swisslog
inspired solutions

HEALTHCARE SOLUTIONS

AUTOSTORE®
AUTOMATED CENTRAL SUPPLY SYSTEM

> " [AutoStore] has allowed us to continue to increase our cutoff times, expand our product offering in a temperature-controlled environment and cover our expanding customer base. And it's allowing us to challenge the norm and continue to drive a world-class supply chain that benefits our customers and differentiates our business. As a result, Medline is continuing to install AutoStore technology in two additional sites."[3]
>
> – Bill Abington, President of Global Operations for Medline

AutoStore® Automated Central Supply System

A typical hospital distribution center contains thousands of static storage locations, requiring employees to walk the aisles, manually picking goods from multiple locations. These manual processes take time, are labor intensive, inefficient and can lead to costly picking errors. By automating these processes and bringing the goods to the picker, AutoStore decreases turnaround time, saves space, improves operating margins and increases throughput across your supply chain.

AutoStore is a unique warehouse automation solution for the storage and retrieval of medical and surgical supplies, housekeeping supplies and small parts in low units of measure.

This space-saving system enables consolidated service centers to optimize material movement efficiency, expediting order fulfillment to multiple locations within a hospital system.

- Fully automates bin storage, retrieval and delivery, increasing picking speed by up to 50%[1]
- Decreases inventory storage footprint by an average of 60% -- utilizing all available space to maximize storage capacity[2]
- Delivers a 90% improvement in picking error rates versus non-automated distribution centers[2]

References
1 http://autostoresystem.com/thesystem#benefits
2 http://www.mwpvl.com/html/swisslog_autostore_review.html
3 http://www.mmh.com/article/medline_industries_embraces_goods_to_person_picking?utm_source=mmhpreview&utm_medium=NLT

Advantages

Goods–to–person technology – robots run on a grid, picking and delivering bins directly to the user, eliminating human touches (and opportunities for errors) and maximizing productivity

Flexible design – can fit into any existing warehouse with the ability to expand or alter the system during operation, adding flexibility and scalability without costly downtime

Multi–tasking - goods can be simultaneously picked and stocked at the same time with no decrease in efficiency

Self–optimizing system – the system automatically organizes fast-moving bins to expedite picking

Controlled access – bin access is limited to ports, reducing product loss and potential for picking errors

Built–in redundancy – each unit and robot operates independently, preventing downtime by eliminating any single point of failure

24/7 proactive system monitoring – remote monitoring and help desk support is available around the clock to optimize performance and prevent downtime

Minimal training requirements – operators only need to follow basic pick-to-light workstation instructions, as the system automates the flow of required bins to the operator

Case Study: Medical Supply Distribution

Background

Many different industries use AutoStore to automate the loading, storage and picking of split-case and each SKUs. Historically leveraged by pharmaceutical companies, it was recently installed by the largest privately held medical supplier in the United States. The company manufactures and distributes more than 125 000 medical and surgical products to hospitals and retailers from a network of 30 distribution centers.[2]

Challenges

Prior to installing AutoStore, this company's warehouse was at 90% storage capacity and relatively unsophisticated in terms of leveraging automation. Because their facility was in full production, any new solution needed to ensure that service would not be interrupted during installation.

The primary reasons for implementing AutoStore included:
- Rapid growth forecasted in Low Unit of Measure (LUM) goods
- Need to reduce order processing times
- Workforce considerations (turnover and training costs)
- Space constraints

Solution

When initially installed in 2012, the AutoStore at this warehouse contained 20 900 bins. After a successful implementation, inventory requirements increased, which led to an expansion of 25 000 bins in late 2014. This high-capacity system covers only 450 m^2, but provides 1400 m^3 of storage capacity.
- 40 robots
- 1, 2 and 4 bin compartment configurations
- 4 high-speed picking stations
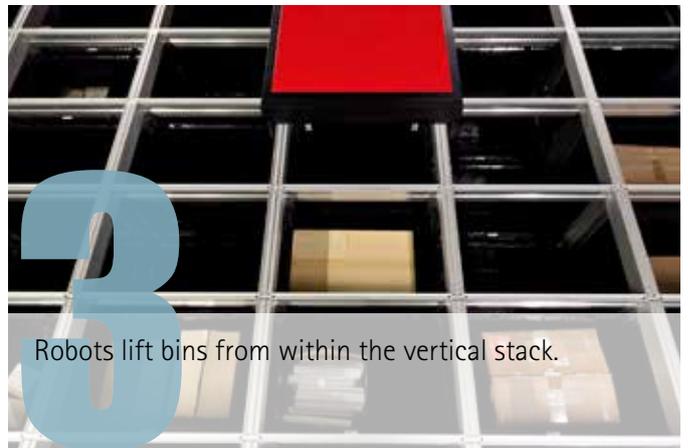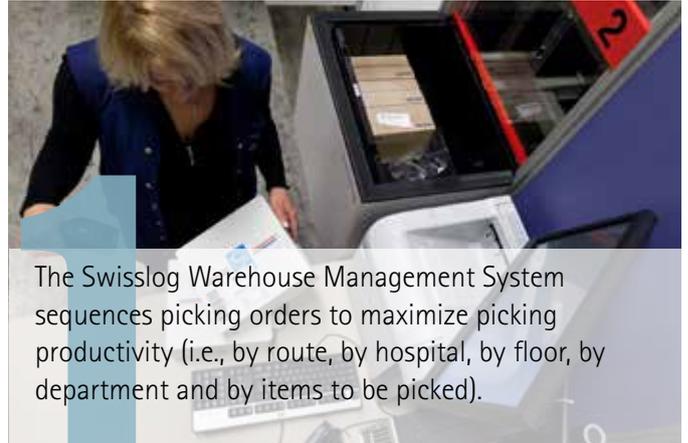- 2 replenishment stations
- Case conveyors

Results

In addition to a significant reduction in staffing requirements, the impact of AutoStore on operational efficiency was substantial.
- 75% spatial reduction versus previous storage system
- 400% increase in pick productivity
- Reduced piece pick labor by 2/3

After a successful implementation at their Midwest facility, the organization is currently expanding their AutoStore application at two additional key distribution centers in their network.

How it Works

AutoStore is the most compact and efficient solution for hospital distribution center optimization—utilizing all available space to securely store medications and supplies.

1 The Swisslog Warehouse Management System sequences picking orders to maximize picking productivity (i.e., by route, by hospital, by floor, by department and by items to be picked).

2 Robots move horizontally along a rail grid on the top surface of the system.

3 Robots lift bins from within the vertical stack.

4 The selected bin is moved horizontally to the drop stack, for delivery to the picking station.

5 Bin is lowered to the port for operator retrieval.

6 Operator verifies the contents, performs the pick as directed and moves to the next bin.

7 Bin is hoisted back up and returned to storage.

Integrated AutoStore System Components

Grid

The aluminum frame structure is organized into rectangular cells, enabling flexible configuration. Each cell vertically stacks bins on top of each other up to 16 bins high. The robots travel on the x and y axes on the top grid tracks.

Bins

Available in different heights, bins are where product is stored. The bins are never removed from the AutoStore System and are accessible only at picking and replenishment stations. Each bin is identified by a unique number displayed on the bin and stored in the controller database. Bins can be divided into compartments to allow for multiple SKUs in a single bin.

Robots

Each AutoStore Robot is equipped with two sets of wheels, enabling it to move along the systems' two axes, and a lift for hoisting bins. Robots communicate wirelessly with the control system for instructions and to automatically recharge when not in use. Average daily uptime for robots is 20-22 hours.

Picking Stations

Goods are delivered to operators at picking stations. A simple pick-to-light system guides the entire process with additional operator instruction possible at the picking station monitor.

- **Ports:** Part of the picking station, ports are access points to bins. When a robot delivers a bin to a port, the port exchanges the bin with the previously used bin, which is returned to storage.
- **Operator Panels:** Status information is displayed and simple support functions are completed on the operator panels installed at each picking station.

Replenishment Stations

Separate workstations are utilized for replenishing bins with incoming inventory, enabling concurrent picking operations and ensuring no disruption for restocking.

AutoStore is a registered trademark of Hatteland.

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