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# **SMART PICKING**

Efficient · Accurate · Flexible





# Geek+

Global AMR market share for 3 consecutive years\*

500+

Trusted by 500+ global industry leaders

\$300m+ 900+

patent applications submitted globally

## **Technical Advantages**



**Excellent AMR** Performance

Stable, reliable, flexible. and efficient.



**Business-Driven Platform** 

Orders in 2021

Can be integrated with RMS. WES. WCS. WMS. and other business software.



Al Algorithm and **Data Platform** 

Large-scale accumulation of edge machine and cloud business data.

**PopPick** 

#### **Realize True Value**

Reduces costs. increases efficiency. and enhances competitiveness.

Increased

Efficiency

Rapid Deployment

**Enhances supply** chain stability.



Resilient

Ensure business and supply chain continuity.

Accuracy



**Fast** 

Respond quickly to business requirements.



#### Flexible

Flexibly adapt to sudden business changes.

## **Award-Winning Industry Pioneer**



**Supply Chain Excellence Award** 2018, 2019 & 2021



Top 50 Robotics Company -2019-2020 Robotics Business Review.



Fast Company Award 2021

### **Trusted by the Best**

With High Customer Satisfaction Geek+ Solutions are integrated with e-commerce, retail, footwear, logistics, pharmaceutical, automobile, and 3C manufacturing industries. Its high-quality products and technologies have been successfully implemented in a wide range of business scenarios.

E-commerce









Apparel









Retail









Pharmaceutical









Manufacturing









3PL











Preventive maintenance

Residential services

((o)) Remote technical support

⟨☼⟩ Spare parts supply

System maintenance and upgrade

(1) 24/7 help desk

Training and certification

On-site repair



Atlanta 🕺

South



# **Geek+ Picking Products**

Double the efficiency with game-changing picking solutions.

EFFICIENT · ACCURATE · FLEXIBLE



## **Goods-to-Person Picking**

Excellent ROI for 100+ companies across 20+ countries.

Goods-to-Person uses picking robots to improve accuracy by moving the inventory shelves and pallets to the picking station. Picking efficiency is improved by two-to-three times. Geek+ offers both single- and multi-layer goods-to-person picking solutions.

Goods-to-person picking utilizes AI to optimize picking efficiency and increase storage capacity with the least amount of robots possible, ensuring rapid ROI. Its primary features include:

- · Order optimization and group picking
- Dynamic wave picking process
- · Heat mapping and placement recommendations
- Inventory layout adjustment
- · Inventory management and intelligent tally
- Robot/workstation task integration
- RFID technology integration
- Rich variety of business functionality and strategies, which can be flexibly configured according to specific industry requirements

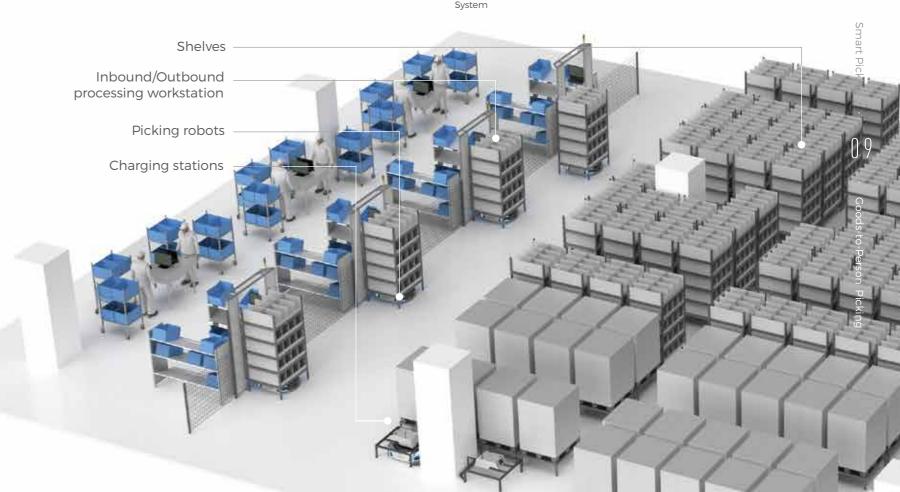
#### **Application Scenarios:**

FCL, single item orders, and small/med/large picking.

#### Applicable Industries:

Retail, clothing, pharmaceutical, 3PL, cosmetics, e-commerce, manufacturing, and cold chain.





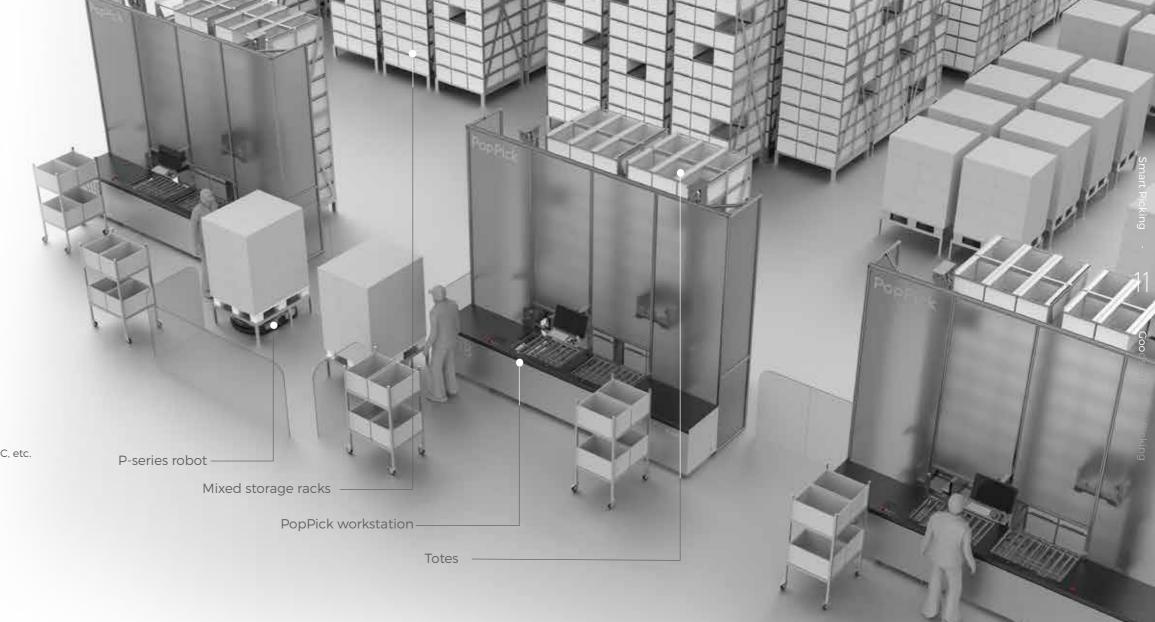
# **Geek+ Next-Gen Picking Solution PopPick**

One-stop goods-to-person solution with high storage, high throughput and high compatibility

PopPick is our next generation, goods-to-person picking solution for warehouse operations and supply chain management. In a warehouse setting, Geek+ picking robots carry movable racks from storage locations to PopPick workstations, The target totes (which are already stored on the movable racks) are picked automatically by the station and presented to the operator for easy picking. Compatible with items of varying sizes, PopPick's dynamic slotting support automatic unmanned operations based on order forecasts analyzed during idle time, hit rate improved to 10 totes.

**Applications:** Pieces, whole totes, and pallet picking; small/medium/large picking; goods consolidation. **Applicable Industries:** Retail, Apparel, Pharmaceuticals, 3PL, Cosmetics, E-Commerce, Manufacturing, Books, 3C, etc.







## Industry Challeng

Low manual picking efficiency

 Complex order structure, traditional solutions can't effectively solve multiple different order structures, need to set up a combined station. High cost of warehouse rent, storage space needs to get the ultimate use.

Automated Solutions

The totes are automatically sent to the workstation, Easy and efficient picking.

One station to store and pick items small, medium, and large, full-cate-gory mixed storage and picking.
Adaptable for all categories and scenarios.

Extremely dense tote spacing. (As little as 2cm)- Storage density is 1.25x that of traditional tote-to-person or mini-load solutions.

# he Geek+ Impa



#### Record-Level Compatibility

One station to store and pick items small, medium, and large , support totes, racks, and pallet storage



#### Record-Level Storage

4x storage density



#### Record-Level Throughput Capacity

2x throughput capacity



#### Record-Level Human Efficiency and ROI

4x transportation efficiency and save 50% of costs

Low manual picking efficiency.

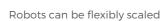
Robots transport shelves between picking stations, eliminating the inefficiencies found in manual picking.

Rigidity - Fixed automation equipment cannot adapt to business fluctuations.

Deployment time - Fixed automation equipment requires 6+ months of warehouse transformation, leading to business delays and wasted rent.

No On-Site Modification Required:

The only requirement is QR codes on the ground and they're easy to integrate with existing operations.



according to demand.





3x Increased Picking Efficiency



Rapid ROI

ROI in 1-3 years.



Flexible and Agile

Respond to business changes in a timely manner; enhance competitiveness.



Deployment in as fast as 2 weeks.

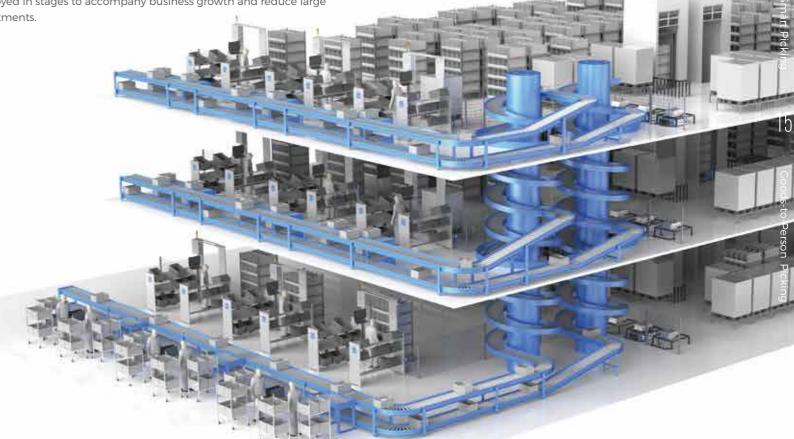


#### Scalability

5X storage expansion with multi-layer system.

## **Flexible Inventory Expansion**

Goods-to-person can be expanded as a multi-layer system integrating steel platforms, lifters, conveyor lines, and other equipment to ensure better handling of high-volume and multi-SKU application scenarios. Can be deployed in stages to accompany business growth and reduce large investments.



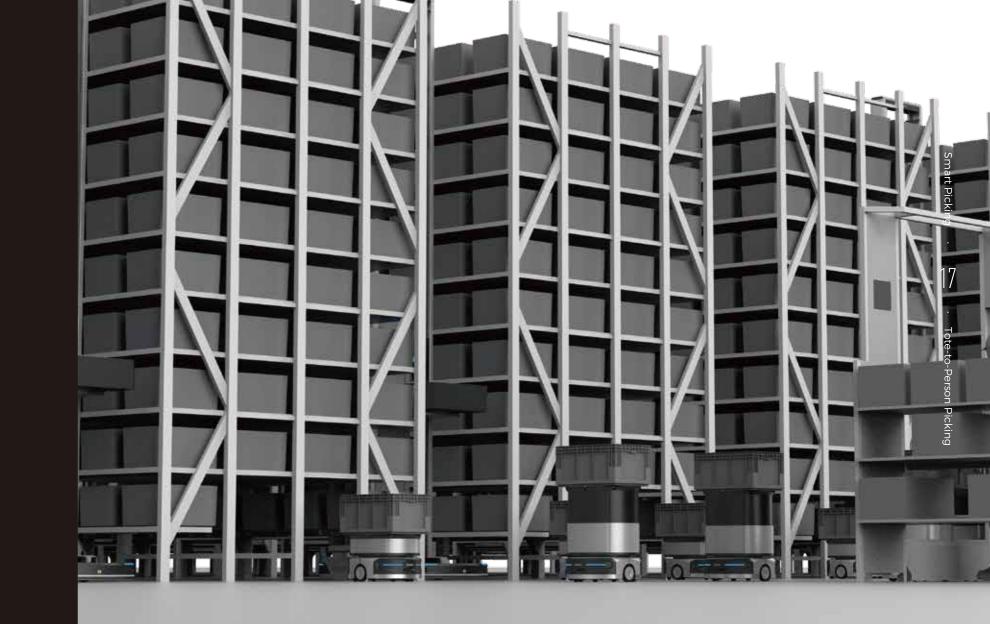
#### Geek+ RoboShuttle

Improve the Efficiency, Flexibility and Storage Capacity of your Warehouse.

RoboShuttle is the Geek+ award-winning, tote-to-Person system featuring high picking efficiency, high-density double-deep storage capabilities, and narrow aisle design. Make full use of vertical warehouse space and maximize storage capacity with RoboShuttle robots' multiple tote-picking function and modular design.

#### RoboShuttle offers superior flexibility, efficiency, and ROI.

- · Highly adaptable to existing shelves and lofts.
- · Smaller investment and faster ROI (1-3 years).
- · Rapid implementation and low floor load.
- Easy to maintain; does not need high-precision rails.
- · High density storage and bins.
- · High tote picking efficiency of up to 400/hour/station.



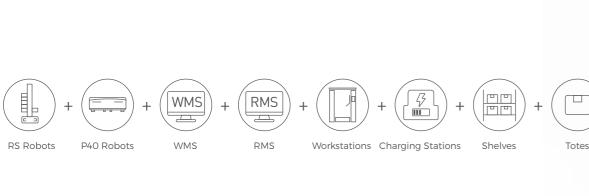
#### **RoboShuttle Flexible Tote-to-Person Solution**

The next-generation high-density tote-to-person solution with high storage, efficiency, flexibility, and cost-efficiency.

This solution pairs 5-8 meters high mobile robots that stores totes of various sizes with a small picking robot that carries totes to the workstations.

**Applications:** small-sized piece picking, intensive whole container storage and picking, MFC picking **Applicable industries:** footwear & apparel, pharmaceuticals, retail, e-commerce









High Flexible

Less costly and flexible implementation. Eliminates conveyors or any fixed automation, non-stop workflow in case of single point of failure, easy adjustment and relocation.



#### No Time Wasted

Order-forecast algorithm facilitates the automatic organization of totes in different racks during idle time, improving efficiency with 24/7 operations.



#### **Ergonomic Work Process**

Ergonomic design to enhance comfort and efficiency.

The conveyor workstation has strong rigidity, and is difficult to adjust when business demands fluctuate.

Automate Solutions

Fully flexible solution to replace conveyors with P40 robots, workstations can be changed according to business demands.

High-timeliness High demands for fulfillment speed is ever-increasing.

Goods with a high probability of being outbound are adjusted to the bottom buffer level in advance; when needed, these totes could be delivered to the workstation within minutes to have a quick order response.



## **Geek+ Four-way Shuttle Solution**

Intensive storage and retrieval solution with high throughput

The 4-way shuttle solution is a new generation of storage and retrieval based on the X series 4-way shuttle robots to maximize the use of the logistics center space. At the same time, cooperate with P series picking robots, integrated business and scheduling systems to maximize throughput. It is a cost-effective solution for high-density storage and high-frequency picking.

The multi-model integrated intelligent scheduling system enhances the cooperation between devices and builds a safe, efficient and stable access system.

- · Increased warehouse utilization
- · High degree of automation
- · Applicable to multiple business scenarios
- · Adjustment robots quantity according to changes in demand

### **Four-way Shuttle Solution**

A storage and retrieval solution with high storage, high efficiency, high flexibility

Combines a four-way shuttle system with a goods-to-person system to maximize space utilization and picking efficiency. Based on the strong picking capability of the goods-to-person system, relying on the four-way shuttle stereoscopic racks to maximize the use of 3D space.

**Applications:** pieces, totes, whole pallets picking; small/medium/large-sized picking **Applicable industries:** manufacturing, retail, FMCG, 3PL, pharmaceuticals, cold chain

Four-way shuttle Four-way shuttle rack Vertical lift Forklift Telescopic fork Picking workstation P800R Robot Shelves







# Industry Challenges

Low utilization of warehouse space.

**Automated Solutions** 

Make full use of the warehouse and improve the overall utilization rate

 Due to the rapid expansion of business volume, the original warehouse cannot take into account both the storage volume and the outbound efficiency at the same time.

The upper storage and lower picking is based on the storage capacity of the X robot and the efficient picking of the P robot to realize the improvement of storage and picking.

Due to seasonal changes, sales strategy, and other changes in product replacement, the manual operation has a large workload and a high error rate.

Relying on intelligent algorithms to know the changes in the popularity of stocks in real-time and be able to adjust and exchange stocks independently.



#### No waste of time

Automatic consolidation at night and idle time.



#### Maximize space utilization

Racks can be customized according to the size and shape of the warehouse.



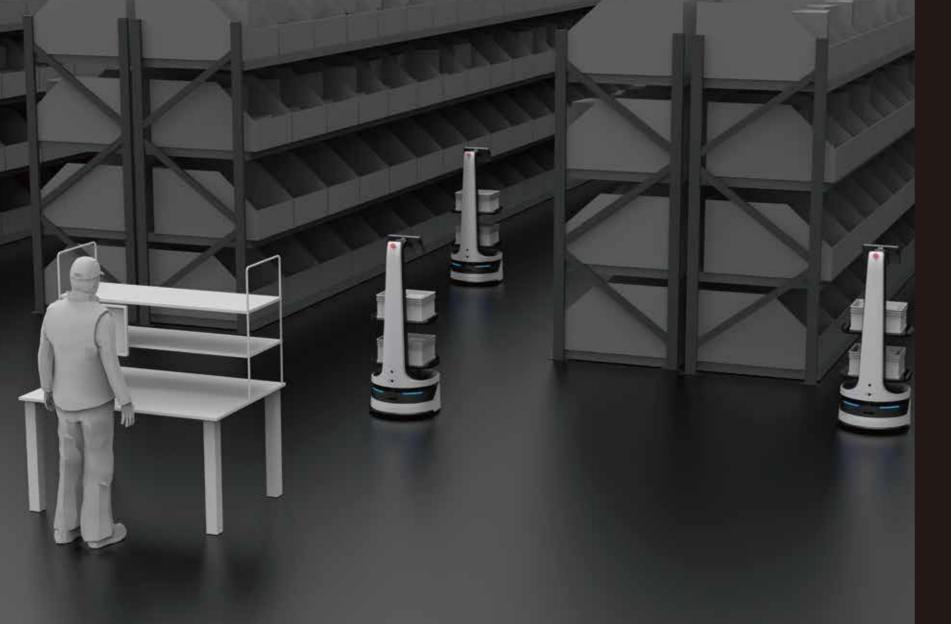
#### Reduce cost and increase efficiency

Support path optimization, reduce empty driving time, increase work saturation, thereby reducing the number of robot deployments.



#### High-density storage

Storage capacity increased by 5x compared with a manual warehouse.



## **Order-to-Person Picking**

Highly flexible automated picking solution, fast deployment, and rapidly effective

AislePick is an order-to-person collaborative picking solution based on SLAM-navigated robots including A,M, and F series. Without changing the existing operating environment of the warehouse, flexible and fast deploy robots to the work area to collaborate with manual picking, improve efficiency while reducing error rates, and bring value to customers.

AislePick can significantly shorten the walking distance and improve the picking efficiency by 1.5~2x. A-series robots adopt laser and visual SLAM navigation, flexible to adapt to the complex environment of human-machine mixed traffic enhance safety and efficiency.

- · Good and fast return on investment
- · Quick adaption to meet changes in demand
- · Comes with Al-cloud right out-of-the-box
- Easy duplication for multi-warehouses

A-Series Order-to-Person Collaborative Picking Solution

Highly flexible warehouse AMR solution with direct deployment without reconstruction

The powerful order-to-person system can efficiently and intelligently provide dynamic decision-making capabilities and can arrange robots to cooperate with operators to complete picking tasks, making the entire fulfillment workflow more productive.

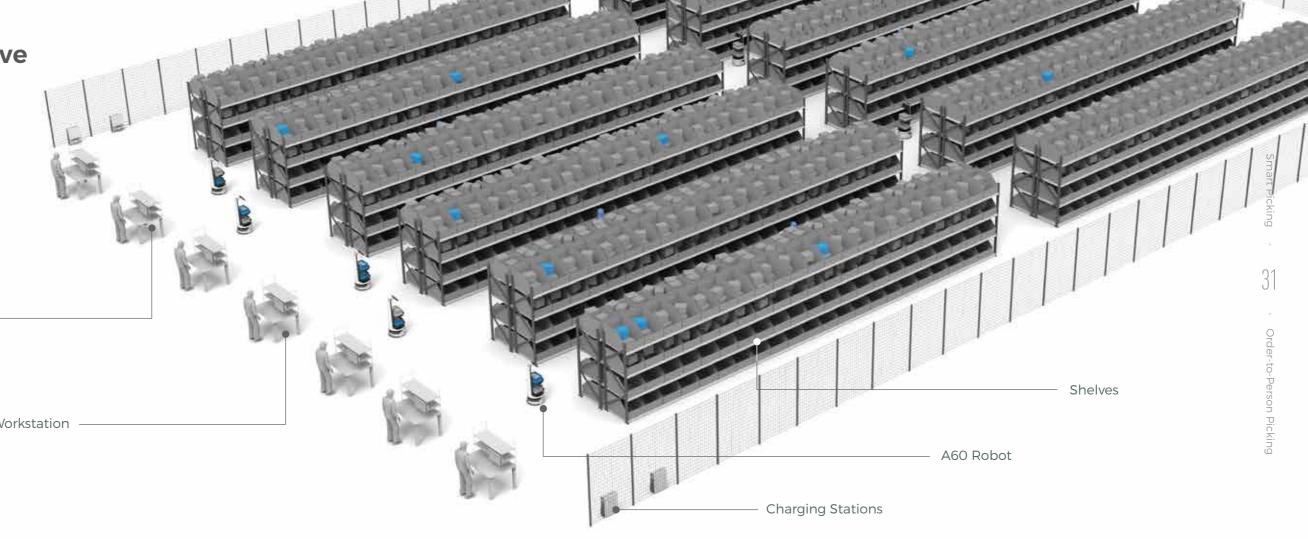
Applications: unit picking

Applicable industries: e-commerce, grocery, footwear & apparel, pharmaceuticals

Tote Induct Workstation

Tote Unload Workstation







Traditional plan requires large and time-consuming warehouse transformation.

 In circumstances of demand fluctuation, stock transition, etc. will lead to more changes on site.

Manual picking and handling take a long time and wastes efficiency.

SLAM navigation can be deployed online without onsite transformation.

The robot quantity and the active area can be adjusted flexibly with non-stop workflow, can be quickly expanded and duplicated for multi-warehouses.

A robot supports picking and handling by warehouse, by zone, or by lane, while the operators work in their zone to simplify cross-process operations.



#### Fast implementation

Fast deployment within 24 hours.



#### OOBE (Out-of-the-box) with AI-Cloud

Easy to use with 10 mins' smart training.



#### Save labor cost

Manual picking efficiency increase by 50%-100%, reduce 30%-50% labor input.



#### Quick and flexible adjustment

Quick adaption to meet changes in demand.



#### Quick ROI

The investment can be recovered in 1-2 years.



## P800R<sub>v6.0</sub> P500R P800R P1200R











Dimensions (L × W × H) mm	1090×830×195mm	950×702×275mm	1090×830×275mm	1325×1020×275mm		
Robot Weight	<165kg	144kg	162kg	187kg		
Maximum Payload	800kg	600kg	1000kg	1200kg		
Maximum Lifting Height	60mm					
Minimum Lifting Time	4s					
Maximum Speed	2.3m/s without load; 2.0m/s full load	2m/s without loa	1.2m/s without load; 1m/s full load			
Maximum Rotation Speed	90°/1.5s , 180°/2s 90°/3s , 180°/5s					
Stop Accuracy	<±10mm					
Navigation	Inertia +QR code Inertial sensors + QR code navigation					
Obstacle Detection Distance	Depth camera(front) & 3m Laser	2m infrared/3m laser		3m laser		
Power Supply	Lithium-ion					
Operation Time	10min charging for 3h work	2-3h on 10m charge (customizable charge and operating time)				
Certification	CE, ETL, FCC CE					
Operating Temperature	-10° ~ +45°C (Not support charging below 5 $^{\circ}$ C, need warm up first)					

0° ~ 45°C

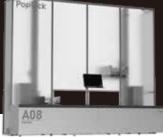
CE/FCC/UL

Robot Working

Temperature Certification



# **PopPick**



Dimensions (L × W × H) mm	640×440×295mm (Maximum height 700 with a box-lifting module)	Rack Dimension	1340×1260×3580mm
Self Weight	75kg	Tote Dimension	600×400×300mm / 600×400×340mm
Maximum Payload	40kg	Qty. of Totes Stored on a Rack	60 totes (10 layers) / 54 totes (9 layers)
Minimum Aisle Width	720mm	Overall Dimensions	4540×1660×4190mm
Full Range Lifting Time	8s (up)/4s (down)	Max. Picking Efficiency	650 totes / hour / workstation
Operation Cycle Time (take or return container)	/	Maximum Payload per Tote	20kg
Rack Height	/	Max. Tote Picking Height	3660mm
Standard Container Dimension (L × W × H) mm	Tote compatible	Min. Tote Picking Height	450mm
Navigation	Inertial + QR code visual navigation	Time to Retrieve/Return Tote	2s
Stop Accuracy	< <u>±</u> 10	X-axis Speed	1.5m/s
Maximum Speed (unloaded)	2.8m/s	X-axis Acceleration	2m/s²
Maximum rotation Speed	90°/1.5s,180°/2s	Z-axis Speed	3m/s
Obstacle detection distance	3m laser	Z-axis Acceleration	3m/s²
Power Supply	Lithium-ion battery, DC50.4V (typ) , 12Ah	Precision	±lmm
Run Time	Charging for 10 minutes, working for 1 hour		

R	S8-DA	RS5-DA	RS5-S RS5-D		
Dimensions (L × W × H) mm	1800×1000×4600 (Maximum height 8145)	1490×870×5100	1490×870×5100		
Self Weight	1000kg	500kg	470kg		
Maximum Payload	320kg	240kg	240kg		
Minimum Aisle Width	1150mm	1000mm	1000mm		
Full Range Lifting Time	8s	> 12s	12s		
Operation Cycle Time (take or return container)	3S (Single Deep) 5S (Double Deep)	3S (Single Deep) 5S (Double Deep)	3S (Single Deep) 5S (Double Deep)		
Maximum Storage Height	8220mm	5265mm	5265mm		
Standard Container Dimension (L × W × H) mm	650×(200~450)×(150~400)	600×(200~400)×(150~400)	600×400×(150~400)		
Navigation	Inertial + QR code visual navigation	Inertial + QR code visual navigation	Inertial + QR code visual navigation		
Stop Accuracy	<±10	<±10	<±10		
Maximum Speed (unloaded)	1.8m/s	1.8m/s	1.8m/s		
Maximum rotation Speed	90°/2s, 180°/3s	90°/2s , 180°/3s	90°/2s , 180°/3s		
Obstacle detection distance		3m laser	·		
Power Supply	Lithium-ion battery, DC50.4V (typ) , 42Ah  DC50.4V (typ) , 65Ah				
Battery Life	≥ 2000 cycles				
Run Time	Charging for 10 minutes, working for 2~3 hours  Charging for 10 minutes, working for 2~3 hours				
Robot Working Temperature	0° ~ 45°C				

CE/FCC/UL

Certification



## **Nike Fulfills Same Day Delivery In Japan For The First**

Nike is a world leading designer, marketer and distributor of authentic sports shoes, clothing, equipment and accessories for various sports and fitness activities.

#### **Industry Challenges**

- B2Bs and B2Cs are picked in the same area, leading to management difficulties.
- High varieties of SKUs in footwear and clothing scenarios lead to low inventories.
- · High picking efficiency and accuracy requirements.

#### **Automated Solutions**

- 200 P500 Goods-to-Person robots and 6000 racks on 10,000sqm.
- Layered shelf and item positioning management; supports
- · multi-location storage.

Smart order consolidation strategies improve shelf accuracy and

- · continued operations without wave picking.
- Algorithm-driven rapid inventory optimization, clear long tails,
- · and improved picking efficiency.



## Deployment







on warehouse management.

Difficulties managing







Geek+ algorithms rapidly optimized inventory

## **Decathlon Triples Efficiency**

Decathlon is a professional sports goods retailer specializing in the mass sports market, integrating the entire production chain of sports product design, R&D, production, branding, logistics, and retail. With over 1500 stores in 49 countries, it is the largest sporting goods retailer in the world.

#### **Industry Challenges**

- · Rapid growth in e-commerce.
- · Labor shortages.
- · Need for RFID compatible system.

#### **Automated Solutions**

- · 46 P800 Goods-to-Person robots were deployed in Decathlon's 2,000 sqm facility to manage an inventory of 300,000 items and 20,000 SKUs.
- Developed a bespoke RFID solution to improve the picking process.

#### Before Deployment







Efficiency

Growth constrained by labor shortages and inefficient picking.



Capacity

Inefficient storage.



Low throughput capacity.





Storage capacity up 40% from 500,000 to 700,000 items.



Daily throughput increased from 75,000 to 100,000 items.





## Global Retailer opts for RoboShuttle

The customer is a global convenience store chain operating more than 12,000 stores in over 20 countries. A trial site was recently set up In one of the company's large warehouses that covers the distribution of 600 stores as well as the company's rapid e-commerce business. Today, the successful project is being replicated to other warehouses.

#### **Industry Challenges**

- · Fast increasing labor and rental cost.
- · Higher distribution frequency.
- · Growth in e-commerce.

#### **Automated Solutions**

- · Inventory of 8000 totes locations on 800 sqm.
- $\cdot$  8 RS5-D robots of 5.1 meter height automates inbound and outbound warehouse operations.
- $\cdot$  The solution covers the distribution of items for convenience store and e-commerce.



VS



2000 sqm of shelving needed to support the picking for to support the picking store order fulfilment.



Low employee productivity is slowing down process for picking and replenishment.



Capacity

Only covers store distribution.



**After Deployment** 



Robot-compatible shelving enables inventory to be stored on a 800 sqm are for 3x storage capacity.



Capacity

With robot supporting employees it has led to 3x productivity.



One system for both store and e-commerce



## Siemens Switchgear adopts whole warehouse automation solutions

Shanghai Siemens Switchgear Co., Ltd. is the first joint venture established by Siemens Intelligent Infrastructure Group (formerly Siemens Transmission and Distribution) in China. SSLS is committed to the design, manufacture, sales, and after-sales service of 6~40.5kV vacuum circuit breakers and medium voltage air-insulated switchgear.

#### **Industry Challenges**

- Raw material storage and feeding processes are overly dependent on labor.
- High logistics cost investment.

#### **Automated Solutions**

- Combination of Goods-to-Person P800 robots, RoboShuttle RS2 robots, four-way shuttle, and Moving M1000 robots.
- Realize flexible automation of the whole process, intelligent upgrade of the production line without stopping production.





Manual receipt, quality inspection, warehousing, and feeding efficiency are low.





The accuracy and timeliness of finding good is low.







2.5x storing efficiency, Outbound collection process



2-3x increase in storage



99,99% accurate operations.



# Helped a Leading Stationary Maker to Organize Inventory Intelligently

This client is a leading company in office supplies services in China, serving many countries and regions worldwide.

#### **Industry Challenges**

- SKU is characterized by small volume, large quantity, comprehensive variety coverage, and complex models, which makes it challenging to manage inventory, find goods and make a high error rate under the traditional storage model.
- · Low picking turnover efficiency.

#### **Automated Solutions**

- Combination of RoboShuttle RS5-D robots, P40 robots, and four-way shuttle.
- Solved customers' problems of high storage density, efficient picking turnover, precise SKU management to match the rapid growth of customer business needs.

Before Deployment



The efficiency of manual picking of massive SKU of large quantity is low.



Storage is limited using traditional shelves.



Stocks stored in similar packages lead to a high manual picking error rate.

**IS** 

After Deployment



Ÿá1 !

Reach 150 order lines/hour/workstation, save 50% labor cost.



3x increase in storage capacity.



Accuracy

99.99% accuracy.



# Life365 Implemented AislePick Solution to Speed Up Operations

Based in Forlì, an important logistics hub in the heart of Romagna, Italy. Life365 has more than 20 years' experience in the field of third-party logistics.

#### **Industry Challenges**

- Orders are scattered in the large warehouse area, requiring the staff to walk a long distance for picking.
- Rigid equipment cannot cope with business fluctuations.
- Automation implementation usually implies long deployment time and high investment.

#### **Automated Solutions**

- Easy coordination to reduce needless walking by making pick paths as dense as possible and reducing steps in between every task, helping operators accomplish more tasks in the same amount of time.
- Flexible adjustment of robots and easy duplication to multiple warehouses.
- · 24-hour direct implementation without warehouse reconstruction and process overhaul; low initial investments.

Before Deployment



Each operator only takes one trolley to handle highly intensive manual picking and complex process-flow tasks.



Training cost is high with manual picking.



Accuracy

lanual picking ccuracy is low.

**IS** 

After Deployment



Eac robe reduced ope

Each operator leads dozens of robots to pick within zones to reduce steps and cross-process operations.



Intelligent collaboration training completed within 10 mins.



Robot-guided picking improves accuracy to 99.99%.



# **Geek+ Four-way Shuttle Solution Powers Green Energy Operations**

Modernizing operations at TICA Systems, a major Chinese energy company.

#### **Industry Challenges**

- Employees walking long distances between the warehouse and the production line; prone to errors and accidents.
- · More storage space needed.

#### **Automated Solutions**

- Integrate storage and efficient GTP picking operations near the production line; picking robots are connected to the four-way shuttle system on the ground level and transfer the goods out of the warehouse.
- Four-way shuttle system equipped with high-speed elevators for multi-level storage, which greatly improves the utilization of three-dimensional space.





Complicated manual process-flow.



Manual operations need high labor investment.



Manual picking is highly error-prone.

VS

After Deployment





Integrated system scheduling for smooth operations.



Reduced labor intensity and repeated work.

99.

Accuracy

99.99% accuracy.

