Picking System
Smart Warehouse
&

Picking

Maximum efficiency through AI-controlled robotic systems

Geek+
Moving the world intelligently

More efficient and intelligent picking with Geek+

With the Geek+ goods-to-person picking solution, autonomous, self-propelled robots bring the storage racks or pallets to the picking or packing station. This significantly reduces the walking distances for workers and significantly increases the efficiency and accuracy of the picking process.

Efficiency

Compared to manual order picking, the efficiency of order picking is improved 2 to 3 times; labour costs can be saved by up to 50%.
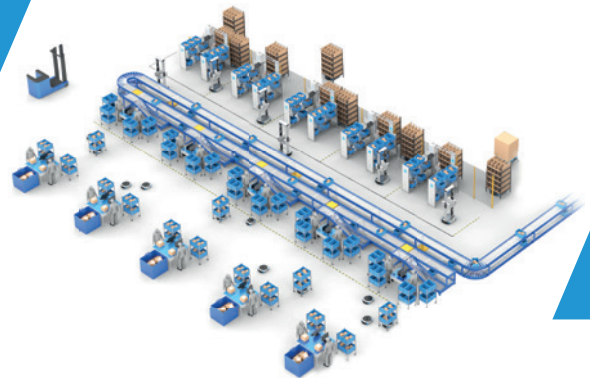
Maximum efficiency through intelligent algorithms

The intelligent algorithms of Geek+ ensure that only the minimum number of robots required is used during the operation. At the same time, the self-learning system permanently rearranges the racking systems based on analyses, so that optimal route guidance is guaranteed. This ensures maximum efficiency and optimization of capacities.

03
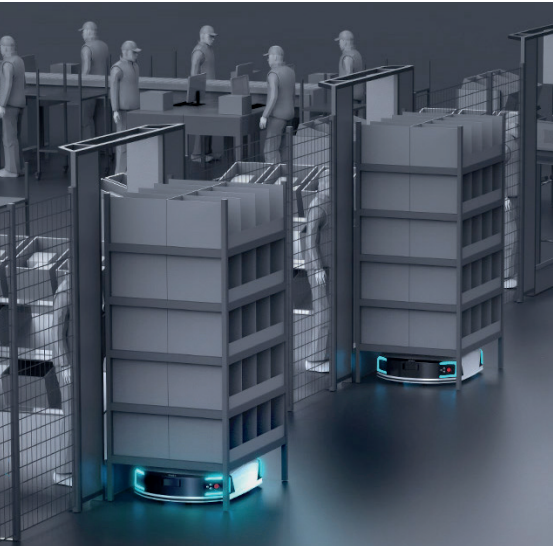
Cost-effective and flexible alternative to the shuttle systems

- Economically efficient by using a standard mezzanine rack
- Almost identical storage capacity as with shuttle system
- Picking efficiency identical to shuttle system (in combination with conveyor)
- Total costs up to 50 % lower than with shuttle system
- High scalability of the robot fleet for coverage at peak times
- High reliability with easy remote maintenance

Wide range of applications

The Geek+ order picking system is suitable for automated picking of small to medium-sized items as unit loads or from containers, for example in industries such as e-commerce, retail, apparel, pharmaceutical automotive, and 3 C manufacturing (computers, communications, consumer electronics).

Geek+ offers a complete range of solutions for all customer and market requirements.

Goods-to-Person

- Order picking of small to medium-sized parts
- Adaptable
- Flexible

Bin-to-Person

- Container picking
- High-density storage capacity

Order-to-Person

- Fast deployment
- Scalable
- Human-Robot Cooperation

Goods-to-Person picking

The Geek+ goods-to-person solution uses P-Series robots to move the storage racks and pallets to the picking station, completely eliminating the walking of the picking workers, improves picking accuracy, and reduces labour intensity.

Compared to manual picking, picking efficiency is improved 2 to 3 times.
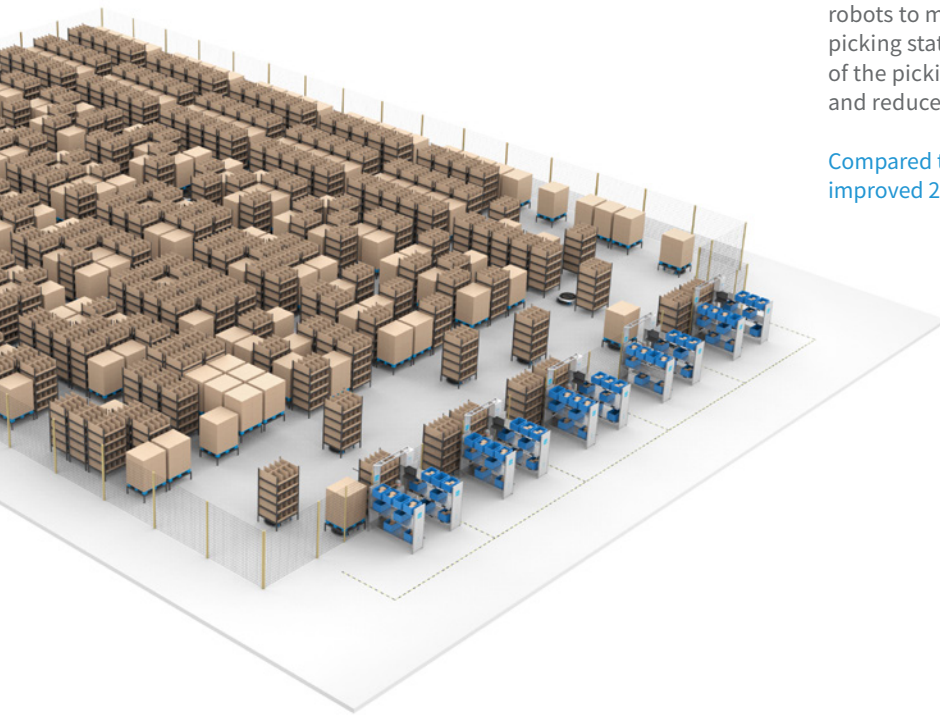
The Geek+ **multi-floor picking system** integrates robots, mezzanines, elevators, conveyors, and other technologies to handle high-volume and multi-SKU order scenarios.
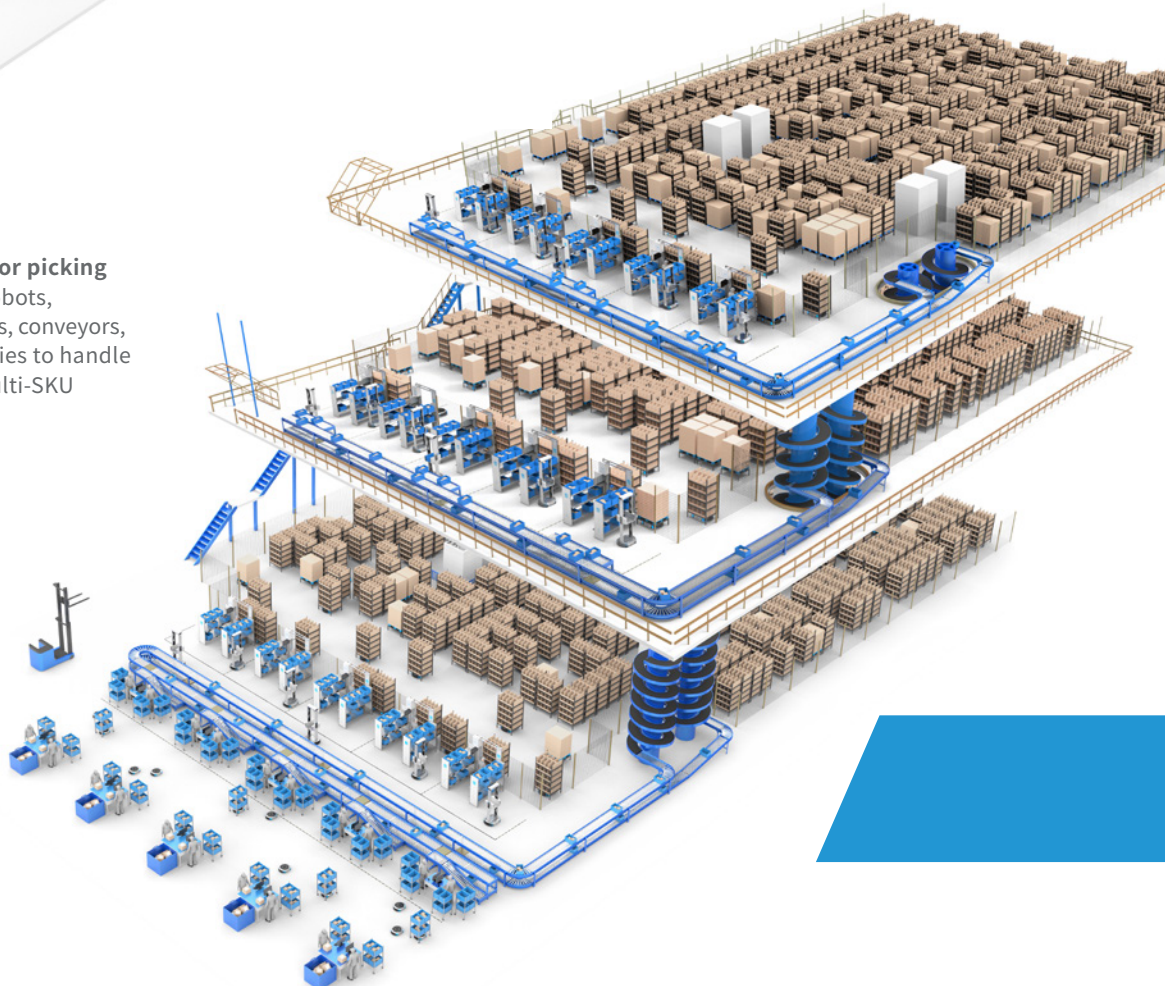
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Bin-to-Person picking

The **Geek+ RoboShuttle™** bin-to-person picking solution can achieve high storage density and high efficiency by using the innovative Geek+ C200 and narrow aisle design.

Bin-to-Person multi-floor picking duplicates the single-floor solution with a mezzanine floor and robotized tote lifts. Mezzanines make full use of the storage space, narrow aisles and high bin density help maximize storage capacity.

Example:
In a warehouse with a standard height of 9 meters, 18 layers of 0.35 m high containers or 24 layers of 0.25 m high containers can be stored, fully utilizing the warehouse space.

Order-to-Person picking

The Geek+ order-to-person picking system uses A-Series robots to support pickers by transporting order totes to the picking station, saving 30% to 50% in labour costs and improving picking efficiency by 150% to 200%. This solution requires only a low initial investment and generates a quick ROI.

Geek+ SLAM navigation technology enables safe operation in a mixed man-machine environment.

The system is very flexible and can be quickly implemented within a week without changing the existing warehouse layout. Additional robots can be added at any time.

07
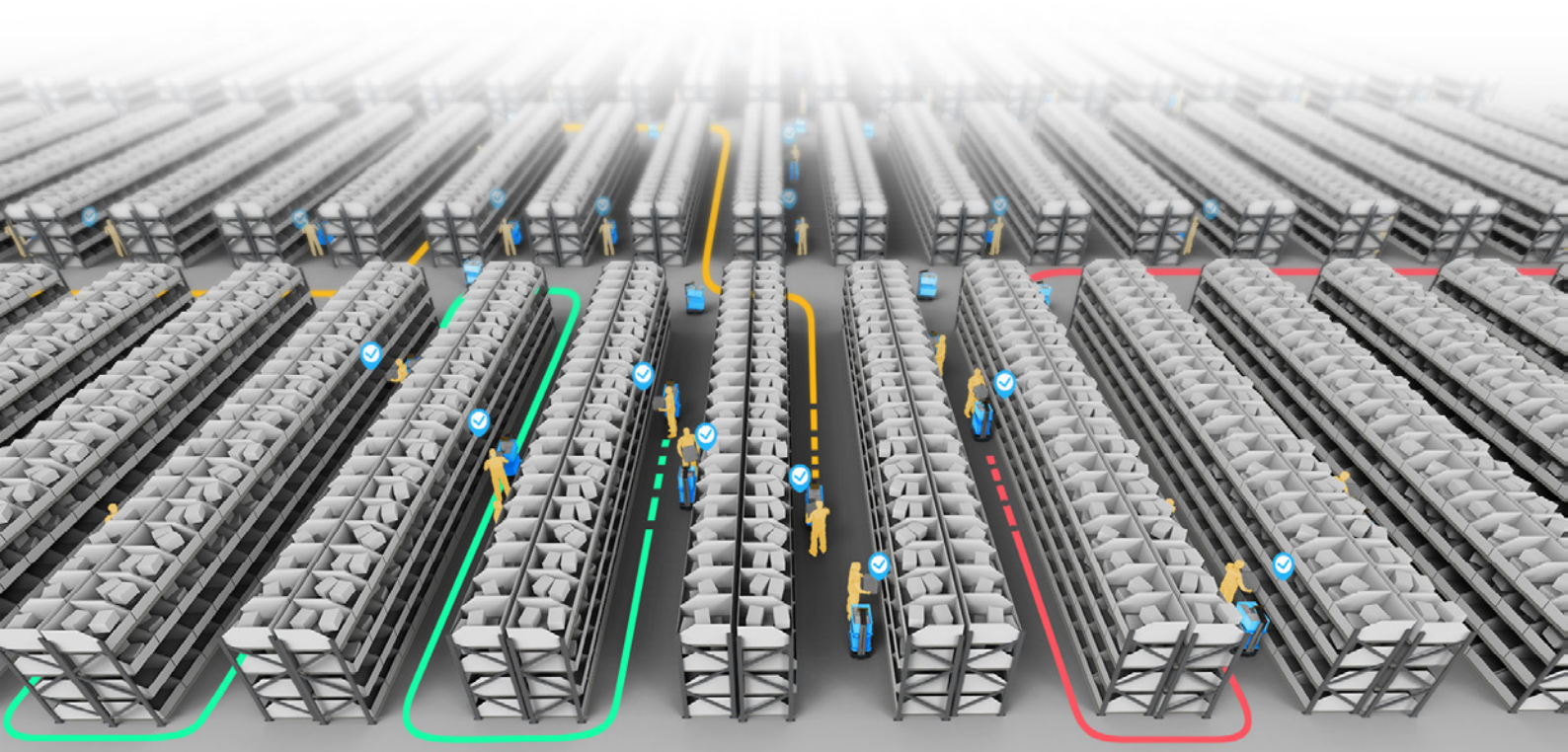
Your benefits with the Geek+ picking system

Rapid ROI

- < 3 years
- Significantly lower initial investment than with traditional automation solutions

Increased accuracy

- Up to 99,9%

Rapid deployment

- Complete system deployment in less than 3 months

Fewer labour costs

- Goods-to-Person commissioning: up to 70% fewer labour costs
- Order-to-Person commissioning: up to 50% fewer labour costs

Increased productivity

- +300% for goods-to-person picking
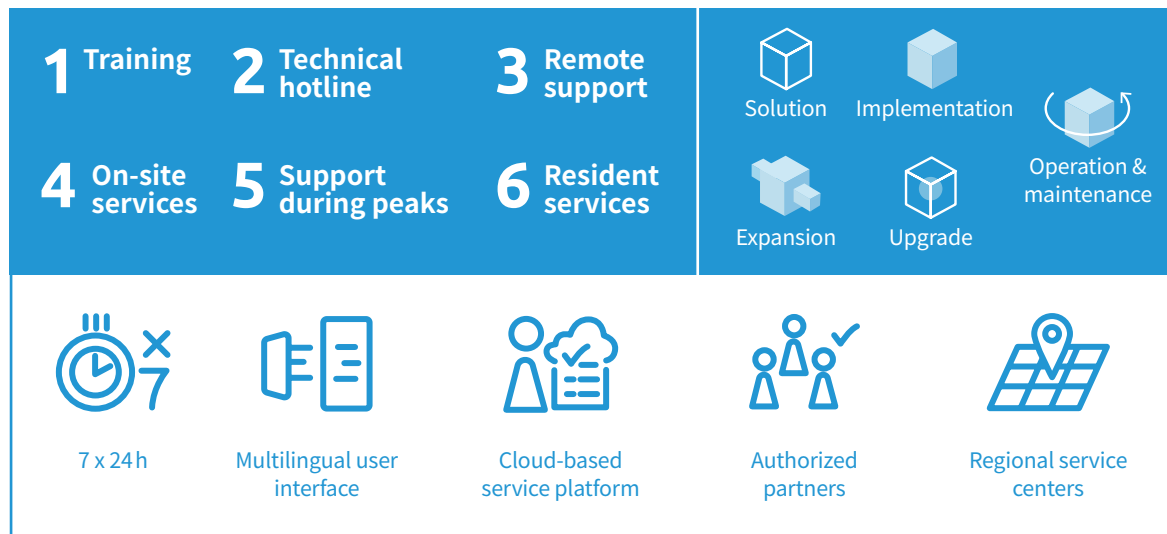- +200% for order-to-person picking

High flexibility

- Flexible addition of robots to cover seasonal and peak periods
- Use of the robot systems in other warehouse and distribution centers (re-location)
- Individual solutions for numerous industries
- No single point of failure

Full service over the entire lifetime

Full Service

Lifecycle Service

1 Training	**2** Technical hotline	**3** Remote support
4 On-site services	**5** Support during peaks	**6** Resident services

Solution

Implementation

Operation & maintenance

Expansion

Upgrade

7 x 24 h

Multilingual user interface

Cloud-based service platform

Authorized partners

Regional service centers

09

Artificial intelligence for continuous optimization

The AI algorithms of Geek+ are based on huge amounts of data collected in warehouses. They control all our systems, from single robots to large multi-robot clusters.

Example:
Based on the prediction of future order requirements, the racks that are likely to be transported are calculated and the robot tasks are generated to adjust the racks to the most suitable position in the warehouse, thus minimizing the overall travel distance.

## Work Stations
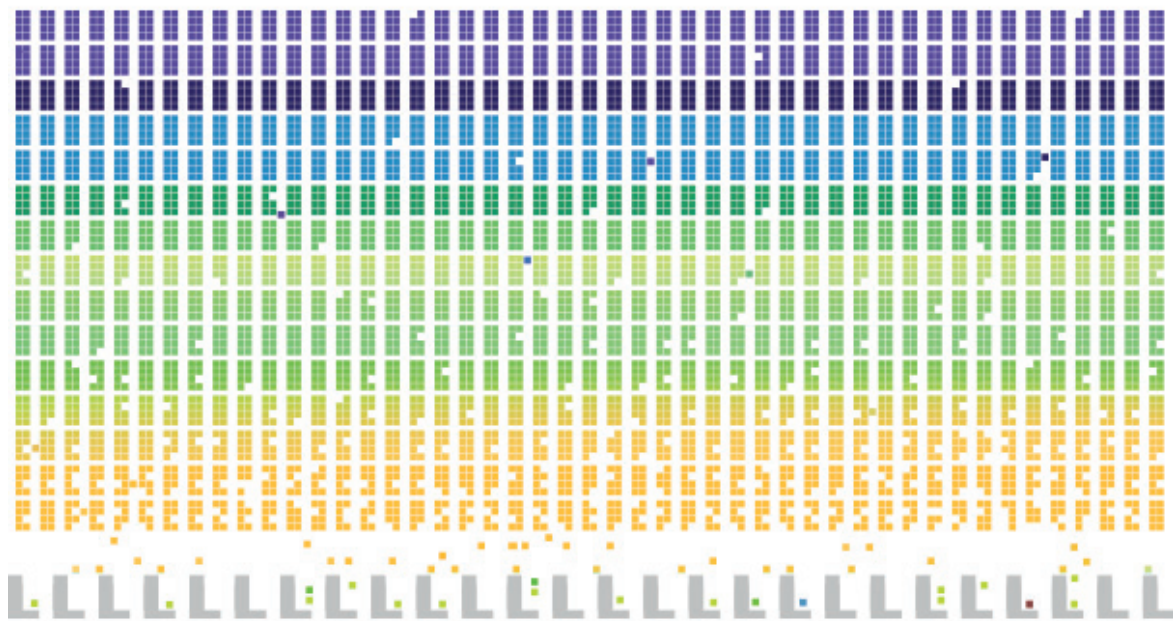
The Geek+ Robot Management System (RMS)

The Geek+ Robot Management System (RMS) is a multi-agent platform for planning and task management. It supports both cloud and field operations and handles route planning, traffic management, task assignment, capacity optimization, safety emergency stops, and other tasks of large mobile robot clusters in real-time and with high parallelism and reliability.

Geek+ RMS

The Geek+ RMS provides APIs and SDKs with open standards that make it easy for customers to develop and dock their own systems.
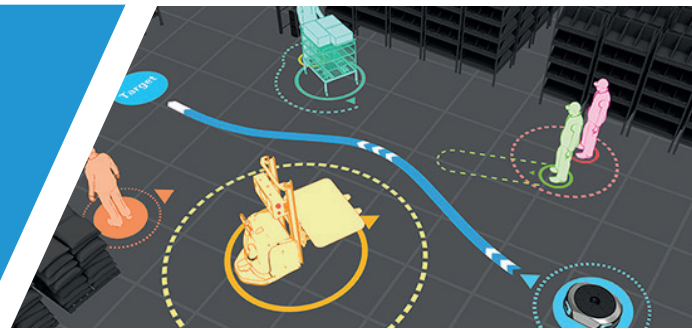
- **Virtually unlimited scalability:**
  Schedule on-demand with thousands of concurrently operating robots that perform their tasks efficiently and accurately

- **Multi-model planning:**
  Support of robots with different navigation types, which are combined in the same system and work together across models

- **Cluster path planning:**
  Providing real-time path optimization, traffic congestion management, and other processing mechanisms to ensure high efficiency in the paths of multi-robot systems

- **Intelligent storage space management:**
  Flexibly configurable for management in several dimensions, such as area and floors, according to the operational requirements
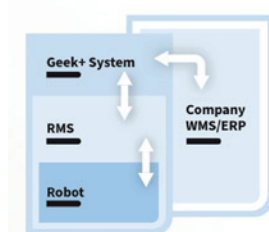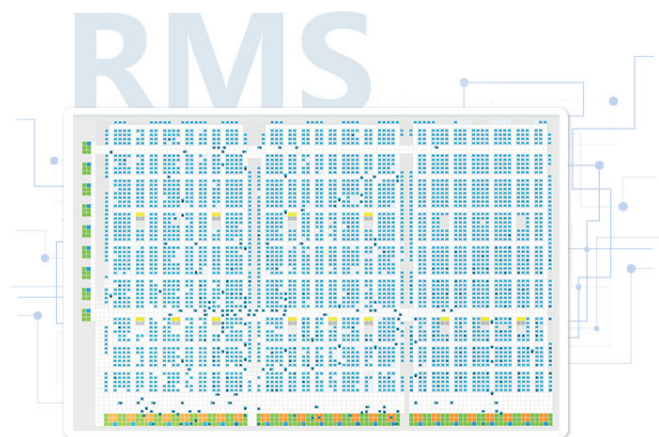
Perfect connection to your systems

The Geek+ RMS works seamlessly with your Warehouse Management System and your ERP. It also offers APIs and SDKs with open standards, making it easy for you to develop and dock your own applications.

11

Model	P500R	P800R	C200S	A100
Dimensions	950 x 702 x 275 mm	1,090 x 830 x 275 mm	950 x 702 x 2,500–2,700 mm	740 x 500 x 1,150 mm
Self weight	170 kg	195 kg	270 kg	85 kg
Maximum lifting load	600 kg	1,000 kg	40 kg	100 kg
Maximum lifting load	60 mm	60 mm	2.400 mm	/
Minimum lifting time	3 s	3 s	8 s	/
Maximum operating speed	No-load: 2 m/s Full load: 1.6 m/s		No-load and full load: 2 m/s	No-load and full load: 1.6 m/s
Operating time	Charging time: 10 min.; Operating time: 2–3 h,			Charging time: 10 min.; Operating time: 1–1.5 h,
	Support user-defined charging time and operating time			
Obstacle detection method	Defaulted infrared obstacle avoidance, support for lidar			
	2 m infrared light/3 m laser			3 m infrared light/3 m laser
Positioning accuracy	<10 mm			
Operating temperature range	-20 – 50 °C			

About GEEK +

Geek+ is a global technology company that is one of the pioneers of the smart logistics revolution. Geek+ develops innovative logistics robots powered by artificial intelligence (AI) as well as automation solutions and implements flexible solutions for warehousing and supply chain management. These include automated goods-to-person order picking as well as self-learning, SLAM navigation-based point-to-point transport of goods and load carriers in logistics and manufacturing.The portfolio of ntegrated customer solutions is rounded off by the Geek+ sorting system for highly efficient goods and parcel sorting and autonomous, self-propelled forklifts.

Geek+ has deployed more than 10,000 AMR robots worldwide, leading the global smart logistics revolution. Customers include world-renowned brands such as Nike, Decathlon, Walmart, Toyota, and more, including nearly 40 Fortune 500 companies.
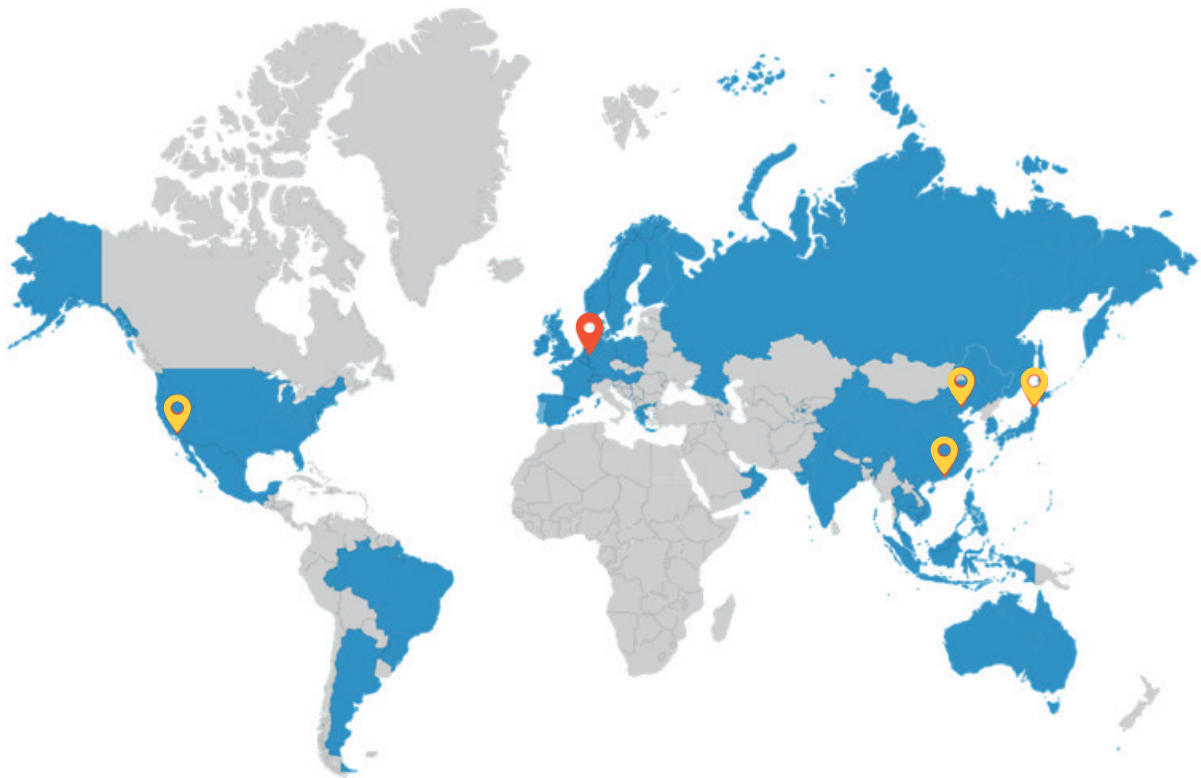
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