SWISSLOG

AutoStore®

Intralogistics with limitless dynamics

Red Line robot

Grid

Hoisting belts
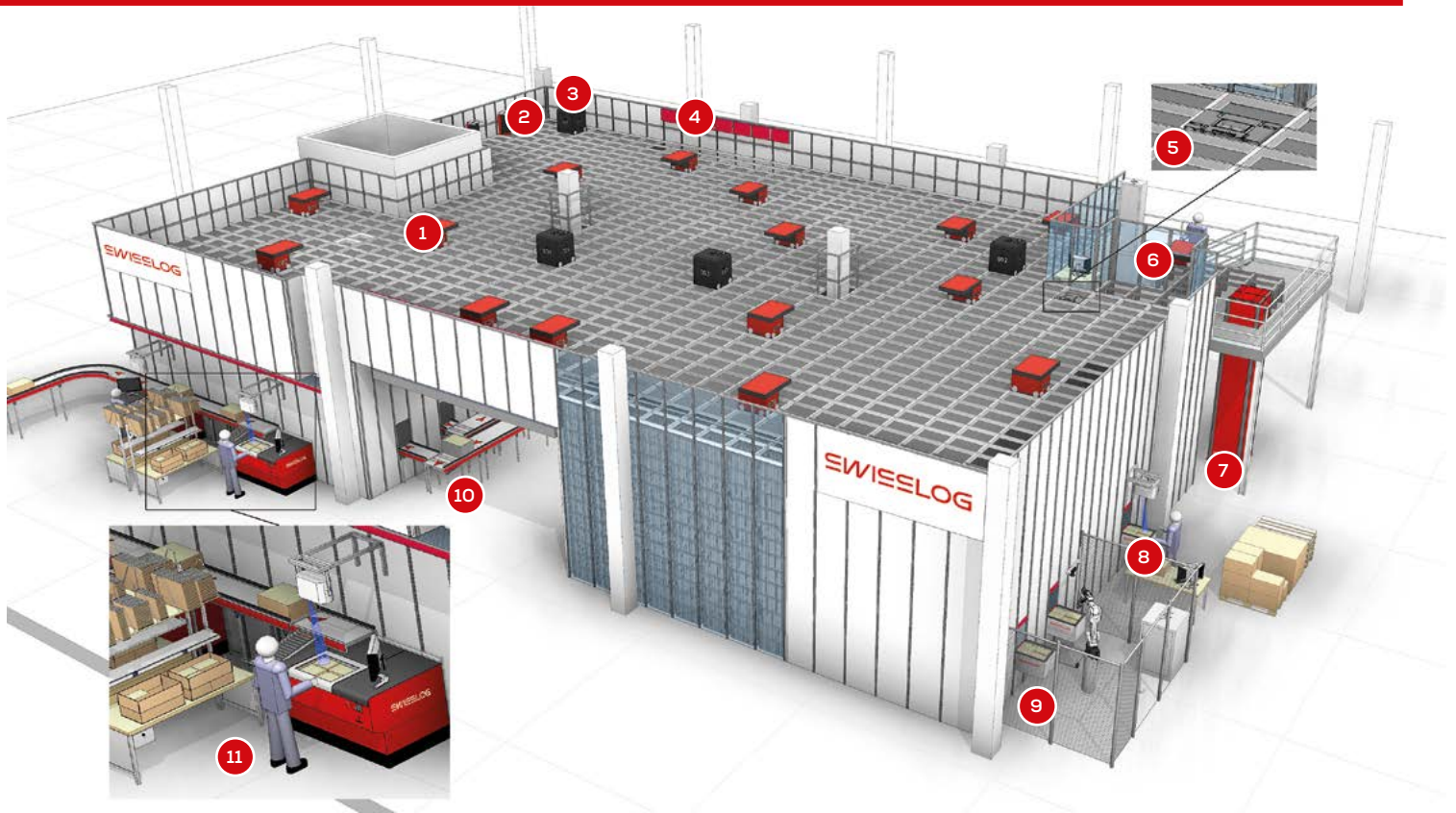
Gripper plate

Bin

Maximally condensed storage

Leading AutoStore integrator:
Swisslog consultants and project managers are at your disposal for fast, seamless and expert project implementation.

Warehousing goes four-dimensional

Take control of space and time

Time pressure in order picking? No more space for incoming goods? Endless routes from shelf to shelf? Then you need an ASRS solution that is perfectly tailored to your individual needs in terms of time and space.

AutoStore and Swisslog's knowhow opens up a new dimension in small parts logistics. Most AutoStore systems worldwide are implemented by Swisslog.

With AutoStore and Swisslog, you create the basis for keeping the typical challenges of small parts warehousing under control sustainably and efficiently.

Advantages of AutoStore

- Handle unexpected order peaks flexibly and cost-effectively with additional robots
- Master growing assortment ranges easily with additional bins
- Create more capacity and expand the system on the fly
- Link AutoStore with existing IT systems and subsystems

1. Red Line robot
2. Black Line charging station
3. Black Line robot
4. Red Line charging station
5. Sensor cleaning station
6. Service platform
7. Lifting belt cleaning station
8. ConveyorPort
9. ItemPiQ robot item picking
10. Conveyor interface
11. CarouselPort Pick-by-light high performance picking
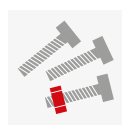
Suitable for all kinds of products and industries:
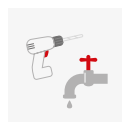
Pharma
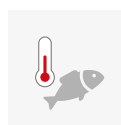
Food › 0 °C

Spare parts
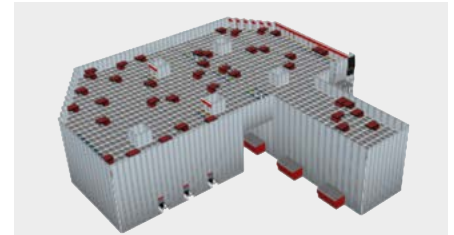
E-Commerce

Electronics

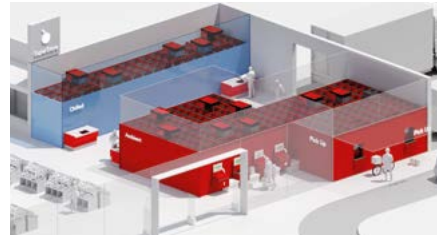Fashion

Building products
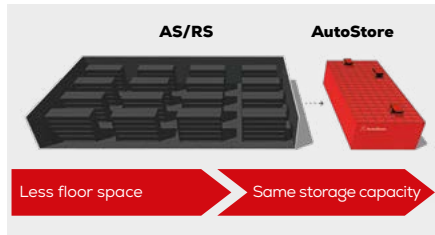
Cosmetics

Why AutoStore

Empowered by Swisslog

Compact & versatile

AutoStore is suitable for the the storage of small-volume goods of various types. The unit size is limited only by the volume of the bins.

- Maximum utilization of the available space
- Only one system for all industries
- Can be used individually for classic warehousing, e-commerce fulfillment, production supply, logistics service providers, and much more

Fast & efficient

AutoStore decreases the effort of manual picking to a minimum, if it is even required at all, and provides continuous operation 24/7.

- Accelerated order processing through automated provision of all items
- Higher productivity thanks to the "goods-to-person" principle
- High process reliability thanks to central control system
- Easy integration into existing IT systems

Flexible & scalable

AutoStore can be easily integrated into existing buildings. Capacity can be increased with additional robots and/or bins, and the basic design can also be expanded.

- Future-proof design due to modular construction
- Redundancy (picking stations can be operated by all robots for extremely high system availability)
- Minimal maintenance required
- Simple integration with conveyor systems and other subsystems

The grid

Robust backbone

A self-supporting structure of aluminum rails, the grid is divided into rectangular elements to form the backbone of each AutoStore system.

Goods are stored in bins inside the grid. On top of the grid, robots take over the storage and retrieval of the bins, transferring them to workstations where goods can be removed.

If required, they can also be used in sensitive environments or designed to be ESD-compliant.
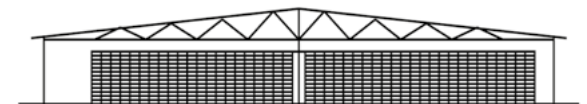
Classic system
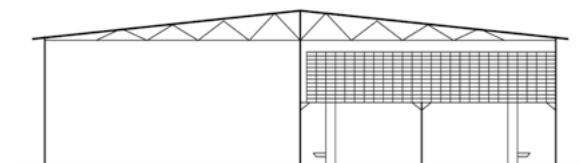
System on steel platform   Workstations underneath
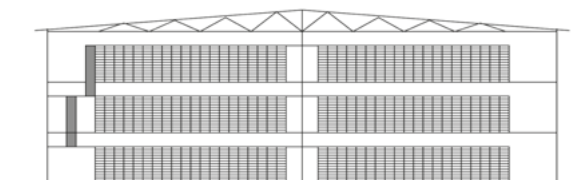
Connected system over several levels

Facts

Capacity per system:	5,000 to 300,000 storage boxes
Capacity per field:	up to 24 storage boxes vertically
Maximum height:	5.4 m
Minimum distance from ceiling:	1.6 m
Length and width of structure:	almost infinitely scalable

Max. 95 %
No Condensation

Min. 5 %

Max. 35 °C

Min. 2 °C
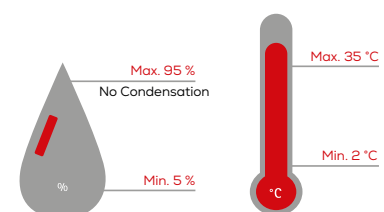
The robots

Standardized, fast and efficient

Red Line or Black Line, standard or high performance: the type and number of robots used on the grid essentially determines the throughput of the AutoStore system.

By using additional robots and/or modifying the control software, the performance of the overall system can be easily increased as required.

Pairs of wheels arranged at right angles give the robots complete freedom of movement around the grid.

AutoStore R5 & R5+ (Red Line)

- Storage and retrieval: average 25/h
- Speed: max. 3.1 m/s
- Storage container pick-up: next to robot body

AutoStore B1 (Black Line)

- Storage and retrieval: average 30/h
- Speed: max. 4 m/s
- Storage container pick-up: in robot body*

The robot's gripper plate hooks securely into the respective storage bin for transport.

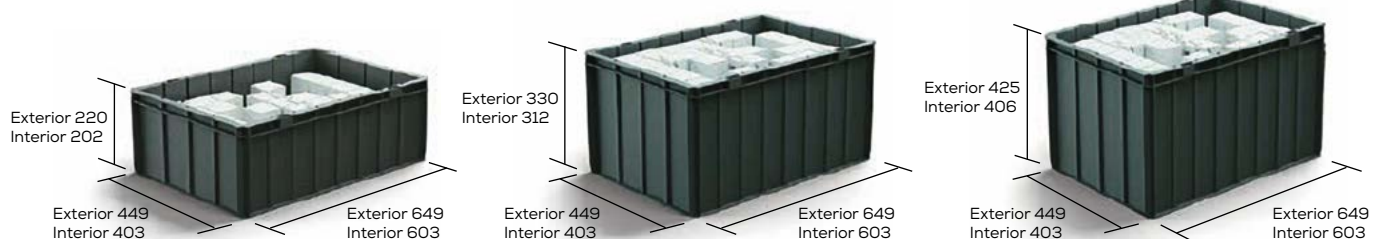** higher robot density and throughput is therefore possible in the same area*

Storage containers

For larger small parts

AutoStore allows the definition of small parts to be handled quite flexibly. Whether a storage bin is filled with just one item or thousands of small parts depends solely on individual requirements. Three bin types with a uniform footprint are available in different heights.

For easier handling, the inside of storage containers can be further adapted with longitudinal and transverse dividers.

Exterior 220
Interior 202

Exterior 449
Interior 403

Exterior 649
Interior 603

Exterior 330
Interior 312

Exterior 449
Interior 403

Exterior 649
Interior 603

Exterior 425
Interior 406

Exterior 449
Interior 403

Exterior 649
Interior 603

220 mm storage bin

Compatibility:	All robots
Stacking height:	max. 24 pcs.
Volume:	48 liters
Load capacity:	max. 31.6 kg

330 mm storage bin

Compatibility:	All robots
Stacking height:	max. 16 pcs.
Volume:	75 liters
Load capacity:	max. 30.6 kg

425 mm storage bin

Compatibility:	R5+ & Black Line
Stacking height:	max. 14 pcs.
Volume:	99 liters
Load capacity:	max. 29.6 kg

Workstations

Convenient handling areas

Store and retrieve goods, pick orders and do away with walking long distances: AutoStore workstations create maximum efficiency and make every movement easier, creating a highly ergonomic workplace for operators.

CarouselPort is the most popular port with very high storage and picking performance. Three rotating arms ensure continuous provision of storage containers.

ConveyorPort presents storage containers one after another on a conveyor belt. This is simple, safe and adapted to the speed of each individual operator.


SwingPort can be placed anywhere below the grid and has a direct connection to a storage bin lift. The two arms rotate.

With **RelayPort**, robots can place and pick up several storage containers in parallel, improving the sequencing of orders.

PickUpPort is a publicly accessible AutoStore port where customers can pick up orders directly and contactlessly in the store. It is an innovative solution for omnichannel retail sales.
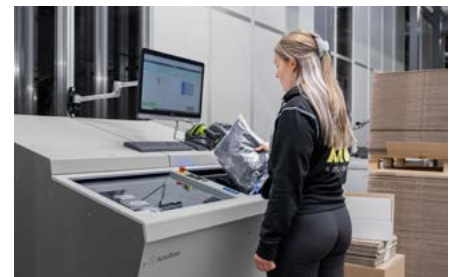
FusionPort is designed to meet users' needs, with sloping bin openings and ergonomic positioning of the user interface.


FusionPort Staging has two exit bin openings in the center and two destination bin openings on the left and right. Finished jobs go back into the grid without taking up additional floor space.

ClusterPort is an in-house development by Swisslog for highly efficient storage of products. Containers with the required subdividers are provided automatically by the storage software.

Picking & packing

Pick-by-light, conveyor technology & more
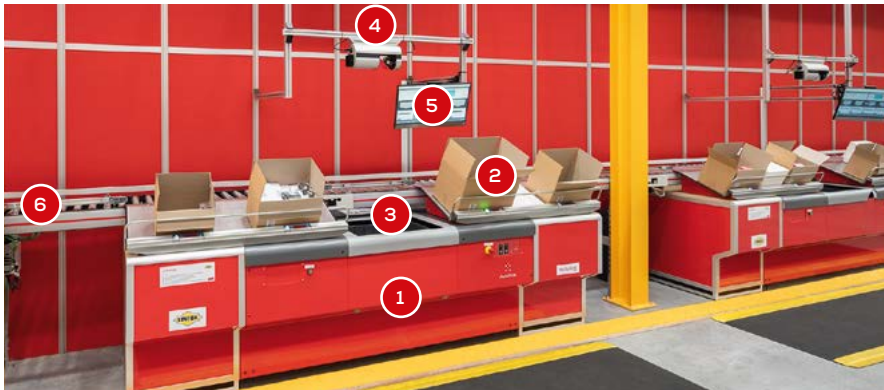
1. CarouselPort
2. Boxes on a four-position pick-to-light marking system
3. Bin presentation
4. Pick-by-light: laser beam marks removal compartment
5. Pick display: guides picker through picking process
6. Forwarding of orders ready for shipment

AutoStore workstations can be linked directly to upstream and down-stream intralogistics systems to ensure that orders reach recipients even faster.

Swisslog-developed conveyor systems also ensure automatic delivery of target containers and removal of source containers, so that picking workstations do not have to be positioned directly on the AutoStore system.

Maximum automation of shipping preparation saves space and distances, while at the same time significantly increasing throughput compared to purely manual packaging processes.

To facilitate packaging operations, Swisslog creates a smooth transition to third-party sub-systems and light goods conveyors, such as:

- Box formers
- Box sealers
- Box lidding machines
- Labelers
- Weighing scales
- Palletizers

ItemPiQ by Swisslog

Robotic piece picking

Accurately pick individual parts time and again in large quantities, 24/7. With ItemPiQ, Swisslog offers a robotic solution for the growing demands of e-commerce, pharmaceutical, retail and wholesale sectors.

ItemPiQ combines the performance of AutoStore with the precision of intelligent robotics. A video system recognizes different items and automatically determines suitable gripping points for picking.

The advantages are:

- Reduced dependence on human labor
- Smooth handling of order peaks
- Easier order processing due to pre-picking, e.g. overnight
- Fewer returns due to higher accuracy
- Seamless integration into infinitely variable
- WMS systems

FACTS

|	
Lifting capacity:	max. 1.5 kg per individual part/container
Capacity:	up to 1,000 items/h (depending on product and process)
Product types:	variable (multifunction gripper)
Product detection:	3D camera / extended vision system

Software: SynQ by Swisslog

Digital hub and spoke

SynQ links AutoStore control functions with customer specific components such as existing ERP, WMS and MFCS installations or automated material flow control system solutions (conveyors, pallet systems, AGVs, etc.).

Quick and easy to set up, SynQ synchronizes and optimizes all warehouse processes and creates absolute transparency at all levels and in real time.

SynQ from Swisslog:

- A field-proven platform with well over 400 customer installations
- Compatible with all common third-party ERP systems
- Cloud-based as well as on-premise deployable
- Modular design with unlimited extendibility
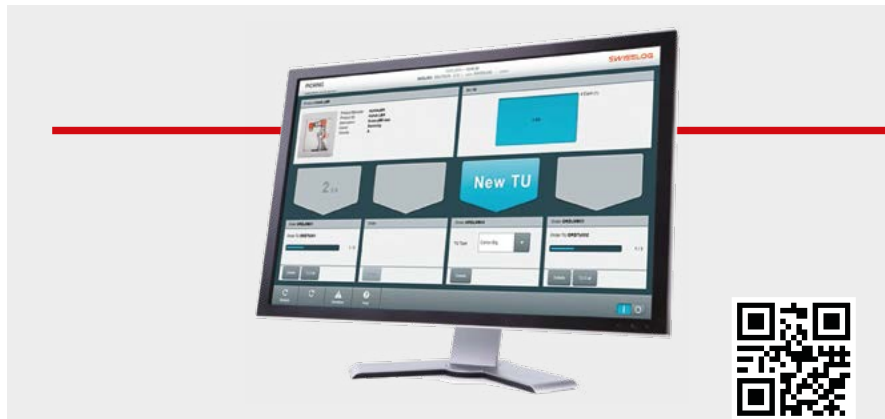
Combining AutoStore with SynQ or SAP EWM achieves the highest performance:

- Function for consolidating similar-sized products into multiple bins. This increases the optimal use of storage capacity (bins become free).
- Batch picking hit rate optimized by grouping orders and order positions. Orders are processed in parallel faster by means of an algorithm and unnecessary transports of Autostore bins are minimized.

Automate logistics processes with SynQ
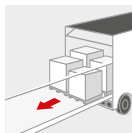
System integration

SynQ integrates seamlessly into intralogistics processes and communicates with all existing WMS installations.
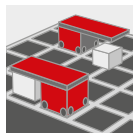
Warehouse management

SynQ is linked to AutoStore software and has real-time access to inventory data for all stored items.

Order scheduling

Incoming orders can be pre-scheduled on time or individually prioritized to AutoStore.
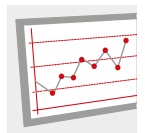
Picking

After data transfer, AutoStore automatically assembles the ordered items and transfers the goods to a workstation for shipment preparation.

Shipping preparation

Swisslog conveyor technologies ensure the automated provision of source and destination bins as well as a smooth transition to downstream packaging plants.

SynQ Cockpit

Based on recorded process data, all processes can be reconstructed and analyzed in detail to identify possible weak points and further improve overall performance.

AutoStore with SAP EWM

Bringing warehouse management up to full speed

By linking AutoStore with SAP EWM, Swisslog paves the way for a holistic material flow control with a wide range of functions.

SAP EWM can be easily and seamlessly integrated into existing SAP structures - as a decentralized system or embedded in SAP S/4 HANA environments.

Swisslog's services as an SAP Silver Partner include, among others:

- Integration of data generated by AutoStore into the functionality of SAP EWM
- Migration SAP WM to SAP EWM
- EWM implementation fully integrated into warehouse processes with or without automation technology
- Creation of EWM templates for customers with multiple locations to standardize logistics processes across the company
- 24/7 support (Level 2 & 3) for all SAP EWM managed processes (in-house and third-party systems)
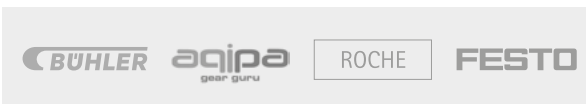
- Pick-to-light system for parallel picking at workstations increases picking performance many times over
- Highly intuitive user interfaces enable fast onboarding of new employees
- Clear guidance in the user interface leads to virtually error-free picking
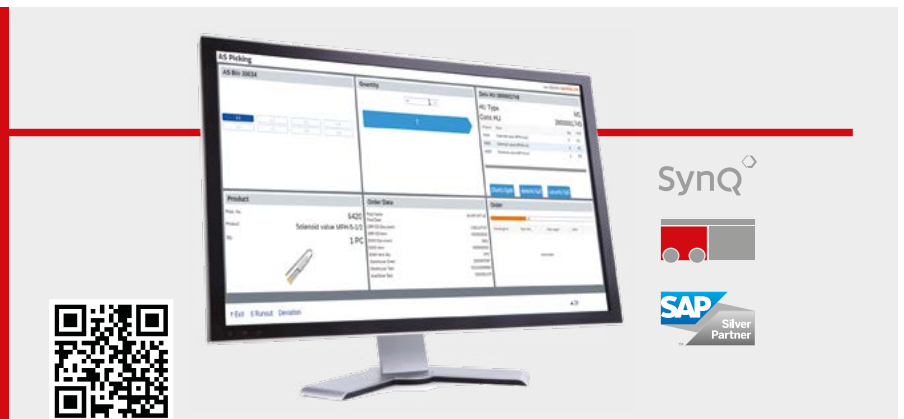
Service & support

At your service always and everywhere

Available immediately 24/7, worldwide and directly represented at more than 25 international service locations, our comprehensive support ensures that AutoStore systems serviced by Swisslog are on average available 99.6 % of the time.

Swisslog's support services include, among others:

- Customer-specific training on the use of hardware and software
- RemoteAssistance or SelfAssistance using augmented reality applications
- Support for connected software installations (e.g. SynQ and SAP EWM)
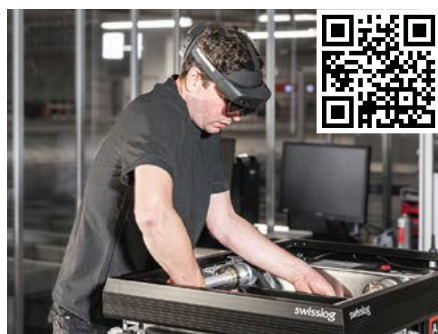
Last but not least, the technologies developed by Swisslog for gentle sensor and gripper belt cleaning ensure a long product service life and low maintenance costs.
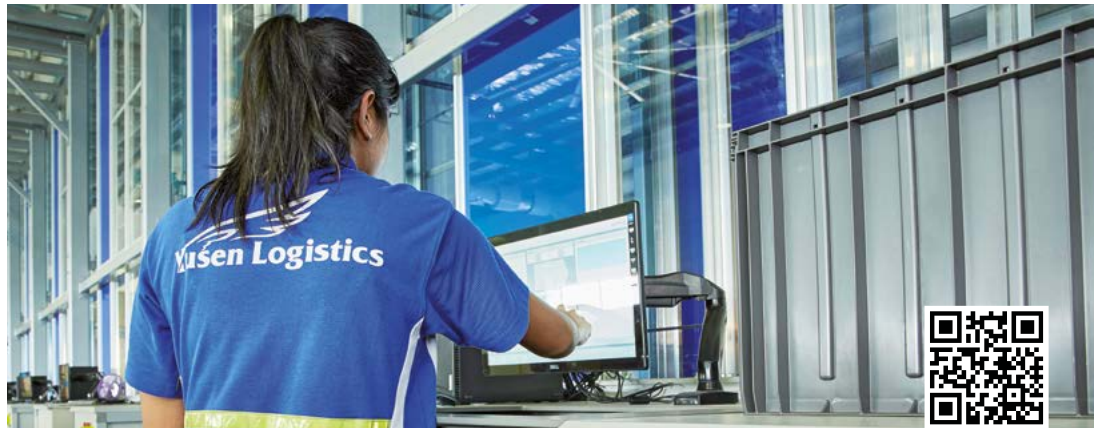
Robot Sensor Cleaning Station

Customer success

Examples

Yusen Logistics

40,600 bins, 22 robots, 11 ports: Using AutoStore, Yusen Logistics in Singapore was able to increase warehouse capacity from 2,000 to 3,500 m³ with the same floor space and increase order throughput by 200 %.

arvato

With a system of multi-order workstations and mobile pick-to-light storage racks, Swisslog has enabled healthcare provider Arvato to process up to 25,000 orders a day.

VARNER

In Scandinavian textile company Varner's new distribution center, AutoStore forms the heart of a state-of-the-art total logistics solution for every conceivable requirement of omni-channel retailing.

true

At the exclusive True Branding Shop in Bangkok, AutoStore ensures a wide selection of the leading company's products are available for immediate purchase in its retail outlet.

LINFOX

Using the combination of AutoStore and SynQ from Swisslog, Australian service provider Linfox Logistics achieves a system availability of more than 99 % and keeps a constant eye on goods at more than 20,000 storage locations.
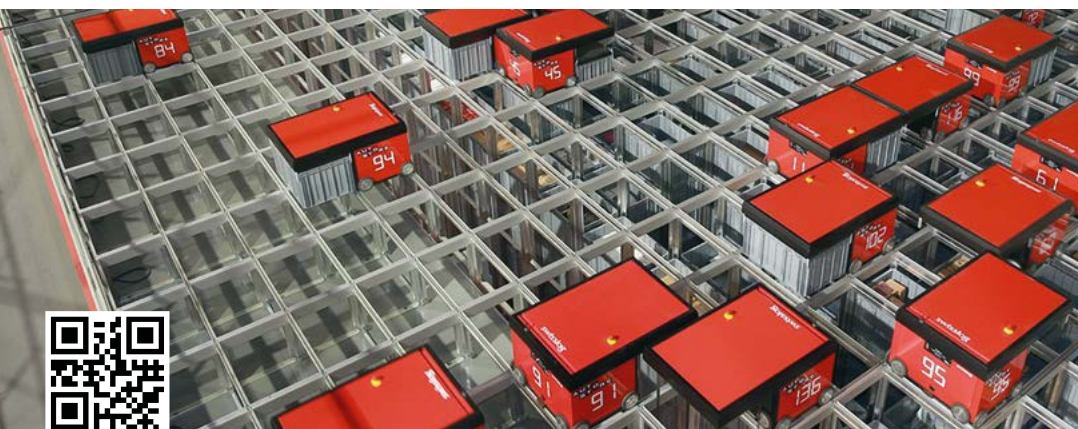

fabbi imola

To flexibly adapt warehouse capacity in line with growth, Italian specialist retailer of lighting, electrical and electronic goods, Fabbi Imola has comprehensively automated its intralogistics with AutoStore.

Sportamore

With connected light goods conveyor technology as well as automated picking and packing, AutoStore ensures maximum efficiency and flexibility in the logistics center of Scandinavia's largest online sports goods store.
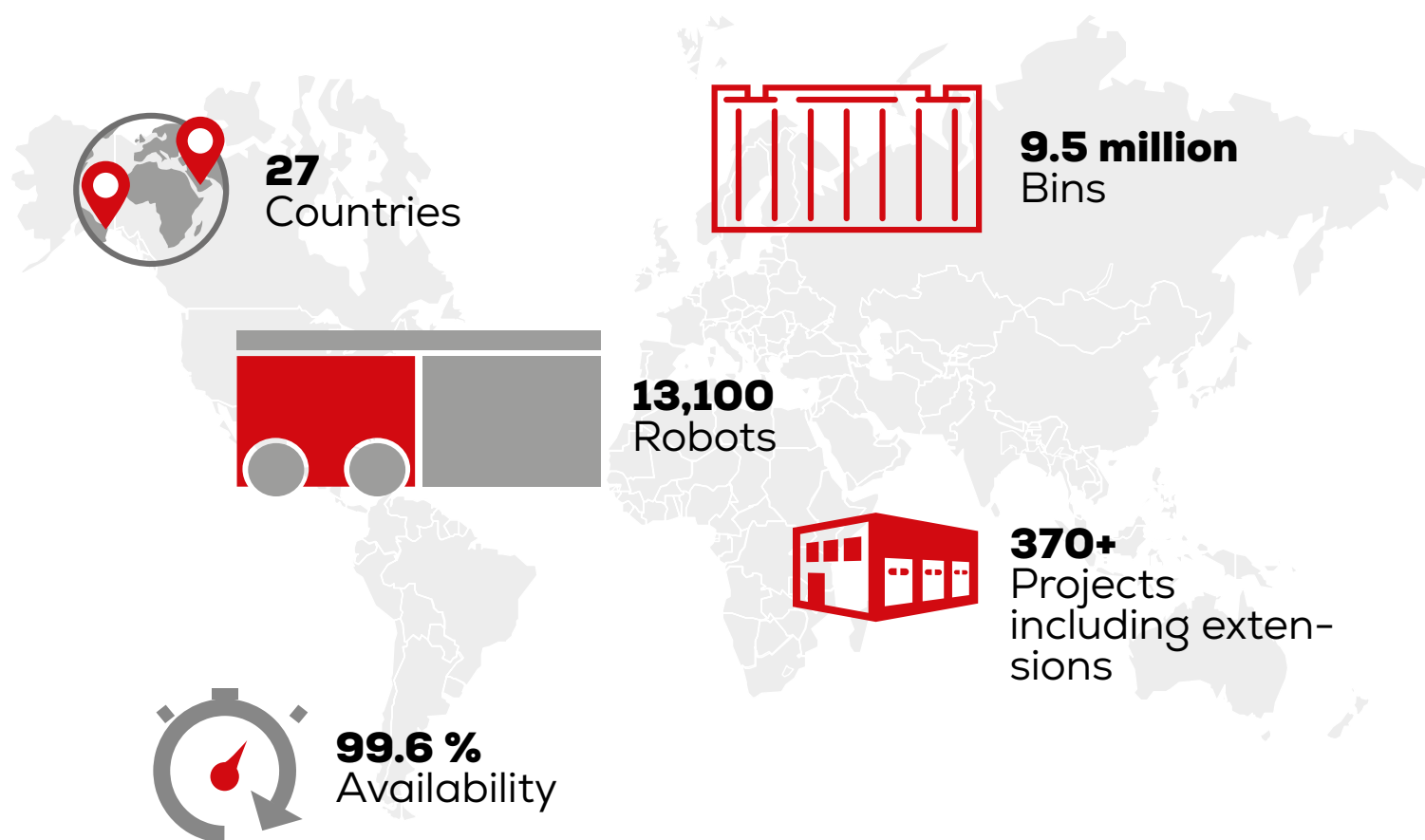

ASDA

Significantly improved space utilization and halved picking times have been achieved by UK retailer ASDA using AutoStore in an integrated distribution center.

World's leading AutoStore integrator

The Swisslog advantage

27 Countries

9.5 million Bins

13,100 Robots

370+ Projects including extensions

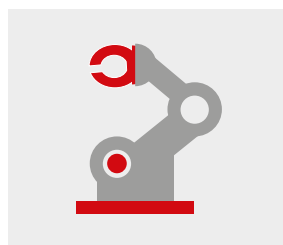**99.6 %** Availability

Why Swisslog

Proven benefits

With more than 370 projects worldwide, Swisslog is a leading AutoStore integrator. Benefit from connections to subsystems such as conveyors or pallet handling.

In addition to hardware, Swisslog also offers efficient software solutions for optimal warehouse management.

Intelligent robotics from Swisslog accelerates workflow and opens up new dimensions in intralogistics.

With the high energy efficiency and cost-effectiveness of AutoStore, Swisslog creates sustainable material flow systems.

SWISSLOG

www.swisslog.com