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PRODUCT BROCHURE



Make the World More Efficient

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Who Are We?

Libiao Robotics is the global pioneer of intelligent sorting robots. Founded in 2016, the company has revolutionized logistics automation by introducing the world's first portable, modular, and automated unit sorting system, including the original robotic bin-to-person system. Today, we continue to drive innovation with cutting-edge solutions for storing, transporting, and sorting.

At the core of our success lies a strong focus on original intelligent technology and independent system development. Specializing in logistics automation, Libiao has amassed over 200 exclusive invention patents worldwide, establishing itself as a national high-tech enterprise and a key player in provincial R&D projects.

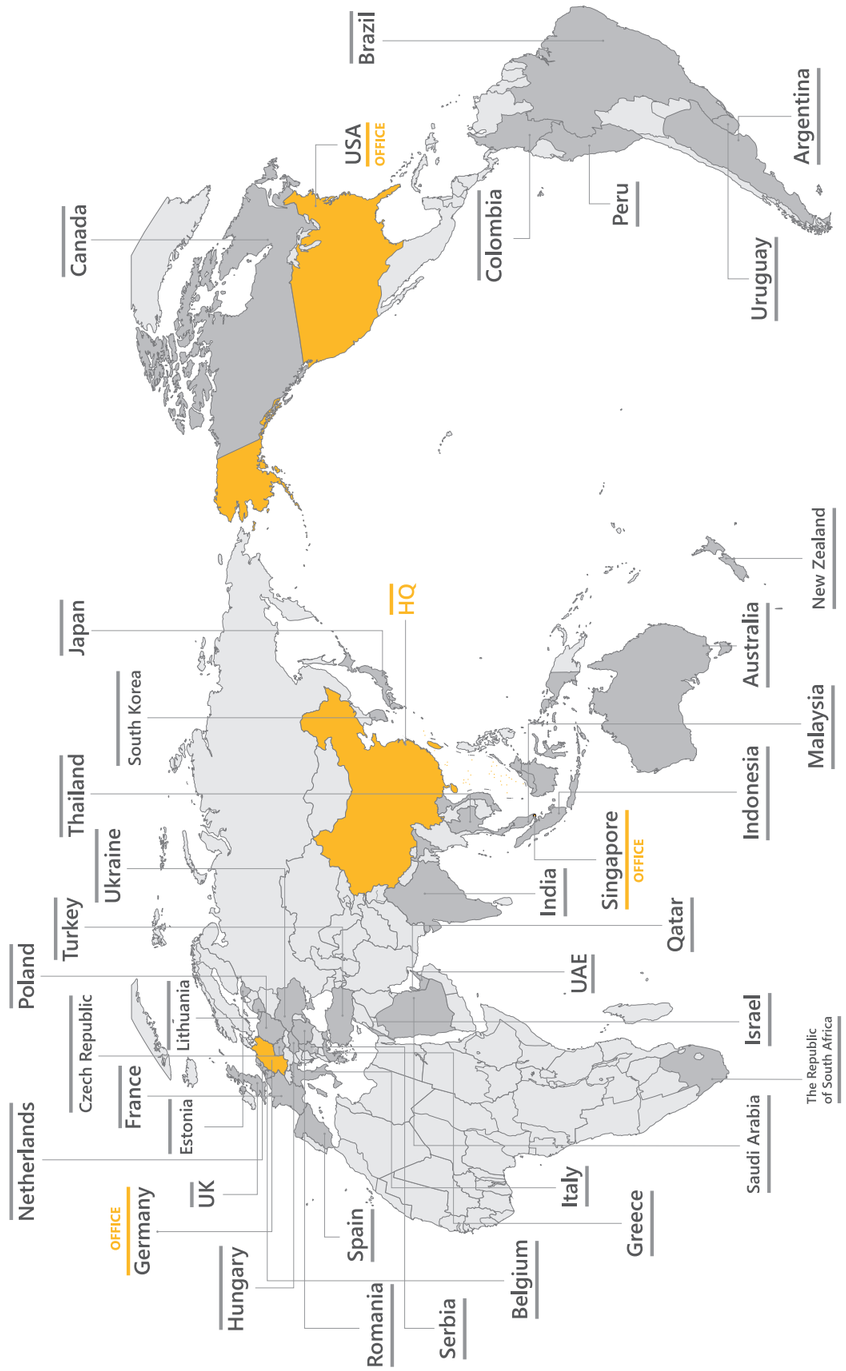
Our product line features a robust series of sorting robots, supported by advanced automatic control, scanning, weighing, and intelligent charging systems. Building on this foundation, we launched the AirRob system in 2023, further enriching our ecosystem of intelligent logistics solutions. To date, we have deployed over 60,000 robots globally and completed more than 600 projects.

700+
Projects Landed

70000+
Robots Deployed

40+
Global Countries & Regions

200+
Patent Technologies



Partners

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+Automation · LODAMASTER · ferag... · SAVOYE · ASETEC · 和泰集團 Hotai Group
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Fastfish · ORBIS

T-Sort System

Overview

Libiao T-Sort system offers modular scalability, allowing for the easy addition or removal of components to match demand. It supports batch order pick ing, store replenishment, and SKU-based returns processing through both forward and reverse sorting. Ideal for retail, courier, and apparel industries, it adapts to diverse logistic needs.

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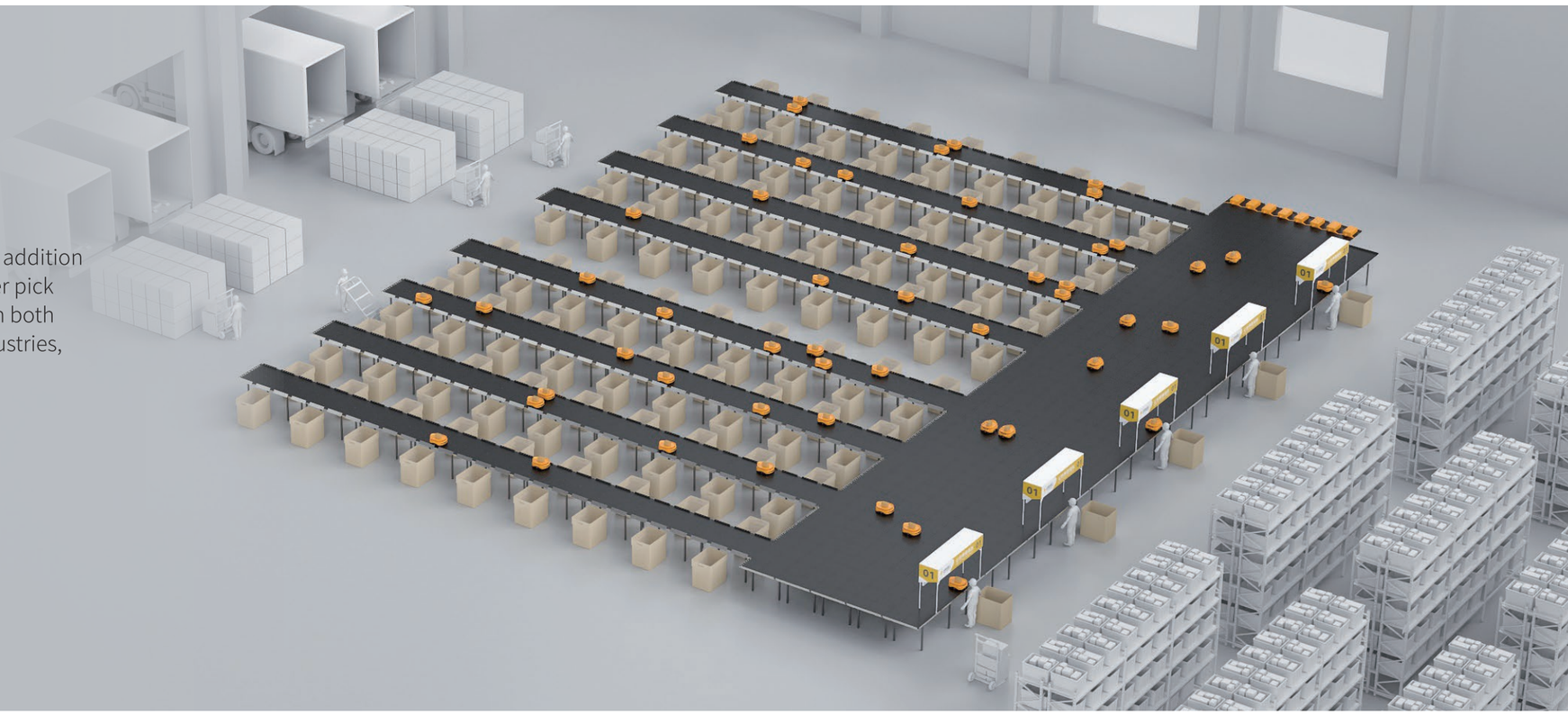


Benefits

Unmatched Flexibility

- **Extremely Scalable Architecture:** Modular design allows for fast or phased deployment.
- **Adapt On Demand:** Easily add, remove, or redeploy robots to meet fluctuating workflow needs.

Peak Operational Efficiency

- **Intelligent Automated Workflow:** The system orchestrates robots to perform automatic scanning, recognition, rapid transport, and precise delivery seamlessly.
- **Multi-Destination Sorting:** Optimizes routing to handle multiple sortation points simultaneously, maximizing throughput.

Guaranteed Accuracy & Uptime

- **Inherent Fault Tolerance:** A single point of failure does not interrupt system operations, ensuring continuous stability.
- **99.9% Sorting Accuracy:** Delivers near-zero error rates, guaranteeing reliable performance.

Real-Time Visibility & Control

- **Live Operational Tracking:** Monitor the entire fleet in real time from an intuitive interface.
- **Smart Maintenance Dashboard:** Gain immediate insights into robot status for swift decision-making.

Easy Deployment & Wide Application

- **Versatile & Compact:** Low-space design deploys on floors, tabletops, or mezzanines, adapting to diverse industries and layouts.
- **Rapid Setup:** Achieve full operational status in just 2–3 weeks on a prepared site.

Compelling ROI

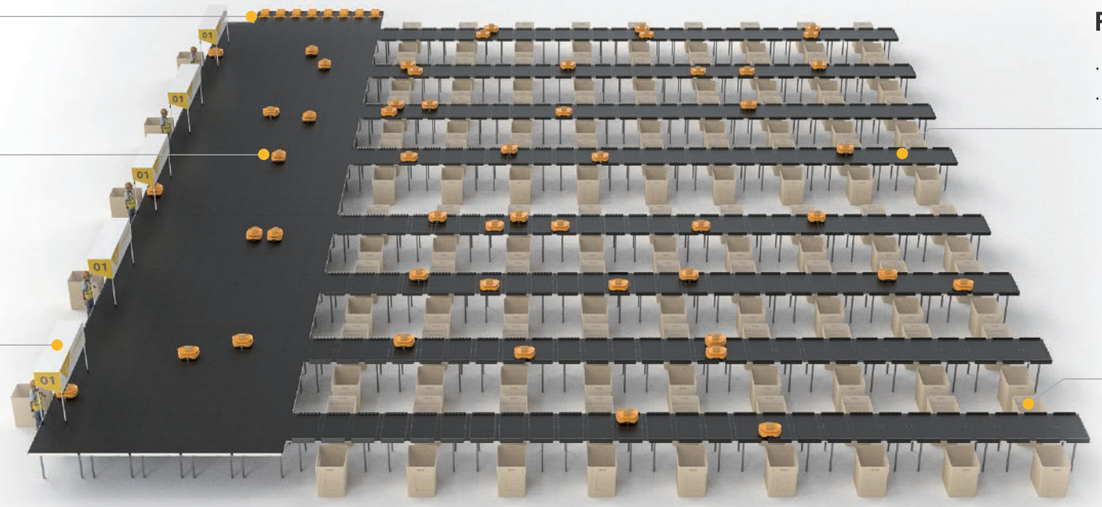
- **Low-Cost Entry, Scalable Investment:** Start small and expand incrementally as your volume grows.
- **Fast Payback:** Typical investment payback period of under 2 years, delivering a high return on investment.

Charging Station

Sorting Robot

Induction Station

· Manual discharge
· Automated code recognition



Finger-Type Platform

· Customizable finger configuration
· Flexible layer options: single, double, or multiple layer setups

Chute

· Sorting destination
· That system is compatible with multi-typed chutes

Core Components

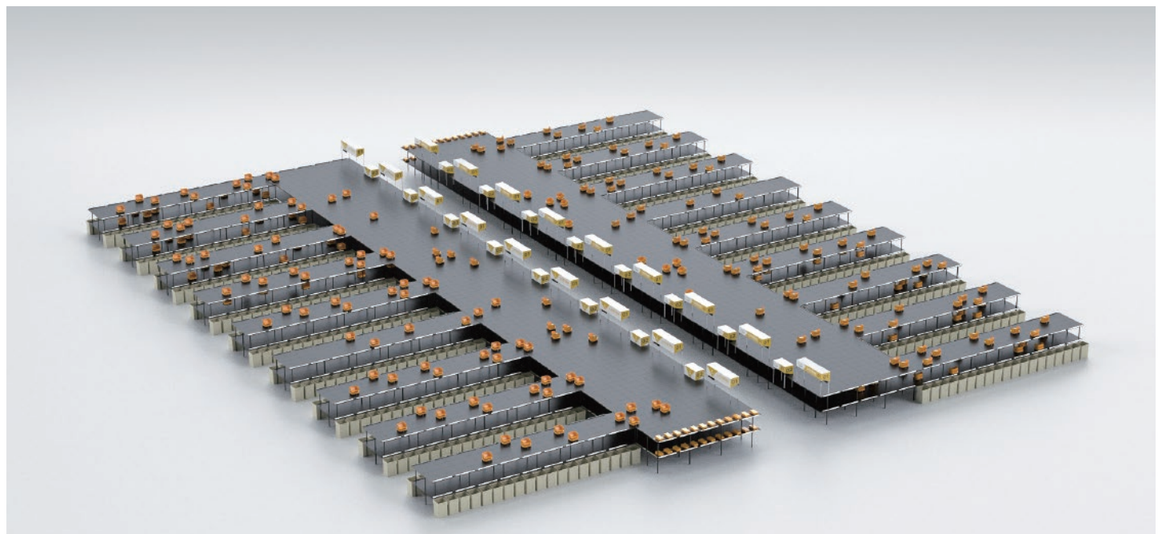
Platform

· **Extreme Flexibility:** Showcases our dynamic design - can even intergrate with your existing tables and racks for maximum adaptability.

· **Optimized Performance:** For best results, our custom galvanized steel platform ensures unmatched durability and a perfect layout fit.

Sorting System

· Sorting robots
· Robot control system
· Network system
· Scanner
· Full bag detection (optional)



Double-layer table platform sorting system

3D Sorting System

Overview

Building on the proven T-Sort platform, Libiao 3D Sorting System represents a direct upgrade through the integration of a three-dimensional sorter. This innovation delivers a higher density of chutes within a significantly smaller footprint, maximizing both space efficiency and sorting capacity. Ideal for handling large volume of small to medium-sized items, it is the perfect solution for order fulfillment and returns processing in e-commerce, apparel, and retail logistics.

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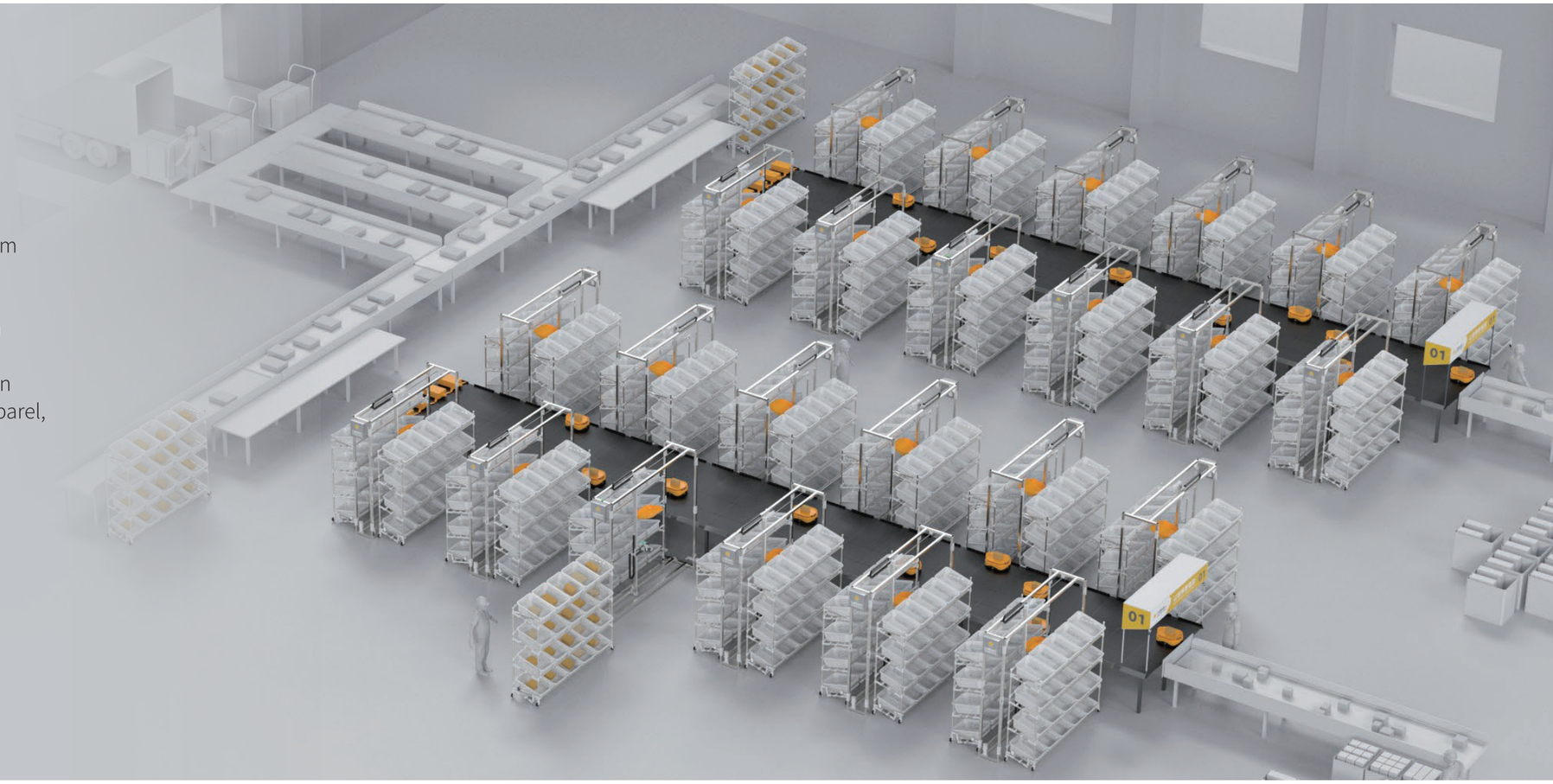


Benefits

Ultimate Flexibility

- **Scale on Demand:** Easily add or remove robots to match workflow needs.
- **Peak Season Ready:** Instantly boost capacity for seasonal surges.

Space-Saving Design

- **Maximize Density:** Achieve higher sorting capacity and more chutes in a smaller footprint.
- **Reduce Costs:** Lower facility expenses and improve space utilization.

Proven ROI & Efficiency

- **Intelligent Algorithms:** Unique software maximizes sorting throughput.
- **Lower Labor Costs:** Automate tasks and achieve a faster payback.

Guaranteed Accuracy

- **99.9% Precision:** Ensure reliable, error-free order fulfillment.

Rapid Deployment

- **Weeks, Not Months:** Go from setup to fully operational in as little as 2-3 weeks.

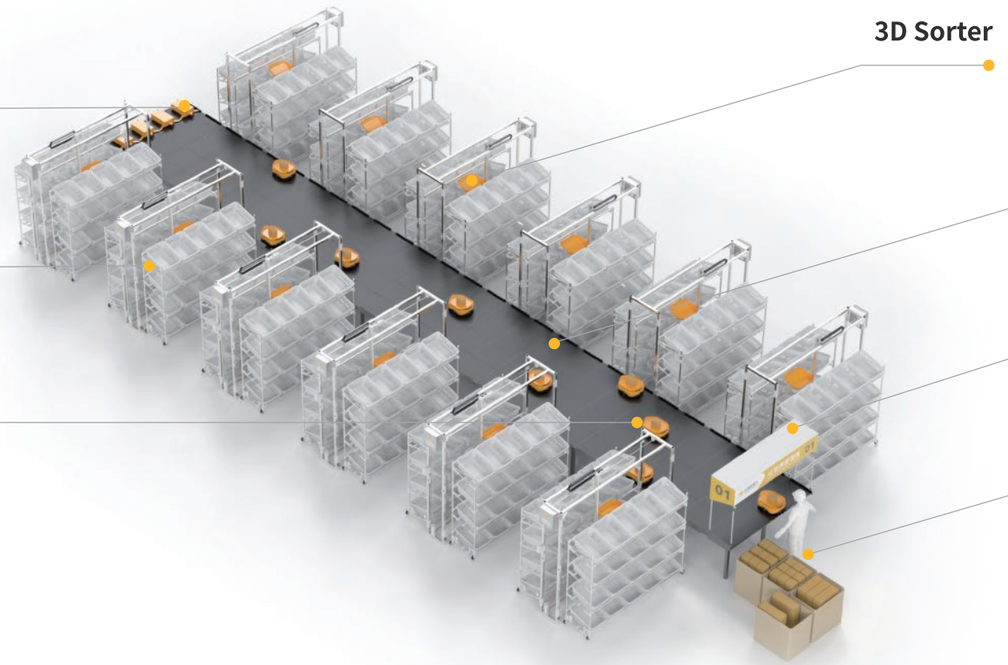
Automated Charging Station

· 1 pile for 15 robots

3D Seeding Wall

· Custom-configured storage bins

Sorting Robot



3D Sorter

Single-Finger Platform

· Fully customized platform for fit exact needs
· Adjustable fingers for versatile product handling

Automated Code Recognition

Induction Station

· 1-2 operators per station

Core Components

Platform

· 3D Seeding wall
· Sorting shelves and destination

Sorting system

· Sorting robots
· Robot control system
· Network system
· Scanner
· 3D Sorter

3D Sorter

· 3D sorting system enables sorting from a 2D plane into a three-dimensional space within a minimal footprint.

· Its functionality is further enhanced by a 3D Induction Elevator that provides automatic vertical transport across multiple levels.



AirRob Bin-to-Person System



Overview

AirRob is an automated bin-to-person system that optimizes warehouses. It combines high-density storage, with units on existing racks, and agile floorbots for rapid transportation.

Its key advantage is seamless integration, requiring no major modifications, specialized conditions, or perfectly flat floors. This enables straightforward deployment with minimal downtime, offering a scalable solution.

Scan to Watch

YouTube

Benefits

Maximum Storage Density

- **Dual-Sided Access:** AirRob can pick from both the front and back of racks, doubling aisle utility.
- **Ultra-Narrow Aisles:** It can operate in aisles as narrow as 0.85m, freeing up significant space for additional storage racks.
- **High-Density Bin Storage:** Bins can be spaced just 10–30mm apart, dramatically increasing storage capacity within the same footprint.

Unmatched Flexibility & Scalability

- **Effortless Scaling:** Deploy multiple AirRobs in a single aisle. Scale the entire system seamlessly by simply adding more racks and robots.
- **Continuous Operation:** AirRob can transfer bins to floorbots at any point, ensuring a non-stop workflow.
- **High-Volume Throughput:** System capacity exceeds 20,000 bins per hour, enabling flexible application across various industries.

Superior Efficiency

- **High-Speed Robotics:** A single robot can pick and store 120 bins per hour.
- **Productive Workstations:** One workstation can process 600 inbound and 600 outbound bins per hour.

Eco-Friendly & Sustainable

- **Extremely Low Energy Consumption:** The power used per aisle can be less than that of a standard microwave oven.
- **Long-Lasting Battery:** A single charge allows mobile transporters to run for up to 3 hours.

Low Deployment Threshold

- **Simple Installation:** No special floor treatment required.
- **Robust Operation:** Reliable performance in a wide temperature range from -20°C to 50°C.

Rack

· Compatible with existing racks

Workstation

· Climb functionality: robots themselves climb vertically to reach the operator's level
· Lift functionality: bins are delivered to the operator via a separate lift system, similar to an elevator
· The Two Workers Model with a Single-U-route
· The Single Worker Model with a Double-U-route



Bin

AirRob

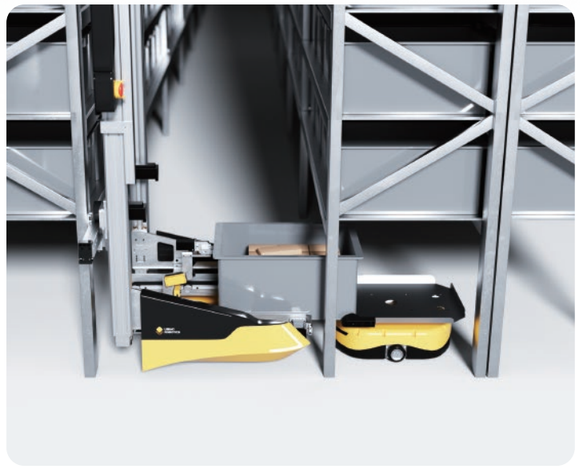
· 25kg max capacity
· Multiple AirRobs per aisle operation

Floorbot

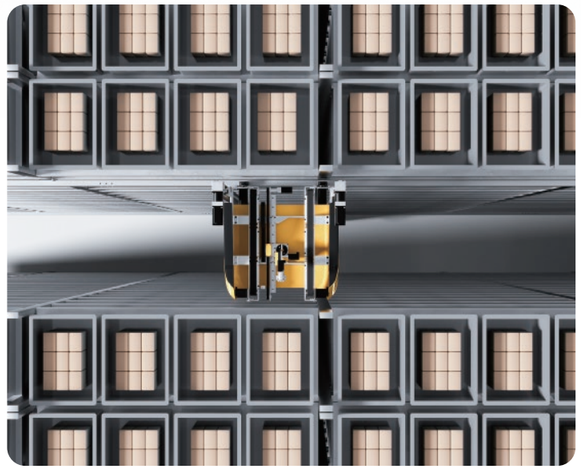
· Compatible with existing floor
· Fully autonomous navigation



Aisle width needs only 850mm



One AirRob can achieve 120 single cycles per hour



Gap between bins can be 10-30mm



Workstation can handle 600 inbound and 600 outbound bins per hour

INDUSTRY APPLICATIONS





INDUSTRY APPLICATIONS

APPAREL



JAPAN - UNIQLO

System	3D Sorting System
Completion date	2021
Floor area	1800㎡
Number of robots	240
Number of chutes	6000-7200
Throughput	18,000 parcels/h

APPAREL



CHINA - APPAREL

System	T-Sort System
Completion date	2021
Floor area	600㎡
Number of robots	80
Number of chutes	400
Throughput	4,500 parcels/h

APPAREL



CHINA - SKECHERS

System	T-Sort System
Completion Date	2022
Floor area	1500㎡
Number of robots	360
Number of chutes	432
Throughput	13,000 parcels/h/platfom

COSMETICS



KOREA - OLIVEYOUNG

System	T-Sort System
Completion date	2024
Floor area	540㎡*2
Number of robots	32
Number of chutes	320
Throughput	2,200 parcels/h

COSMETICS



JAPAN - ORBIS

System	T-Sort System
Completion date	2019
Floor area	1860㎡
Number of robots	330
Throughput	15,000 parcels/h

COSMETICS



SPAIN - PRIMOR

System	3D Sorting System
Completion date	2024
Number of robots	90
Number of chutes	1704
Throughput	5,000 parcels/h

INDUSTRY APPLICATIONS

PARCELS & POST



CHINA - POST OF NANJING

System	Steel Platform System
Completion date	2019
Floor area	1400㎡
Number of robots	254
Number of chutes	360
Throughput	15,000 parcels/h

PARCELS & POST



GREECE - ELTA HELLENIC POST

System	T-Sort System
Completion date	2021
Floor area	600㎡
Number of robots	120
Number of chutes	1920
Throughput	6,000 parcels/h

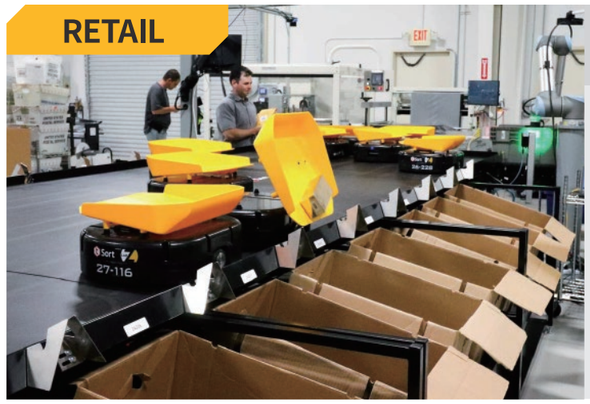
PARCELS & POST



SERBIA - POST OF SERBIA

System	T-Sort System
Completion date	2024.8
Floor area	711㎡
Number of robots	153
Number of chutes	216
Throughput	7,000 parcels/h

RETAIL



USA - WALMART

System	T-Sort System
Completion date	2019
Floor area	380㎡
Number of robots	94
Number of chutes	230
Throughput	2,500 parcels/h

JEWELRY



AN CERTAIN INTERNATIONAL FAMOUS JEWELRY GROUP

System	T-Sort System
Completion date	2021
Floor area	80㎡
Number of robots	7
Number of chutes	14

APPAREL

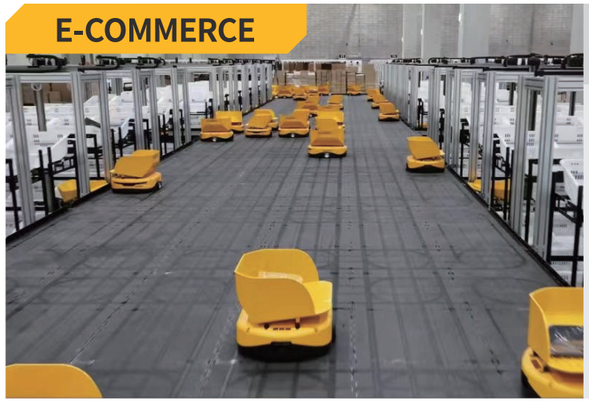


CHINA - FAST FISH

System	T-Sort System
Completion date	2022
Floor area	2000㎡
Number of robots	880
Number of chutes	680
Throughput	40,000 parcels/h

INDUSTRY APPLICATIONS

E-COMMERCE



KOREA - MUSINSA

System	3D Sorting System
Completion date	2022
Floor area	500㎡
Number of robots	100
Throughput	5,700 parcels/h

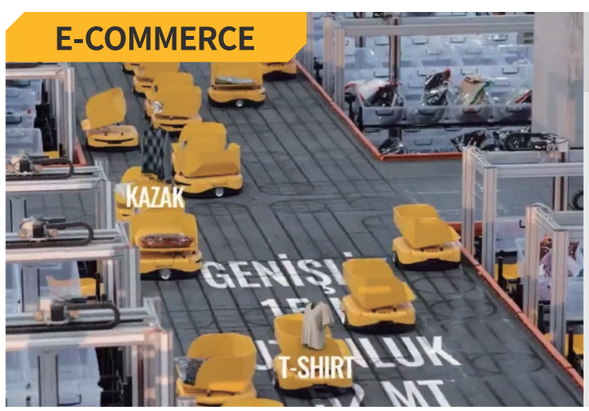
COLD CHAIN



CHINA - FRESHIPPO

System	3D Sorting System
Completion date	2023
Floor area	600㎡
Number of robots	85
Throughput	3,500 parcels/h

E-COMMERCE



TURKEY - AYDINLI

System	3D Sorting System
Completion date	2025
Floor area	780㎡
Number of robots	88
Throughput	4,700 parcels/h

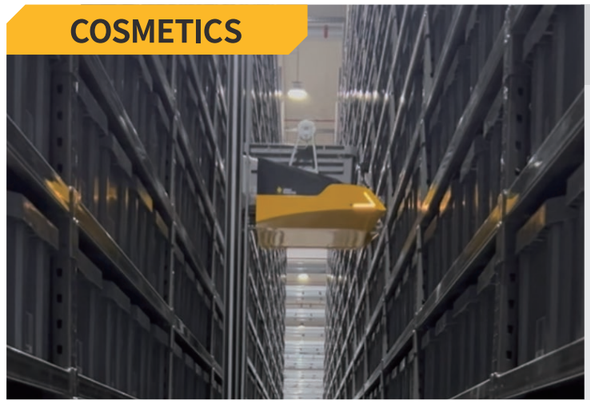
E-COMMERCE



JAPAN - SIG

System	AirRob Bin-to-Person System
Completion date	2024
Floor area	550㎡
Number of storage locations	10k
Number of robots	80
Number of AirRobs	24
Throughput	1500 bins/h

COSMETICS



KOREA - OLIVEYOUNG

System	AirRob Bin-to-Person System
Completion date	2024.12
Floor area	837㎡
Number of storage locations	16970
Number of robots	35
Number of AirRobs	9
Throughput	620 bins/h

APPAREL



CHINA - SKECHERS

System	AirRob Bin-to-Person System
Completion date	2024
Floor area	8000m²
Number of storage locations	100k
Number of robots	450
Number of AirRobs	134
Throughput	5406 bins/h

PRODUCT MODELS

PRODUCT MODELS

Flat Tray

Dimensions	**482*413*200 (mm)**
Load	**5kg**

High Tray

Dimensions	**482*413*329 (mm)**
Load	**5kg**

Inclined Tray

Dimensions	**482*413*230 (mm)**
Load	**5kg**



AirRob Floorbot

Dimensions	**585*435*201 (mm)**
Load	**25kg**

Belt Conveyor

Dimensions	**481*413*212 (mm)**
Load	**15kg**

Lift

Dimensions	**482*413*176 (mm)**
Load	**15kg**

PRODUCT MODELS

Inclined Tray

Dimensions	**241*210*132 (mm)**
Load	**1.5kg**



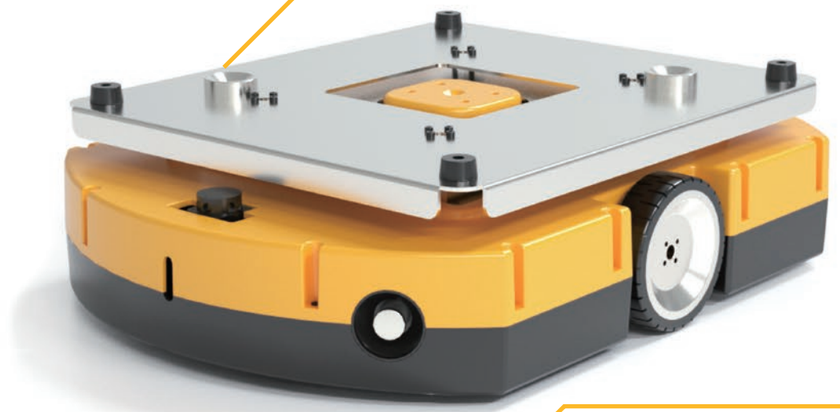


Belt Conveyor

Dimensions	**660*480*218 (mm)**
Load	**30kg**

Lift

Dimensions	**659*480*178(mm)**
Load	**50kg**



Inclined Tray

Dimensions	**660*480*214 (mm)**
Load	**25kg**



SUPPORTING FACILITIES

Charging Station

· Quick charging technology
· Supports continuous running of robot

Automatic Weighing Device

· Weighs items and records data



AP Device

· Original AP technology
· Stable network and wide coverage

3D Induction Elevator

· Automatic induction over layers

Automatic Scanning Device

· Automatically scans items for reading information

Magic Carpet

· Supports precise navigation for robot controls

SOFTWARE SYSTEM & NETWORK SYSTEM

ROBOT CONTROL SYSTEM (RCS)

· Integrated intelligent system

The system integrates all modules, such as the human-computer interaction interface, path planning, robot communication, code scanner communication, external data communication, charging, and lift, for intelligent operation and maintenance.

· Efficient robot dispatching operation

The system calculates the optimal path for hundreds of robots to work synergistically, achieving for higher stability and efficiency.

· Greatly improved productivity

The proprietary dispatch system, combined with the self-developed wireless communication system, significantly improves productivity compared to traditional Wi-Fi communication.



SELF-DEVELOPED AP + AC WIRELESS COMMUNICATION SYSTEM



· Stable communication and connection

The system offers high stability and strong anti-interference capability. It provides an effective solution to poor connection issues caused by to limited channel resources and signal interference.

· Improved communication quality

The system enhances wireless communication signal quality, communication success rate, communication speed, anti-interference capability, and data accuracy.

· Customized system

System maintenance is simplified with features such as remote network monitoring, upgrades, and maintenance.

10mm

NOTES

NOTES