Case Study

coop

Reference Coop, Sweden:
Sustainable, fully automated solution
for supplying over 800 supermarkets

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SSI SCHÄFER

Robotic palletizing
of mixed pallets

Coop's Future Hub: Automated, Sustainable, Efficient

The Swedish food retailer Coop has built a central distribution center in Eskilstuna, Sweden, to supply its over 800 stores with fresh goods in a sustainable and efficient manner.

By automating and centralizing the flow of goods for our ambient and fresh goods in one terminal, we can serve our customers better, we streamline our operations, increase quality and also further strengthen our sustainability work with more environmentally friendly transports on trains.

Örjan Grandin
CEO of Coop Logistics AB and Deputy CEO of Coop Sverige AB

SSI SCHAEFER equipped the new warehouse with high-performance intralogistics automating 95 % of the picking processes. With a surface area of 77,000 square meters, the new logistics center is one of the largest warehouses in the world. This highly automated distribution center replaces two goods terminals where the work was mainly done manually.

The heart of the system is the SSI Case Picking solution, which automates the material flow from goods-in to shipping. At peak times, the facility can handle a total of more than 600,000 units per day. Robots take over both the depalletizing of homogenous pallets and the palletizing of store-friendly mixed pallets.

All areas of the plant have ergonomically designed workstations where employees can perform more advanced tasks, such as quality assurance. This creates work environments that are suitable for a much wider range of workers. "What we can now see is an increase in the proportion of female employees, with women now making up around 40 % of the workforce, compared to just 5 % in our previous warehouses," reports Ulf Axelsson, Managing Director at Coop Terminals.

Promoting workforce diversity is one of the cornerstones of Coop's corporate sustainability strategy. At the same time, the new distribution center helps to improve the company's environmental performance: By consolidating chilled and ambient storage into one facility, the company will require less transportation, resulting in a smaller carbon footprint. With Sweden's second-largest rooftop photovoltaic system, the warehouse generates about a third of the needed electricity it needs. The remainder is supplied by external renewable energy sources, which means that the entire site runs on green electricity.

Coordinated Logistics and Software Integration

As general contractor, SSI SCHAEFER supplied all components of the intralogistics solution and implemented it with its own experts.

This also includes the integration of Coop's IT environment with SSI SCHAEFER´s smart logistics software WAMAS, which controls the distribution center's processes end-to-end. The logistics hub was built in the city of Eskilstuna, approx. 100km west of Stockholm, which is convenient for transport. As the new terminal centralizes Coop´s distribution network, the transformation project was not only about automating manual processes. It was also about creating a new model for material flow. The system layout developed by SSI SCHAEFER takes both core requirements equally into account. Special attention was paid to integrating WAMAS into Coop's business software environment.

The implementation of the intralogistics systems began at the end of 2021. With the final acceptance in October 2024, the implementation was kept on schedule. Even pandemic-related difficulties in the supply chain could not delay it.

Our close collaboration with Coop demonstrates how innovative intralogistics solutions create significant value for companies, employees, and the entire supply chain. Thanks to our extensive expertise in complex retail projects, as well as our leading technology, software, and service competence, we were able to implement a future-proof, custom-fit solution from our modular system.

Mauro Lunardelli
Head of Business Unit Logistics Solutions SSI SCHAEFER

Smart logistics software WAMAS controls processes end-to-end

High-Performance Material Flow

Coop´s fully integrated intralogistics solution covers the entire material flow from receiving to warehousing to shipping. More stable processes and improved accuracy have been achieved through automation and streamlined workflows.

Goods-in

The distribution center consists of two temperature zones for the separate handling of ambient and chilled goods. Each of these zones has a goods-in area, a high-bay warehouse for storing pallets, depalletizing stations, an automated small parts warehouse, and state-of-the-art robotic palletizing cells.

Before the pallets are transported to the high-bay warehouses, a comprehensive quality assurance system is in place: At teach-in stations, employees measure the specifications of unknown or new cases. Using this data, all automation units in the logistics center learn how to handle the cases, for example, in terms of weight or fragility.

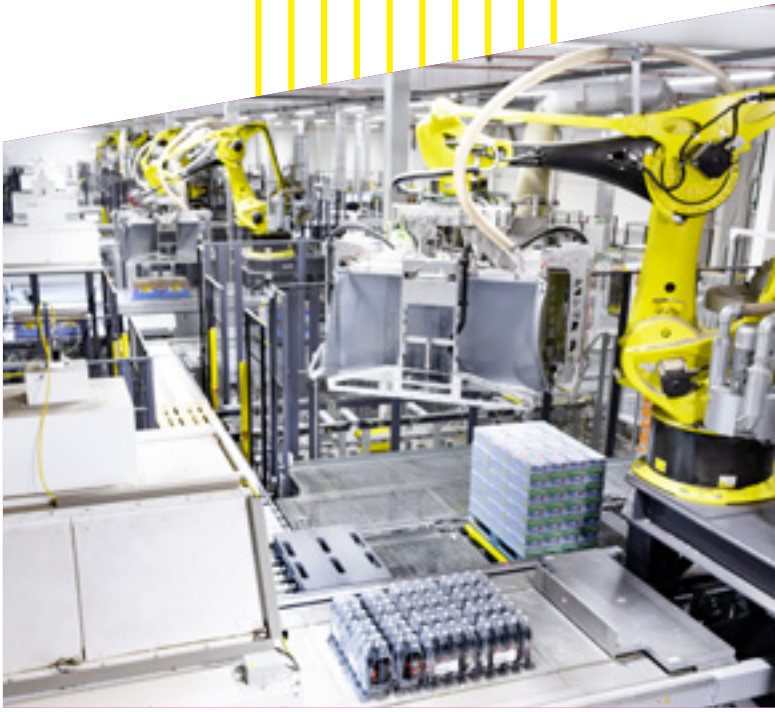
Teach-in station

Transport to depalletizing via rail-guided vehicle system

High-bay warehouses for storing homogeneous pallets

A total of 43 SSI Exyz pallet storage and retrieval machines operate in the high-bay warehouses in both temperature zones and goods out. Each of these highly energy-efficient stacker cranes performs up to 40 double cycles per hour and serves a wide range of height classes and pallet types.

Pallets are retrieved from the high-bay warehouse and transported via rail-guided vehicle system to the depalletizing stations. Most of the depalletizing process is done by robots.



Robotic depalletizing

Storage and retrieval by SSI Flexi Shuttles

The individual cases are then transferred to the automated small parts warehouses, which together hold more than 600,000 bin and tray storage locations and are connected by about 280 lifts.

The storage locations are served by nearly 700 SSI Flexi Shuttles. Cases are stored triple-deep on either side of the racking, maximizing storage density within the space allowed. The 3D-MATRIX Solution® enables storage, buffering, and sequencing within a single system and ensures 100 % sequencing at maximum speed. The required sequence is specified and controlled by the in-house SSI SCHAEFER logistics software WAMAS.

A total of 34 palletizing robots assemble the retail units precisely and layer by layer into pallets ready for dispatch. The SSI Pack Pattern Generator, as part of the WAMAS software, focuses on stability, volume efficiency, and the store-friendly design of the pallets. The system processes a wide range of products and, thanks to the high degree of automation, enables a particularly efficient and error-free picking – which is ideal for requirements of a large-volume food retailer such as Coop. After temporary storage is in the dispatch buffer, the pallets are transported to the shipping area in the correct loading sequence and loaded for further transportation.

> Our WAMAS software orchestrates the entire system, optimizing goods flow, monitoring performance in real time, and ensuring seamless interaction between technologies for maximum efficiency and reliability.
>
> **Alexander Wolf**
> *Integration Manager, SSI SCHAEFER*

Robotic palletizing of store-friendly pallets

Facts & Figures

System Key Figures

Site surface area	77,000 m² surface area, 109,000 m² total
Order-picking principle	SSI Case Picking, Pick by Voice, Pick to Tote
Units per day	600,000

SSI SCHAEFER Scope of Supply and Services

Planning, Implementation and Service

Design concept	Turn-key delivery of a fully automated logistics center for ambient and fresh goods with 95% automation and ergonomic workstations

Goods-in ambient & chilled

Goods-in stations	20
Depalletizing robots	10
Manual depalletizing stations	12

Storage systems

High bay warehouse ambient, chilled and shipping buffer	43 SSI Exyz storage-retrieval machine, over 73,000 storage locations, single-deep and double-fork
Automated small parts warehouse (ASPW) ambient & chilled	Approx. 700 SSI Flexi shuttles, about 280 lifts, 600,000 storage locations, triple-deep storage

Picking systems

Palletizing robots ambient & chilled	34
Picking systems	RF Picking, Pick by Light / Put to Light, Pick by Voice
Advanced Pick Station one-level ambient & chilled	6

Conveying systems

Pallet conveying system	Approx. 8 km
Carton and bin conveying system	Approx. 10 km
Rail-guided vehicle system ambient & chilled	50 vehicles
Bins & Trays ambient and chilled	Approx. 600,000

Software solutions and customer service

Logistics software	WAMAS WMS, WAMAS MFS, WAMAS Robot Material Flow Controller PnP, SSI Pack Pattern Generator
Real-time visualization	WAMAS Control Center
SSI Resident Maintenance®	On-site team for 24/7 support and maintenance with 80 technicians

Future-Proof Logistics Hub

Advanced technologies, including robotics, automation and ergonomic working conditions, ensures optimal performance and scalability.

The new central warehouse serves as the core of Coop's supply chain, combining advanced automation, sustainability initiatives, and a tailor-made system to streamline operations, enhance efficiency, and bolster competitiveness in the Nordic food retail market. In addition, ergonomic workplaces and new skill requirements have contributed to a more diverse and collaborative work culture, which makes Coop an employer to choose.

SSI SCHAEFER's proven expertise, innovative technologies, and ability to deliver customized solutions were key factors in the project's success. To sustain the benefits of the solution, a resident maintenance team comprising 80 service technicians was established. The focus is on preventive maintenance services for all mechanical and electrical systems, as well as IT support. This guarantees the highest possible system availability.

Moving forward, Coop focuses on ongoing system optimization and implementing its comprehensive logistics plan to sustain growth and operational excellence. This includes continuous monitoring and fine-tuning of the system to enhance performance and adapt to changing needs.

> By automating key processes, we increase our overall productivity, ensure high and consistent quality, and improve our ability to deliver on time. At the same time, we reduce our environmental impact: With a higher fill rate on our pallets compared to a manual warehouse, the solution lowers our transport costs and our total environmental impact.
>
> **Ulf Axelsson**
> *Managing Director of Coop Terminals*

Resident maintenance team for preventive maintenance services and IT support

Seven Reasons for Choosing SSI SCHAEFER

- **Stability**
  As a financially independent family business, SSI SCHAEFER is committed to long-term solutions. You can trust that our team of experts will be there for you today, tomorrow and in years to come.

- **Efficiency**
  SSI SCHAEFER solutions are scalable and able to grow with your business. You can always upgrade or retrofit.

- **Quality**
  As a systems specialist with its own production facility and software development department, SSI SCHAEFER provides tailor-made and high-quality solutions from a single source, specifically designed to meet your challenges.

- **Reliability**
  Thanks to our worldwide Customer Service & Support network, SSI SCHAEFER ensures smooth operation of your system long term, both during and even long after installation.

- **Know-how**
  SSI SCHAEFER solutions are always up-to-date with the latest technological standards and can be easily integrated into an existing (IT) landscape.

- **Sustainability**
  As a global intralogistics provider, SSI SCHAEFER is committed to sustainable, efficient and future-proof solutions. The company therefore contributes to the goals for sustainable development set by the United Nations.

- **Internationality**
  As a global organization, SSI SCHAEFER has local offices worldwide. With over 80 operative subsidiaries, our team of experts speak your language.

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