT, smart logistics and smart manufacturing, we build open cooperation ecosystem, provide service to industry and logistics customers, and commit to continuously promoting the intelligentization and leading the intelligent manufacturing process.

Mobile Robot

With efforts in robotic , Hikrobot provides global customers with leading mobile robot products and solutions. The company has developed the intelligent warehouse robot system since 2015. Focused on mobile robots, it has launched a series of products, Latent Mobile Robot (LMR), Conveyor/Heavy-duty Mobile Robot (CMR/HMR), Forklift Mobile Robot (FMR), etc. These products are widely applied in consumer electronics, automobile, manufacturing, e-commerce logistics, 3PL, food and pharmaceuticals. Hikrobot's intelligent robot solutions help you simplify intralogistics flow, reduce the costs and reform the logistics process.

KC certification

CE certification

China Robot Certification

HI-tech Enterprice

CIIF Gold Award

Red Dot Design Award

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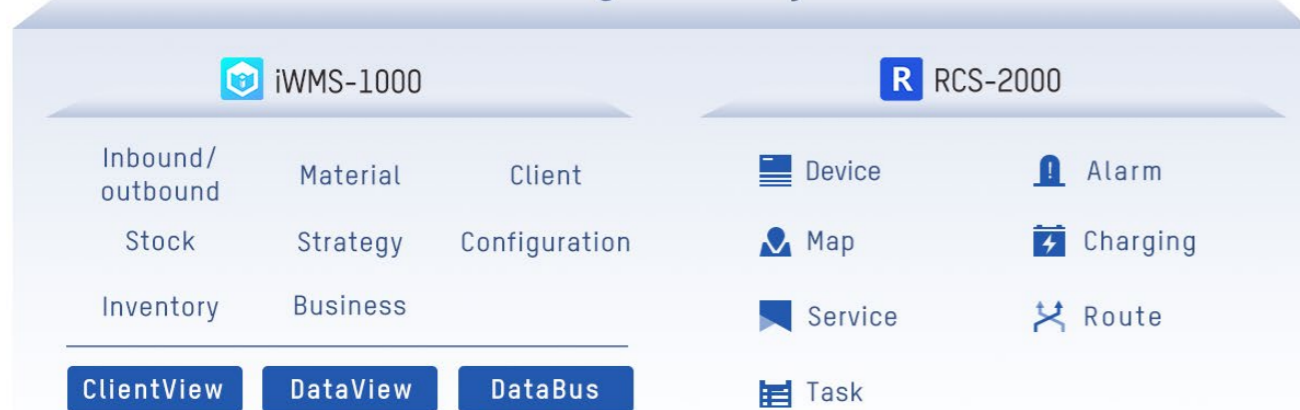Web: http://www.agstech.net

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Product

Products Architecture

Management Layer

iWMS-1000		
Inbound/outbound	Material	Client
Stock	Strategy	Configuration
Inventory	Business	

ClientView DataView DataBus

RCS-2000		
Device		Alarm
Map		Charging
Service		Route
Task		

Execution Layer

Software Platform

The core of Hikrobot software platform architecture is the iWMS 1000 (Intelligent Warehouse Management System) and the RCS 2000 (Robotic Control System). iWMS 1000 docks with the upper-level system seamlessly to realize intelligent warehouse management at high efficiency and low costs. RCS 2000 is used to build the map model and dispatch various robots. The two systems work together to link through the whole logistics process, connect various transfer scenarios seamlessly.

Upper-layer system

ERP/WMS/MES

Business Layer

iWMS 1000

Taking Goods-to-Person as the core concept, iWMS can schedule the whole range of mobile robots via RCS, and dock with the ERP/MES/OMS system, providing an integrated solution for warehousing logistics.

Service Layer

RCS 2000

RCS is responsible for task scheduling, robot dispatching, operation and maintenance management. Based on various scheduling algorithms, RCS can realize optimal task allocation, multi-robots path planning, traffic management, etc. Scheduling multiple types of robots to work together, maximize efficiency is achievable in different scenarios.

Intelligent Warehouse Management System iWMS
- Material Info
- Order Execution
- Inventory
- Strategy
- Statistics
- More...

Central Management System CMS
- Map Building
- Statistics
- Task Template
- Device Management
- Alarm Query

Robot Control System RCS
- 3rd Party Interface

Alarm Management Service AMS
- Layout Management
- Robots Config
- Alarm Process

Warehouse Control System WCS
- Task Process
- Algorithms Library
- Communication

Hardware Product

LMR

Latent Mobile Robot

LMR is a leading mobile robot product characterized by its lifting mechanism. LMR has an optimized motion performance and enhanced safety protection.
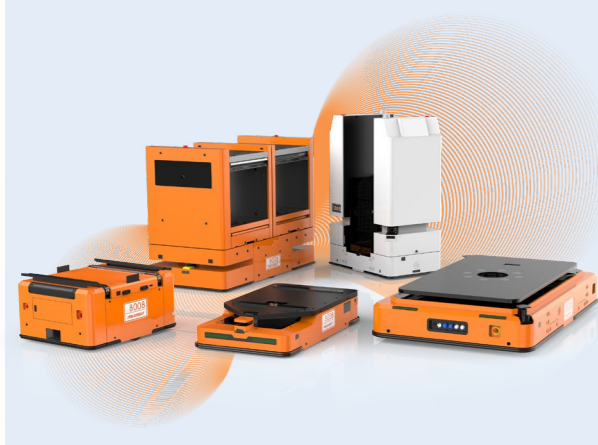
FMR

Forklift Mobile Robot

FMR focuses on the automatic transfer of standard bins/pallets. It adopts high precision laser SLAM navigation, vision navigation, etc.

CMR

Conveyor/Heavy-duty Mobile Robot

CMR/HMR covers the conveyor type and lifting type. It can fulfill automatic docking requirements in different scenarios with the highly cuistimized mechanism.

Accessory

Accessory

It includes charge station and battery swap station, providing fast charging without manual intervention.

CTU

Carton Transfer Unit

CTU can transport or store single/multiple bins. Precise inbound and outbound with high-density storage, providing efficient picking.

Intelligent Intralogistics Solution

With the transformation of manufacturing production mode, mobile robots as an intelligent logistics equipment are being applied in various industries. Mobile robots can not only meet the logistics transfer needs of the entire logistics process, but also support flexible integration of different functional modules. Integrated with the WMS/MES, Hikrobot`s solution can realize intelligent warehouse management. As a leading provider of mobile robotics products and services, Hikrobot provides intelligent and practical solutions to various industries, leading the intralogistics reform with AI.

Bin Transferring

Finished Product Storage

Automatic Storage

High-bay Storage

WIP Automatic Palletization

Finished Product Outbound

Raw Material Storage

Goods Transport

Raw Material Inbound

Forklift Inbound to High-bay Rack

Collaborative Work

Docking with Robotics Arm

Docking with Pallet Stacker

Quality Check

Docking with Conveyor

Docking with AS/RS

Docking with Automatic Door

Industry Solution

Consumer Electronics

New Energy

E-commerce/Retail

Automobile

Apparel

Manufacturing

Food and Pharmaceuticals

Consumer Electronics

Hikrobot's intelligent and flexible robot solutions are widely applied in consumer electronics manufacturing. Plant-wide material transfer management can be unmanned, automated, informationized.

CHALLENGES

Complicated technological processes

Turning raw materials into finished products involves several different processes. The logistical flow of equipment and materials must be carefully considered.

Stringent environmental requirement

Production line processing requirements are extremely demanding. Equipment must be anti-static and corrosion resistant of acid, alkali, gas, liquid.

Varied production equipment

The processes and equipment are diverse, which makes the equipment docking and communication complicated.

SOLUTION

Hikrobot developed various mobile robots to solve varied processing requirements. Working with iWMS/RCS/WCS system, external equipment can be docked easily. Factory-wide unmanned materials transfer and sequence management are realizable. Automated production and digital inventory management are improved significantly, which guaranteed well-organized management.

HIGHLIGHTS

Meets onsite technical and production environmental requirements

Supports flexible docking with multiple logistics devices and cross –floor transferring

Uses strict sequence management to avoid errors in materials feed-in

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The intelligent and flexible mobile robot system is designed for the specific requirements of consumer electronics industry. For example, fast-paced production with high-mix and low-volume.
Hikrobot has already facilitated a number of leading 3C companies, including Shenzhen Kaifa Technology, Shennan Circuits (SCC), Sun&Lynn Circuits, BOE Technology, and other packaging and testing enterprises to increase their productivity.

Shenzhen Kaifa Technology Smart Factory Project (Guilin)

BACKGROUND

Shenzhen Kaifa Technology Co., Ltd. (hereinafter referred to as SKT) is an electronics development and production company. To solve the issues in traditional factories, including high logistics costs and labour intensity, Hikrobot introduced an intelligent mobile robot system customized for SKT production flow, which satisfies the specific requirements of fast-paced manufacturing with high-mix and low-volume and increases its ROI.

OUR SOLUTION

The construction of smart factory was launched in 2019. The project deployed nearly 200 AMRs, covering the components warehouse, packaging warehouse, assembly workshop, and WIP area. With the intelligent robot solution, SKT smart production base has achieved automatic warehouse management of inbound and outbound.

CUSTOMER BENEFITS

Multi-device Integration and Management: realise the automation of plant-wide intralogistics with fully integrated equipment and customized transport solutions.
IQC Empowerment with Smart Inventory: The project utilizes smart code-reading system to check and record data regarding raw materials. This increases inbound accuracy and reduces labour needs by 60%. All information of the materials is transparent and traceable.
High ROI: Increased the picking efficiency by 30% and reduced labour cost by 40%.
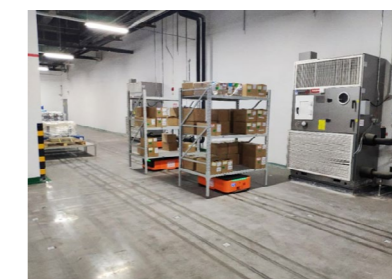**Efficient Production:** The introduction of automation and robot-only zones.
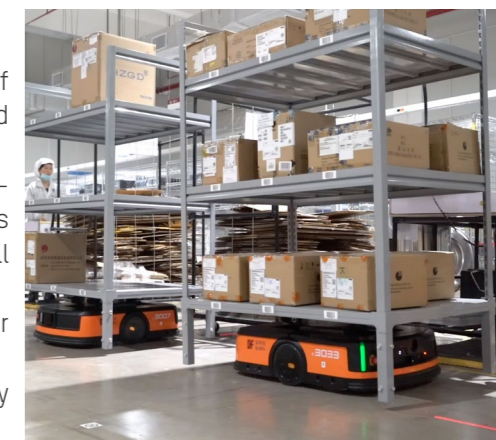
MORE CASES

Shennan Circuits (SCC)

Hikrobot implemented 1000+ AMRs in the project. Several different robot designs were used in this operation, including LMR, FMR, and CTU coordinated by Hikrobot RCS on the same site.

BOE Technology

35 LMRs were deployed to achieve intelligent WIP warehouse management, as well as outbound and inbound automation. This solution met the requirements needed to work effectively in BOE's high cleanness requirement

Sun&Lynn Circuits

Hikrobot empowered the plant-wide intralogistics automation among manufacturing processes with 100 LMRs, increasing the overall productivity and stock accuracy greatly.
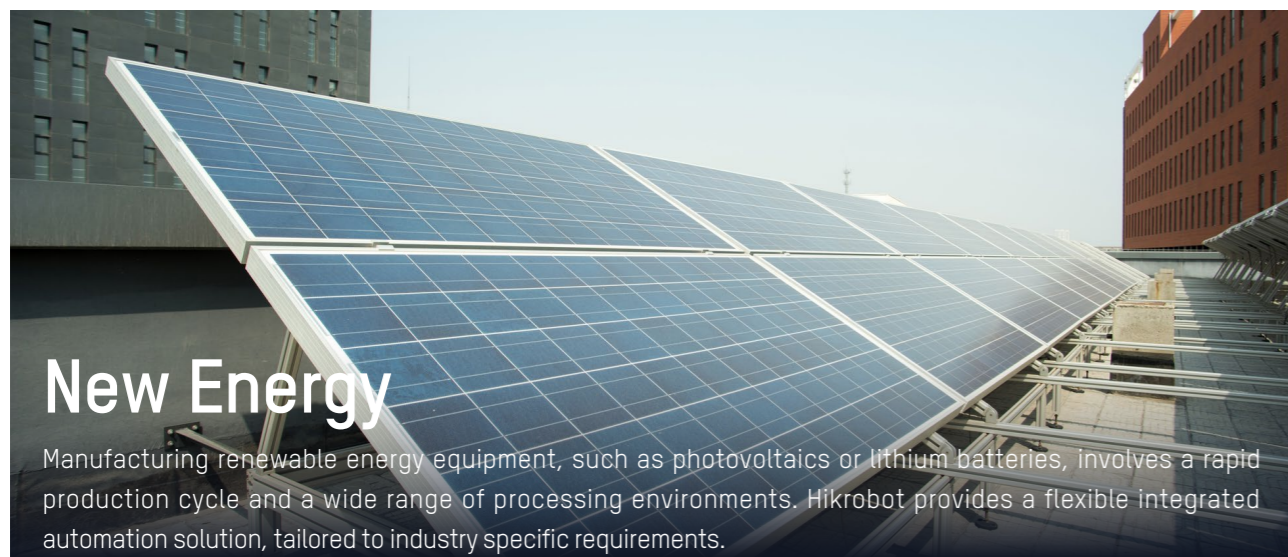
New Energy

Manufacturing renewable energy equipment, such as photovoltaics or lithium batteries, involves a rapid production cycle and a wide range of processing environments. Hikrobot provides a flexible integrated automation solution, tailored to industry specific requirements.

CHALLENGES

A diverse range of materials
A diverse range of materials and container types.

Complicated environment
Varied process flow.

Fast production cycle
Production line with limited space, operated at high speed.

SOLUTION

Using a customized positioning camera, Hikrobot was able to manage the placement of machinery onsite and the wide variety of materials and containers involved. With this technology, high precision material transfer could be achieved.

HIGHLIGHTS

Multiple types of robots, suitable for different scenarios and materials

V-slam and L-slam navigation technology to meet the complicated environment

Robots can dock with different types of machinery and co-operate with multiple systems, to reduce manual operation and achieve the automated loading and unloading

---

In the coating, slitting, die cutting, punching, stack, battery cell and other process of renewable energy battery production, mobile robots are used to connect production lines. This enables unmanned transportation throughout the process. Many companies in this industry such as Longji, TW Solar, Trina Solar, and DZS, have implemented this solution.

# Leading Solar Industry Company

BACKGROUND

Companies in the photovoltaic industry have higher requirements for standardized, automated and intelligent operations. Traditional labour-intensive factories can no longer meet these requirements. The company introduced mobile robots to enable automatic transfer and delivery of materials, which effectively improved the accuracy of logistics.

OUR SOLUTION

This company introduced 83 LMR mobile robots into its cell factory to achieve a fully automated production line. This new system reduced the need for logistics staff by approximately 120. The component factory deployed 21 LMRs to connect with the machines. This enabled full automated movement of raw materials and reduced the potential risk of manual forklift operations, and improved the efficiency and accuracy of logistics distribution.

CUSTOMER BENEFITS

The RCS system integrated with the third-party device, MES and central control system, to achieve full automation of the process. **Delivering material in advance** according to production line requirements, reducing the waiting time
SLAM navigation: mobile robot with rack can precisely and reliably dock with other machines.
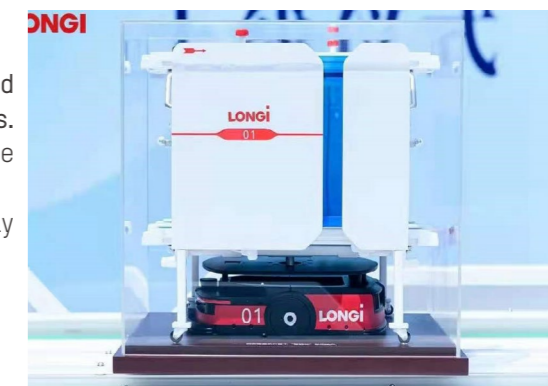
MORE CASES

DMEGC

The introduction of mobile robots in the production of photovoltaic cells greatly reduces the intensity of manual work.
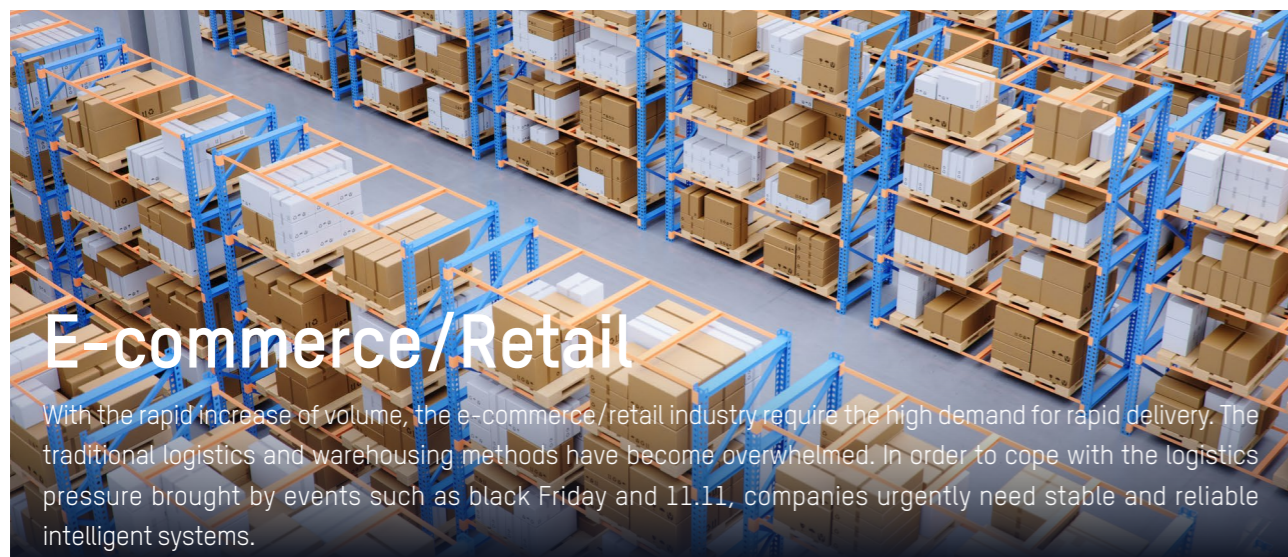

Leading Photovoltaic Company

50 robots have been implemented to realise the automatic transfer of materials across the entire process of feeding, texturing, diffusion, etching, PECVD etc.

Zhonghuan Semi

Introduce intelligent robot solutions to meet high-capacity, high-cleanliness production requirements, and improve the overall level of automation.

E-commerce/Retail

With the rapid increase of volume, the e-commerce/retail industry require the high demand for rapid delivery. The traditional logistics and warehousing methods have become overwhelmed. In order to cope with the logistics pressure brought by events such as black Friday and 11.11, companies urgently need stable and reliable intelligent systems.

CHALLENGES

Huge orders with complex composition
The total number of orders is large, and the SKU composition of orders is complex.

A wide variety of SKUs
There are many types of SKUs and the total inventory is large.

Fluctuations in business volume
Fast-selling goods with peak requirement during sale season.

High efficiency
High requirements for picking efficiency and accuracy.

SOLUTION

AMR goods-to-person can enable efficient replenishment and accurate picking. AI algorithm reduces the number of picks by optimizing route and batching strategy. Combining with technology like PTL, double picking position for higher efficiency.

HIGHLIGHTS

Goods-to-person mode can reduce the cost of manual handling

Improve picking efficiency and accuracy

**Can respond to peaks in demand.**

The solution covers multiple scenarios of e-commerce

The flexible robot system integrates batch optimization algorithms to cover various warehousing and logistics scenarios. Projects like Sunrise Duty Free, PARKnSHOP, A Perry, Vipshop, Goodaymart and many other projects, all utilize user-built benchmarks.

Shanghai Sunrise Smart Logistics Project

BACKGROUND

Sunshine Duty Free (Shanghai) Co., Ltd. specializing in airport duty-free shops. It covers airports including Beijing Capital International Airport, Shanghai Pudong International Airport and Shanghai Hongqiao International Airport. Duty-free shops provide a variety of domestic and foreign commodities, covering cosmetics, clothing, luggage, food, wine, luxury goods, etc.
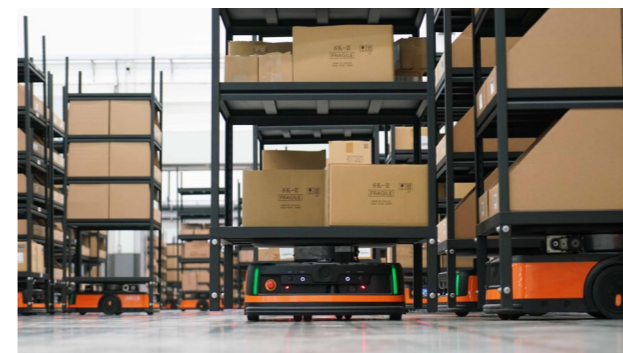
OUR SOLUTION

The project covers an area of approximately 11,000 square meters, with a total of more than 300 robots and 3 battery swap stations. Hikrobot iWMS system seamlessly connected with the Sunrise General Control System to realise picking, put away, and inventory operations. The solution improves warehouse picking efficiency, and system is able to respond to massive throughput, processing approximately 150,000 orders per day.

CUSTOMER BENEFITS

Double pick position: eliminates waiting times during picking, effectively improving work efficiency.
Automatic swap of battery: 3 battery swap stations were installed, effectively increased the utilization rate of a single device and reduced the equipment cost of the project by 12%
Order batch optimization: Optimize batches by using AI to improve the overall operation efficiency.

MORE CASES

PARKnSHOP

The project deployed more than 300 AMRs and 6 battery swap stations, achieving 150,000 picks per day from goods to people, which doubled the throughput.

A Perry UK

Mobile robots not only have they reduced daily costs, they have increased picking efficiency fourfold, and can now handle over 15,000 SKUs with ease.

RRS

Average of 500 sets of TVs are shipped from warehouse per day, peaking at 3000 sets per day. The new dense storage method greatly improves the utilization of warehouse storage capacity.

Automobile

Hikrobot provides safe, reliable mobile robot solutions to improve logistics efficiency and reduce labor costs. The system is applicable to scenarios including pressing, welding and assembling in main engine plants. With the software platform, the integrated solution enables production data flow, agile manufacturing and lean management.

CHALLENGES

Fast-pace production cycle

In automobile manufacturing, you need rapid production timetables, and exceptional reliability.

Varied components and suppliers

With the wide range of suppliers and the many different variations of similar components, sorting errors could easily become commonplace.

Less storage space, fast logistics flow efficiency

The widespread application of JIT mode leads to limited storage space in the factory, which further increases the difficulty

Safety risks

Transport of heavy components create safety risks.

SOLUTION

By introducing robots (including LMR and FMR), workers and components are separated in the entire process. Robots transfer components from platforms to production line automatically. RCS and iWMS are upgraded to match industry features, and support different operation modes including production cycle, call button and PDA, etc. This solution reduces the risk of production interruption caused by improper manual operation, and helps to maximize the performance of JIT mode.

HIGHLIGHTS

Scenario-specific hardware design

Well-developed man-machine interaction docking.

Seamless docking with upper systems including ERP and MES.

Integrates with industrial automation devices (e.g. robotic arm, code reader, and PTL).

Hikrobot provides safe, reliable mobile robot solutions to improve logistics efficiency and reduce labor costs. The system is applicable to scenarios including pressing, welding and assembling in main engine plants. With the software platform, the integrated solution enables production data flow, agile manufacturing and lean management.

FAW-Volkswagen

BACKGROUND

The Foshan plant is FAW-Volkswagen's 4th plant in China, which covers approximately 1.66 millionm^2 . Currently it is the production base of FAW-Volkswagen most models on the same production line. During peak period, 2,400 cars are produced per day, involving tens of thousands of components. To handle complex picking tasks and improve efficiency and accuracy, the mobile robots solution was introduced.

OUR SOLUTION

The intelligent logistics system adopted at the Foshan plant is complicated, which integrated FAW-Volkswagen's FIS and PLP, Hikrobot's RCS and iWMS, along with 47 LMRs. It is the first "Supermarket 2.0" solution in the automobile industry, that made factory-level collaborative intelligent logistics system a reality.

CUSTOMER BENEFITS

Reduced manual work intensity by 30%
Improved efficiency and accuracy: 100% outbound accuracy in warehouse and 100% on-time supply of components between production lines.
Real-time exchange of warehouse information
Less repeated planning work: supports dynamic inventory arrangement, intelligent load balancing

MORE CASES

FAW Toyota

The project uses approximately 70 mobile robots. The solution complete the punctual transportation of 21 SKUs including fuel tanks and steering wheels.
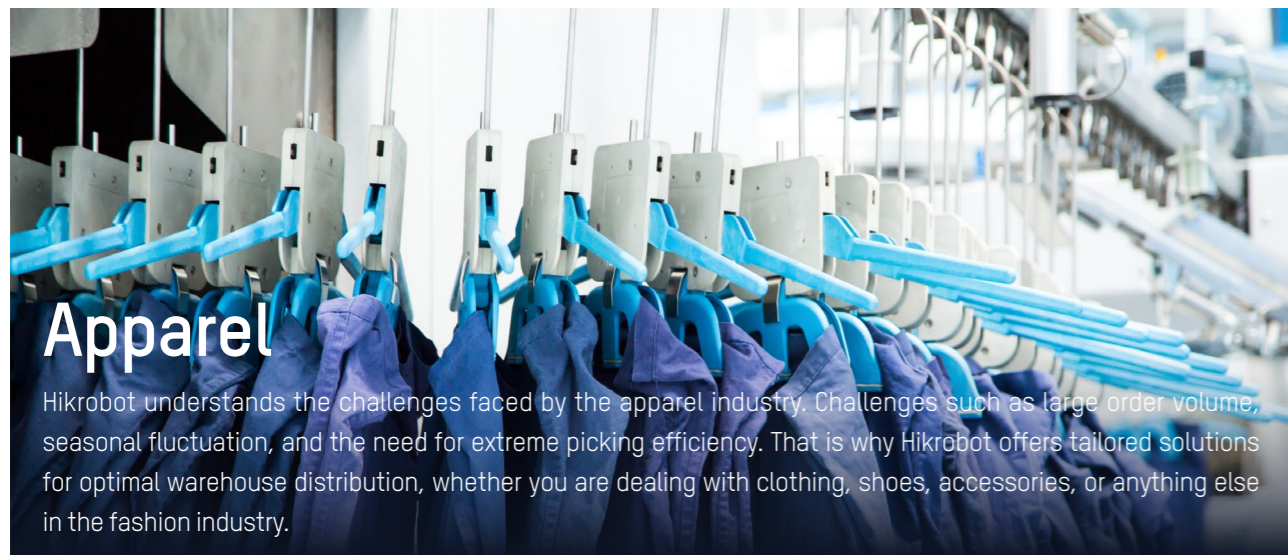
Bosch China

The project uses LMR and FMR to assist with raw material picking and delivery to the production line, as well as finished product storage.

Dongfeng Honda

The manufacturing process uses robots for engine production line, distribution and loop assembly, which improves the overall automation level.

Apparel

Hikrobot understands the challenges faced by the apparel industry. Challenges such as large order volume, seasonal fluctuation, and the need for extreme picking efficiency. That is why Hikrobot offers tailored solutions for optimal warehouse distribution, whether you are dealing with clothing, shoes, accessories, or anything else in the fashion industry.

CHALLENGES

Massive SKUs and orders

The numbers of SKUs of large fashion enterprises usually range from several hundred to millions. Meanwhile the store numbers and e-commerce business continues to grow.

Varied components and suppliers

Seasonal fluctuation and promotions influence the warehouse throughput

Large inventory

Large stock of off-season item.

High picking requirements

High demand for picking efficiency, accuracy and storage capacity.

SOLUTION

Implementing the mobile robot solution offers a rack/tote to person concept.. Suitable for picking of flat pack, hanger cloth, as well as shoebox and accessory. Supporting proper and return business with customized process.

HIGHLIGHTS

Supports different scenarios and provides various solutions suitable for customer needs.

Supports multiple types of AMR working together to improve storage capacity and efficiency.

Reduce labour and operational errors and increase efficiency.

Help customers deal with seasonal fluctuations.

The intelligent mobile robot system can effectively deal with the challenges of diverse SKUs, throughput peak and seasonal fluctuating in the fashion industry. The solutions have helped many customers including the UK's Superdry, Aimer and Hamakyorex, providing a more efficient and intelligent logistics operation.

UK Superdry

BACKGROUND

As a global fashion brand, Superdry has 768 stores across 65 countries. As a retailer for both B2B and B2C, Superdry must maintain high product availability and handle returns efficiently and quickly in order to ensure that customers get the best shopping experience. In order to achieve fast, accurate and efficient product selection, Superdry brought in Hikrobot mobile robot system.

OUR SOLUTION

Superdry brought in 46 latent robots in Burton upon Trent warehouse in 2 phases, to handle clothing picking and return from retail, e-commerce to wholesale channels. Another 20 Hikrobot mobile robots were introduced in Belgium warehouses. In order to facilitate robot work, 1000 movable shelves and 12 picking stations are deployed in the warehouse. At the same time, indicator lights and PTL put away walls are applied to guide operators to pick and put away more accurately.

CUSTOMER BENEFITS

Double operation efficiency: the return processing efficiency is 3 to 3.5 times higher than before. The picking efficiency is doubled.
Greatly improve inventory utilization: nearly 99% of the returned goods can be processed and outbound within one day, saving the warehouse space
High accuracy: the operation accuracy is increased to 99%, saving labor cost
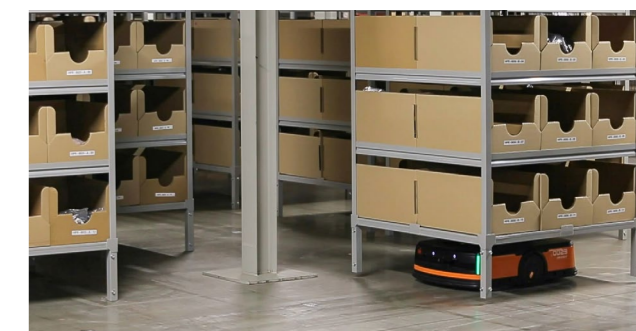
A Fashion Brand in Japan

BACKGROUND

This famous Japanese clothing production and sales group owns a number of world-famous clothing brands. Its sales channel covers B2B and B2C. It has thousands of stores in Japan. Cooperated with the local 3PL company-HMK, Hikrobot helped the fashion company build a more intelligent warehouse work mode to meet the growing business needs and improve the operation efficiency and accuracy.

OUR SOLUTION

The whole project covers an area of more than 11000 square meters, covering the returns and proper warehouse, with a capacity of more than 1.2 million pieces. A total of 181 mobile robots and 26 workstations are deployed to meet the need of seasonal peaks.

CUSTOMER BENEFITS

Customized shelf: Customized shelves to enable the storage and fast pick of items.
User friendly UI: Optimize the UI design according to the customer's needs, simplify the process, reduce the training cost and shrink the error rate.
Deep storage: expand the storage capacity, and make full use of every inch of the warehouse
Fire alarm integrated: When the fire alarm is triggered, all robots can avoid the dangerous area and stop.
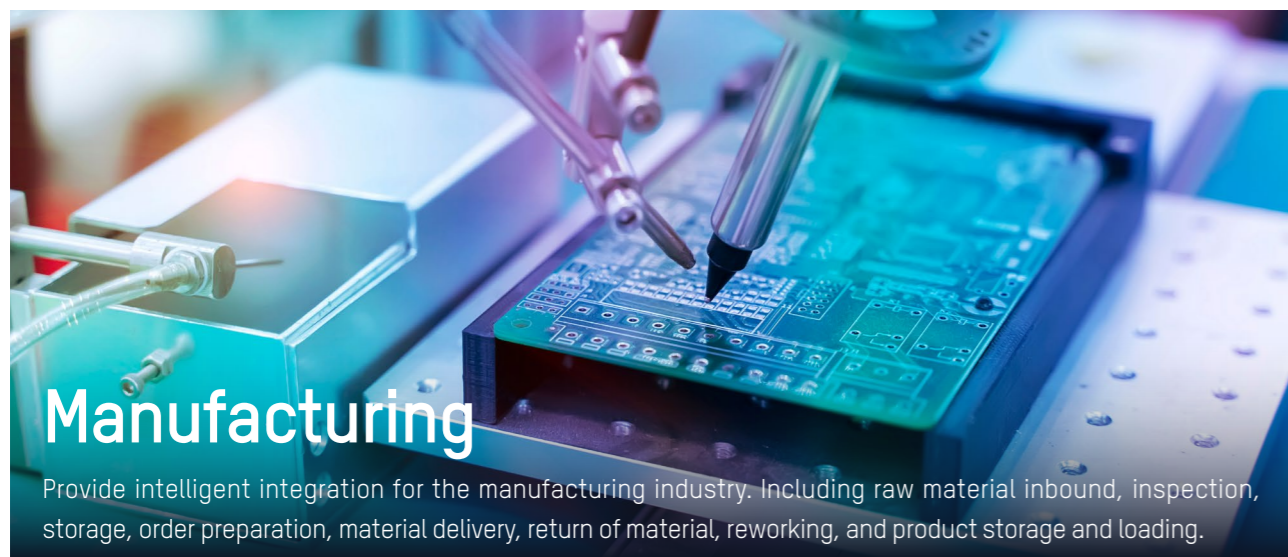
Manufacturing

Provide intelligent integration for the manufacturing industry. Including raw material inbound, inspection, storage, order preparation, material delivery, return of material, reworking, and product storage and loading.

CHALLENGES

Rapid turnover, large volume
Large quantities of orders, various parts form and packaging, and fast production cycle.

Labor intensive and low automation level
Mainly manual working, resulting in lower productivity and quality.

Tight space for production lines
Less space for production lines, but need to achieve high-mix, low-volume and stable distribution.

Difficult human-machine interaction
High safety requirements with many people in the workshop.

Delivery plans are difficult to determine
Fluctuating market demand leads to excess inventory and high storage capacity.

SOLUTION

The Hikrobot logistic solution introduced LMR and FMR, and integrates with elevators, altimeters, stackers, palletizers and other equipment. Hikrobot system intergrates with nine information systems such as U9/SCM/MES to achieve a seamless production with automatic storage.

HIGHLIGHTS

Consolidated scheduling of factory production movements to achieve efficient distribution of materials.

Fully use the warehouse height to maximise use of space

Support cross-map and multi-robot connection, seamlessly integrating multiple devices

Support flexible inbound and outbound to fit the business needs.

Intelligent mobile robot solutions can be adapted for all manufacturing scenarios. To meet varying production requirements, Hikrobot has empowered leading stationery manufacturers, home appliance manufacturers, large compressor manufacturers and many other customers.

Project in a Famous Home Appliance Company

BACKGROUND

The company is a leading home appliance manufacturer, producing a full range of products.
This company is one of the highest microvan production capacities in the world. The factory was selected as the "light tower factory" in 2021. The plant area is large, and requires staff and AMRs to work in and AMRs are working in the same space. The project introduces 5G+AMR technology to achieve high-quality signal transmission.

OUR SOLUTION

In order to effectively reduce the workload and improve stock movement efficiency, the project introduced 35 LMRs. Hikrobot system seamlessly docks with the customer's WMS to achieve unmanned and intelligent management of warehouse and automated distribution.

CUSTOMER BENEFITS

Improve production efficiency: The project applies deep storage mode, and warehouse storage capacity is increased by 24%
Improve warehouse efficiency: The order distribution delivery cycle is shortened by 56%
Carriers have wide reaching inter-compatibility: the trolley that is carried by the robot, can also be used for manual operation.
Robotic arm docking: after loading by robotic arm, the materials are automatically docked to the AMR and distributed to the assigned storage space.
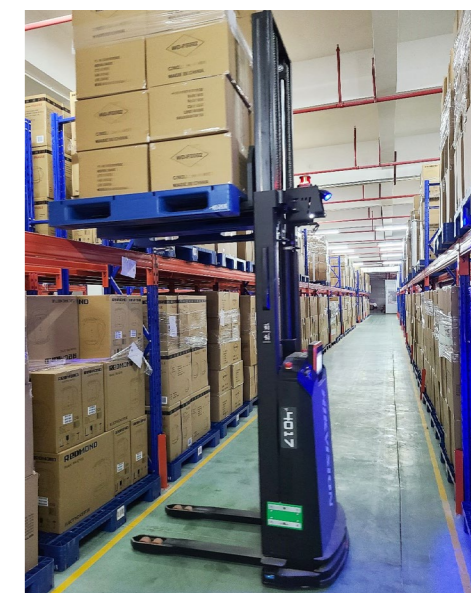
MORE CASES

An A/C Compressor Project

Nearly 140 AMRs of different types achieve an average of 7,000+ handling tasks per day.

A Stationery Manufacturing Project

The CMR carries out the function of automatic storage of semi-finished products, unmanned picking in the storage area and automatic distribution into the production line.

A Home Appliance Manufacturing Project

The project introduces mobile robot solutions into various scenarios such as material transfer, finished products in and out of the warehouse. The solution greatly improves work efficiency and accuracy.

Food and Pharmaceuticals

Food and pharmaceuticals industries have strict time limit and need to change production frequently. Efficient and flexible mobile robot is a powerful solution to meet the needs while ensuring production safety and compliance.

CHALLENGES

Varied business types
Wholesale distribution, hospital delivery, retail medicine stores, etc.

Diversified order forms
Order structures, storage and picking modes are varied.

Strict batch control
Strict batch control and expiration date management are required.

Multiple zones
Robots must operate across varied ambient zones and multi floors.

SOLUTION

This solution supports multiple warehouses and multiple owners. Isolated permission management is available by rules configuration according to different business modes. Integrating with ASRS, high-bay rack, etc., automatic transferring and seamlessly interworking are realised. Furthermore, it supports multi-temperature zones and crossfloor management.

HIGHLIGHTS

Configurable processes and expandable service

Compliance with GSP regulations

Lifecycle tracking by serial number

Strict batch control and expiration date management

Lean inventory management

The mobile robot can meet the the high quality, efficiency and stringent production requirements of the food and pharmaceutical industry. It has been implemented in many benchmark projects such as Jinshahe, Jinlongyu , Dashenlin, CenturyMart fresh food warehouse and leading pharmaceutical chain stores, contributing to inventory management and refined control of warehousing.

Hebei Jinshahe Noodle Production Intelligent Transformation Project

BACKGROUND

Jinshahe noodle industry is one of the top noodle manufacturing enterprises in China, with a total of 80 production lines and a daily output of 5,000 tons of noodles.
A mobile robotics system was introduced to improve production efficiency and optimize the overall management of the warehouse – particular the finished product storage area.

OUR SOLUTION

In order to further improve operation efficiency and reduce manual workload, Jinshahe noodle industry deployed approximately 60 mobile robots in packaging, storage and delivery process. The solution enables the automatic handling and storage of 22 production lines, bringing production speeds to 32 tons per hour

CUSTOMER BENEFITS

The automated solution provides the processing of finish goods delivery and storage, effectively reduced the labour cost. The solution has optimized the management of storage space, improving the utilization of storage area.

MORE CASES

A Chain Pharmaceutical Project

Can cover 70% of the picking operation. The efficiency of a single workstation can reach 150 lines / h
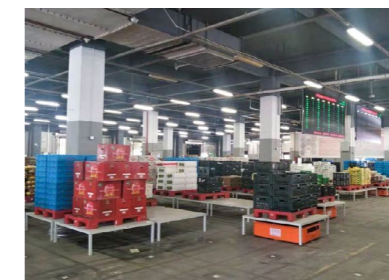
Lianhua Fresh Food Warehouse

Acheived great improvement in their fresh food warehouse. They can now analyze and predict the volume of stock in real time to ensure that warehouse will not run out.

Dashenlin

Introduces intelligent robot system to achieve accurate and efficient picking and put away of medical equipment.

Specification

Latent Mobile Robot (LMR)

● Available ○ Optional — Unavailable			Q2L-300-A		Q3-600-C		Q7-1000-D		Q7-1500-D	
	Model		Q2L-300-A		Q3-600-C		Q7-1000-D		Q7-1500-D	
General	Navigation		2D code	SLAM	2D code	SLAM	2D code	SLAM	2D code	SLAM
	Dimension L*W*H (mm)		750*540*300		940*650*253		1180*860*260	1180*860*265	1180*860*265	
	Rotation diameter (mm)		780		996		1265		1265	
	Lifting height (mm)		70		60		60		60	
	Ground clearance(mm)		30		25		25		25	
	Lifting pad size (mm)		728*540		850*650		980*800		980*800	
	Lifting motor		Electric		Electric		Electric		Electric	
	Weight (kg)		128	127	135		225		227	280
	Rated load (kg)		300		600		1000		1500	
	Screen		●		●		●		●	
Safety Protection	Front protection		Laser		Laser		Laser		Laser	
	Side protection		—		○		○		○	
	Rear protection		Ultrasonic		○		○		○	
	Sound alarm		●		●		●		●	
	Bumper strip		Front/Rear		Front/Rear		Front/Rear		Front/Rear	
	Scram button		Front/Rear		Front/Rear		Front/Rear		Front/Rear	
Motion Performance	Operating speed(empty load) (mm/s)		1500	2000	2000		1800		1800	
	Operating acceleration(empty load) (mm/s²)		1000	500	1000		800		600	
	*Position accuracy (mm)(°)		±5/±0.5	±10/±1	±5/±0.5	±10/±1	±5/±0.5	±10/±1	±5/±0.5	±10/±1
Battery Performance	*Endurance (h)		8		8		8		8	
	Charging time (h)		≤1.5		≤1.5		≤2		≤2	

* The positioning accuracy test under ideal conditions, the actual result is affected by evironment
* Endurance time tested under rated condition

Conveyer Mobile Robot (CMR)

● Available ○ Optional – Unavailable		C3S-600C	C3-300L	C3-400B4	C3-200B2	C3-200B2
	Model	C3S-600C	C3-300L	C3-400B4	C3-200B2	C3-200B2
General	Dimension L*W*H (mm)	940*650*300	1253*755*268	1250*745*1175	1250*745*935	1250*743*1028
	Rotation diameter (mm)	Chassis	Chassis	Rollers	Rollers	Rollers
	Transfer method	Chain (one layer)	Roller (one layer)	Rollers (two bins one layer)	Rollers (two bins two layer)	Rollers (four bins two layer)
	Ground clearance(mm)	25	23	25	25	25
	Weight (kg)	135	180	410	350	315
	Rated load (kg)	600	300	4*100	2*100	2*100
	Navigation	SLAM/2D code	SLAM/2D code	SLAM/2D code	SLAM/2D code	SLAM/2D code
	Display	7 segment Led	7 segment Led	7 in LCD screen	7 in LCD screen	7 in LCD screen
Actuator	Transfer speed(mm/s)	-	-	200	200	300
	Transfer height	-	-	350/950	350	541/1117
Safety Protection	Front protection	Laser	Laser	Laser, ultrasoud	Laser, ultrasoud	Laser
	Rear protection	-	Infrared	Ultrasound, TOF	Ultrasound, TOF	Ultrasound, infrared
	Side protection	-	Ultrasound	-	-	Ultrasound
	Bumper strip	Front, rear	Front, rear	Front, rear	Front, rear	Front, rear
	Scram button	Front, rear	Front, rear	Front, rear	Front, rear	Front, rear
	Sound alarm	●	●	●	●	●
Motion Performance	Rated Operating speed(empty load) (mm/s)	1200	1200	1200	1200	1000
	Rated accelerated speed(empty load) (mm/s²)	500	600	500	500	500
	Position accuracy (mm) (°)	±10/±1	±10/±1	±10/±1	±10/±1	±10/±1
	Docking accuracy(mm)	-	-	±10	±10	±10
	Driving direction	Forward,backward	Forward,backward	Forward,backward	Forward,backward	Forward,backward
	Other capability	Rotate 360°in place	Rotate 360°in place	Rotate 360°in place	Rotate 360°in place	Rotate 360°in place
Battery Performance	Endurance (h)	8	8	8	8	7-8
	Charging time (h)	1.5 (after deep discharge)	1.5 (after deep discharge)	1.5 (after deep discharge)	1.5 (after deep discharge)	1.5 - 2(after deep discharge)

Heavy-Duty Mobile Robot (HMR)

● Available ○ Optional – Unavailable		H8C-2000	H9P-3000
	Model	H8C-2000	H9P-3000
General	Dimension L*W*H (mm)	1900*1200*370	2000*1400*480
	Rotation diameter (mm)	2167	2358
	Lifting height (mm)	100	100
	Ground clearance (mm)	40	40
	Lifting pad size (mm)	1600*900	1800*1200
	Lifting method	Hydraulic	
	Weight (kg)	800	900
	Rated load (kg)	2000	3000
	Navigation	SLAM/2D code	
	Screen	●	●
Safety Protection	Obsticle protection	360° Laser obstacle avoidance	
	Sound alarm	●	●
	Bumper strip	360°	360°
	Scram button	Front, rear, left, right	
Motion Performance	Rated Operating speed(empty load) (mm/s)	1200	1200
	Rated accelerated speed(empty load) (mm/s²)	500	500
	Position accuracy (mm) (°)	±10/±1	±10/±1
	Driving direction	Omnidirectional	
	Rotation capability	Rotate 360°in place	
Battery Performance	Endurance (h)	8	8
	Charging time (h)	2 (after deep discharge)	3 (after deep discharge)

Forklift Mobile Robot (FMR)

		F1-1000U-A	F1-1000U-C	F1-300T-A	F4-1000-C	F3-1500-A	F4-1500-A
	Model						
General	Dimension L*W*H (mm)	1640*990*1990	1639*990*1990	1093*745*1258	1640*990*1990	1632*870*1943	1892*940*2143
	Weight (kg)	900	845	280	715	497	871
	Rated load (kg)	600	1000	300	1000	1500	1500
	Load center (mm)	600	600	381.5	600	600	600
	Fork lifting height (mm)	1344±3 /2044±3	1950±3	338	1331± 3 /2031± 3 (customize to 3000mm)	200	3000
	Maximum mast height (mm)	1990/2681	2684	—	1990/2682	—	3428
	Fork dimension (s/e/l)(mm)	60/206/1220	60/255/1220	47/270/744	60/180/1220	60/170/1234	65/170/1244
	Fork spread (mm)	551(customizable)	720(customizable)	270	680(customizable)	680(customizable)	600(customizable)
	Pallet size (mm)	1200*1000	1200*1000	customize	1200*1000	1200*1000	1200*1000
Motion performance	Rated speed(rated/empty load) (mm/s)	1000/1200	1000/1200	1000/1000	1000/1200	1200/1500	1000/1200
	Postion accuracy (mm)	±5	±5	±5	±10	±10	±10
	Angular accuracy(°)	±1	±1	±1	±1	±1	±1
	Driving mode	Omni-directional, forward, backward, sidesway, skew, rotation,arc.			Steering wheel driving, forward, backward, rotation, arc.		
	Min. operation aisle(1200*1000 pallet/100mm at each side)(mm)	1988	1988	—	2052	2062	2246
Battery performance	Endurance (h)	6~8	6~8	8	6~8	6~8	6~8
	Charging time (after deep discharge)(h)	≤1.5	≤2	≤1.5	≤2	≤2	≤2
Safety protection	Laser obstacle avoidance	●	●	●	●	●	●
	Driving recorder	●	●	●	●	●	●
	Bumper strip	●	●	●	●	●	●
	Pallet in-position detection	●	●	●	●	●	●
	Fork infrared sensor	●	●	—	●	●	●
	Scram button	●	●	●	●	●	●
	Indication light	●	●	●	●	●	●
	Sound alarm	●	●	●	●	●	●
others	Display screen	10.1	10.1	4.3	10.1	10.1	10.1
	Navigation mode	Laser Slam	Laser Slam	Laser Slam	Laser Slam	Laser Slam	Laser Slam
	Pallet recognition	○	○	—	○	○	○
	Visual barcode reading	○	○	○	○	○	○
	RFID reader	○	○	○	○	○	○
	Fork size customization	○	○	○	○	○	○
	Mast customization	○	○	○	○	—	○

● Available　○ Optional　-Unavailable

Carton Transfer Unit (CTU)

● Available   ○ Optional   – Unavailable

	Model	FO-50SC	FO-50DC	FO-50DCH	FO-50DCH(D)	FO-50DCH(T)	FO-50DCH(A)	FO-50DCW
General	Dimension (L*W*H)(mm)	956*680*2000	1730*850*2600	1730*950*4565	1730*950*4565	1730*950*(2950~4888)	1730*950*4565	2015*1120*4740
	Weight(include battery)(kg)	430	620	730	735	850	737	780
	Rated load (kg)	50	250	250	250	250	250	250
	Max. actuator load (kg)	50	50	50	50	50	50	50
	Lifting height (mm)	350~1450	270~2085 (customizable up to 4000)	270~4000 (customizable up to 6000)	270~4000	270~4525	300~4000 (customizable up to 6000)	270~4170
	Standard tote dimension (mm)	(300~600)*(350~400)* (140~340)	(450~620)*(350~400)* (120~300)	(450~620)*(350~400)* (120~350)	(300~600)*(350~400)* (120~350)	(300~620)*(350~400)* (120~300)	(450~620)*(200~450)* (150~350)	(630~800)*(550~600)* (120~420)
	Custimize tote size(mm)	(300~600)*(200~400)* (140~340)	(300~620)*(200~400)* (120~500)	(300~650)*(200~470)* (120~500)	–	(300~620)*(200~450)* (120~500)	(300~620)*(200~450)* (120~500)	(300~800)*(200~600)* (120~500)
	Drivig Mode	Dual-wheel differential drive	Dual-wheel differential drive	Dual-wheel differential drive	Dual-wheel differential drive	Dual-wheel differential drive	Dual-wheel differential drive	Dual-wheel differential drive
	Screen	●	●	●	●	●	●	●
	Navigation	2D code	2D code	2D code	2D code	2D code	2D code	2D code
	Telescopic lift	–	○	○	○	●	○	○
	Double deep	○	–	○	●	○	–	–
Motion Performance	Rated speed (m/s)	1.5/1.5 (Empty /Full load)	1.8/1.5 (Empty /Full load)	1.8/1.5 (Empty /Full load)	1.8/1.5 (Empty /Full load)	1.8/1.5 (Empty /Full load)	1.8/1.5 (Empty /Full load)	1.8/1.5 (Empty /Full load)
	Positioning accuracy(mm)/(°)	±10/±1	±10/±1	±10/±1	±10/±1	±10/±1	±10/±1	±10/±1
	Actuator lifting speed (Empty /Full load)(mm/s)	440/440	500/500	500/500	500/500	500/500	500/500	500/500
	Actuator lifting accuracy(mm)	±2	±2	±2	±2	±2	±2	±2
	Aisle Width (mm)	900	1000	1100	1100	1100	1100	1270
Battery Perpormance	Endurance (h)	6-8	8-10	8-10	8-10	8-10	8-10	8-10
	Charging time (h)	≤ 2 (after deep discharge)	≤ 2 (after deep discharge)	≤ 2 (after deep discharge)	≤ 2 (after deep discharge)	≤ 2 (after deep discharge)	≤ 2 (after deep discharge)	≤ 2 (after deep discharge)
Safety Protection	Laser obstacle avoidance	●	●	●	●	●	●	●
	Rear protection	●	●	●	●	●	●	●
	Side protection	●	●	●	●	●	●	●
	Bumper strip	●	●	●	●	●	●	●
	Scram button	●	●	●	●	●	●	●
	Sound alarm	●	●	●	●	●	●	●

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