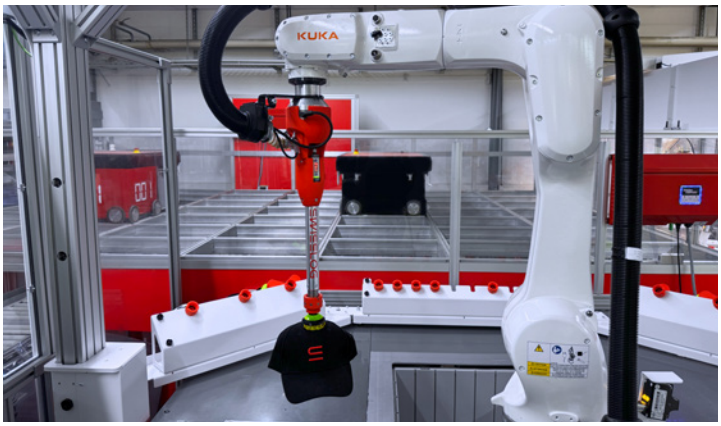
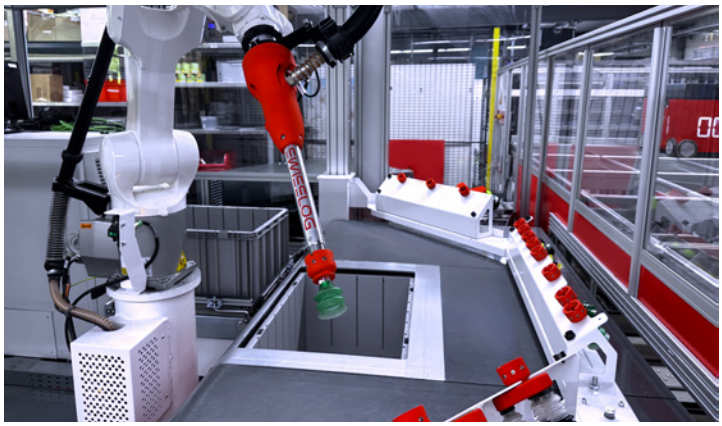
ItemPiQ

Self-learning robotic piece picking for fast, accurate and scalable order fulfillment





Revolutionizing Order Fulfillment with AI and Robotics

Designed for diverse warehouse environments, ItemPiQ adapts effortlessly to a wide range product types and sizes while delivering consistent, high-quality order fulfillment. The robotic cell integrates seamlessly into Swisslog's Goods-to-Robot (GtR) solutions, supporting a wide range of applications including picking, placing, and sortation.

Through native integration with AutoStore and Swisslog's SynQ software, ItemPiQ automates key fulfillment processes such as order consolidation, buffering, and order preparation directly within the AutoStore environment. To meet different operational requirements, ItemPiQ supports:

- Direct picking: fully automated order fulfillment by the robot.
- Pre-picking: automated order preparation for efficient completion at a manual workstation.

By combining AI-driven intelligence with seamless system integration, ItemPiQ increases productivity, enhances order accuracy, and reduces operational effort.

Benefits

Industry leading picking product range
ItemPiQ leverages advanced self-learning AI and precise robotics to handle a wide range of products without manual robot teaching. This adaptability ensures seamless integration into your warehouse operations, regardless of product variety.

Pick & Place reliability
ItemPiQ delivers consistent, error-free picking and placing through advanced context-aware intelligence. It safely handles products, detects defects and protects mismatch, bin contaminant and personal intrusion to exceptions. Continuous placement optimization maximizes efficiency and ensures dependable performance.

Seamless integration
ItemPiQ is seamlessly integrated into the SynQ WMS and features a standard interface to any WMS system**. This enables smooth, efficient operations while maximizing warehouse productivity.

Expertise & support
Benefit from the combined expertise of Swisslog and the KUKA Group. ItemPiQ combines world-class automation expertise, proven technology, global support, and AI-driven operator assistance to accelerate problem resolution, simplify operations, and reduce implementation and operational risk.

Design & Range: KUKA robot



KUKA robot

ItemPiQ utilizes a proven KUKA industrial robot as the foundation of the picking system. The robot provides the reach, precision, and reliability required for high-performance warehouse operations.

Combined with Swisslog's intelligent software and hardware integration, the robot executes precise picking motions and supports continuous operation in demanding order fulfillment environments.

Components: Gripper



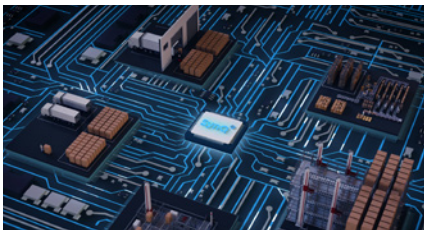
Gripper system

The ItemPiQ gripper system features a versatile suction cup change mechanism, enabling the handling of a wide variety of products.

The system is designed to adapt to different item shapes, surfaces, and packaging types, ensuring reliable picking performance across a broad SKU range. Different suction modes are automatically selected based on the characteristics of the item to be picked.

Depending on the product type, ItemPiQ can handle items weighing up to 5 kg* with a minimum surface area of 20 × 25 mm. This flexibility allows ItemPiQ to adapt to the requirements of most customer applications.

Components: Intelligent software



Vision system

ItemPiQ's advanced 3D vision system enables precise object detection and localization directly in the source bin.

Combined with AI-powered recognition and grasp planning algorithms, the system identifies the optimal picking point for each item, allowing reliable handling of a wide variety of products without teaching efforts. This enables efficient operation in environments with large SKU portfolios and frequently changing assortments.

Software & integration

ItemPiQ is natively integrated with SynQ, Swisslog's proven software platform for warehouse orchestration and automation. SynQ enables seamless orchestration between robotic piece picking, warehouse processes, and material flow operations, delivering efficient system control and a streamlined user experience.

Build to work alongside existing WMS solutions, if required, providing a scalable foundation for warehouse operations.**

Facts

Typical performance	up to 600 items per hour***
Technically performance	up to 1,000 items per hour****
Item weight	up to 5 kg*
Item dimension surface	min. 20 x 25 mm
Interface	Seamless integration with SynQ & Built to work alongside existing WMS (e.g. SAP EWM)**

* Depending on robot and product type
** Functionality may vary depending on the connected system
*** Depends on Order structure and layout
**** Only ItemPiQ cell with happy path items