Co-operative Migros Zurich

Zurich, Switzerland

Migros is the largest Swiss retail company with 631 stores in Switzerland. The company is a conglomerate of the various co-operatives, public limited companies and charities that form the Migros community. Its core business is food retail, represented by the Migros stores of the regional co-operatives, accounting for well over 60 % of turnover.

The Migros Zurich co-operative was founded in 1941 and today has a membership of around 323,000. Migros Zurich's trading area covers most of the Canton of Zurich and the entire Canton of Glarus. It also includes the upper part of Lake Zurich and the bordering communities of the Cantons of St. Gallen and Schwyz. In these regions you can find 104 Migros shops, 25 speciality markets, 47 catering establishments, 11 Migros partners and more. With over 8,900 employees, Migros Zurich is one of the major employers in the region, with a turnover of about 2.5 billion Swiss francs per year.

The challenge

Every day at the Zurich location, up to 1,400 dairy, convenience and catering articles, including baked goods, arrive on site on pallets either in standardized Migros handling units or in foldable crates from an external pool crate supplier. These units are mostly heavy; therefore, manual picking would place a great deal of physical strain on employees. The picking process has to run economically and accurately in order to supply around 150 stores. What's more, the physical and logistical features of fresh articles must be taken into account because they require gentle handling and cleanliness, and have problematic delivery cycles. Special attention also has to be paid to the traceability of products on dispatch pallets and shop-friendly pallet formation.

The solution

With the FAST Picking solution, KNAPP offers the ideal system concept for automatic, high-performance picking of standard handling units. The core components include the automatic depalletizing and palletizing machines, as well as the OSR Shuttle™ storage system. For the automatic formation of pallets, KiSoft Pack Master calculates the optimal pallet image so that handling units can be stacked in a shop-friendly manner, with ideal numbers of load carriers. The robust Powerline pallet conveyor system and the high-performance Streamline container conveyor system link the innovative technologies.

Following the successful implementation of the first FAST Picking system for the fully-automatic handling of the fruit and vegetable range, Migros decided to work with KNAPP again.

1   Powerline conveys the delivered pallets to three depalletizers and destackers downstream.

2   Once the handling units have been taken off the pallet, the destacker separates them and places them on trays.

3   The articles are temporarily stored in the OSR Shuttle™ until they are required for shipping. The shuttle system provides 12,500 storage locations in 12 rack lines and across 7 levels.

4   When shop orders arrive, the trays are retrieved from the OSR Shuttle™ in the right sequence and transported to the buffer lines.

5   Three stacking modules automatically assemble compact, stable shop pallets.

6   After automatic palletizing, the completed pallets are wrapped, provided with an address label and conveyed towards the goods-out area.

The Migros solution at a glance
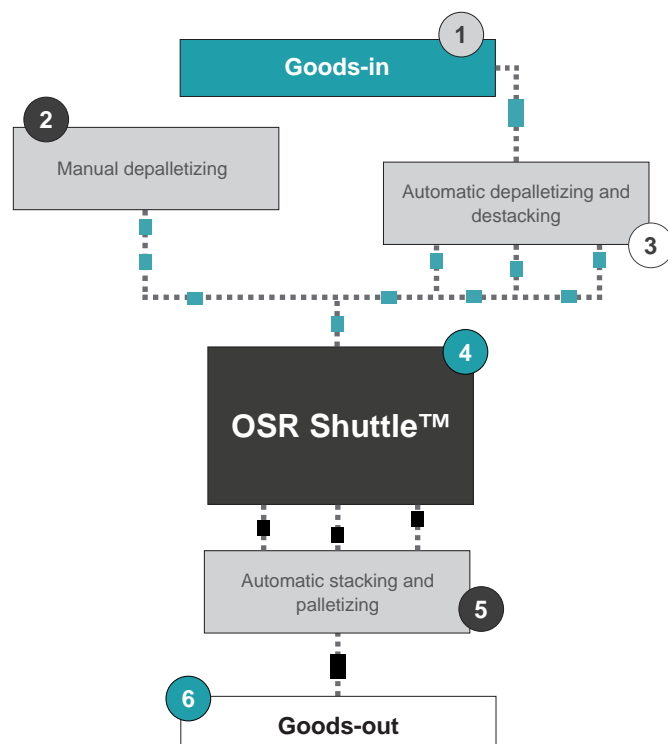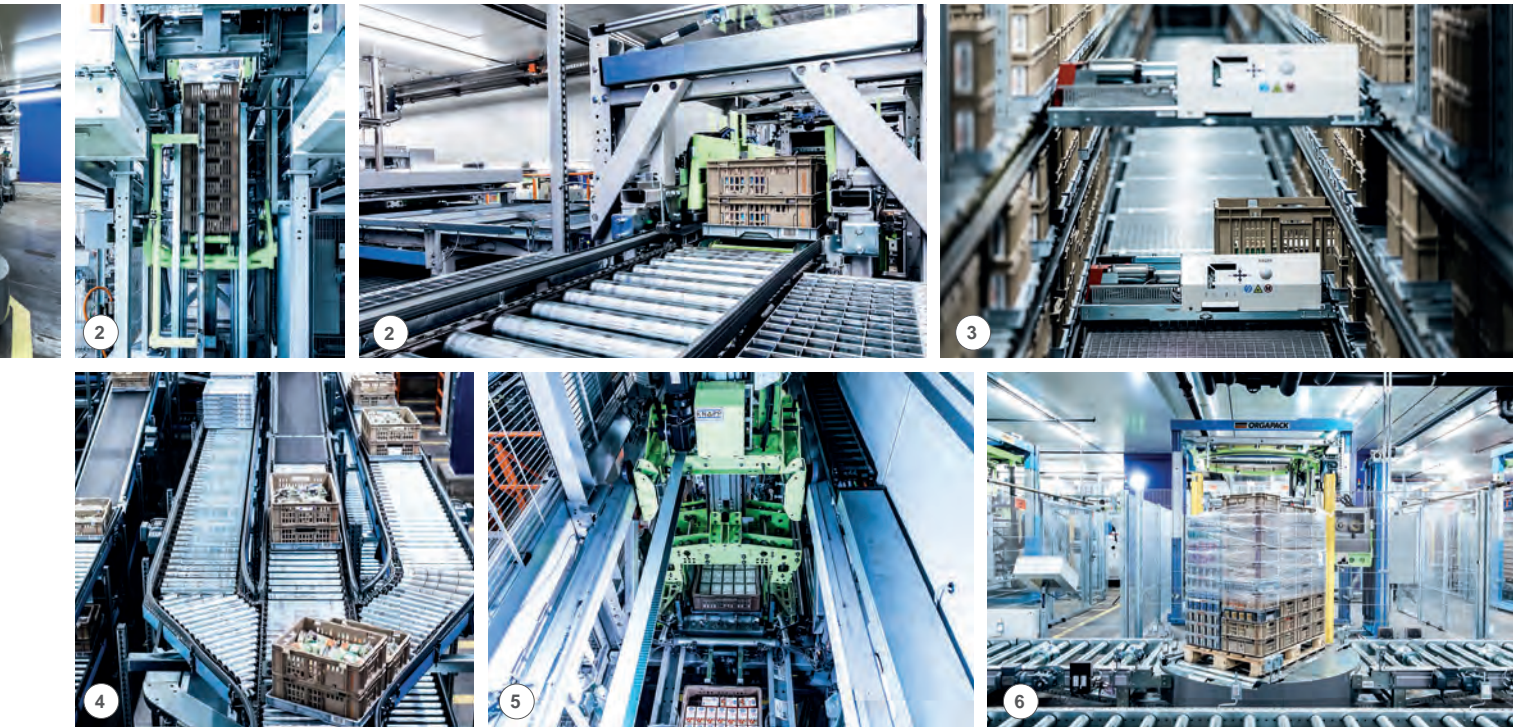
1

Goods-in

Following in-bound delivery, an employee transports the original pallet using a warehouse vehicle to either manual depalletizing or to a pallet conveyor system, where the pallet is then transferred for automatic depalletizing and destacking.

2

Manual depalletizing

At a manual depalletizing station, mixed pallets are registered in the system and the handling units are transferred to trays for storage in the OSR Shuttle™.

3

Automatic depalletizing and destacking

Once registered, unmixed pallets are conveyed on the Powerline pallet conveyor system to three downstream depalletizing and destacking machines. First, the pallets are separated from the handling units and conveyed to an empty pallet stacker. Destackers separate the handling unit stacks by lifting the stacks in a frame lift and then destacking them layer by layer. The destacking procedure is efficient, as two trays can be loaded with products at the same time. Perfect synchronization of the infeed line for empty trays as well as the clamping and pushing mechanisms guarantee fast, gentle loading of products onto the trays. The Streamline container conveyor transports the loaded trays to the OSR Shuttle™.

4

OSR Shuttle™

The articles are temporarily stored in the OSR Shuttle™ until they are required for shipping. Once all the store orders have been received, the order data from the higher-level ERP system is transmitted to the KNAPP warehouse management software KiSoft WCS. KiSoft Pack Master calculates the best formation for the pallets, taking into account handling unit and product data, and determines the correct retrieval strategy. The trays are retrieved from the OSR Shuttle™ in the optimal sequence and transported to the buffer lines. Each buffer line holds the exact number of articles needed to build an order pallet.

5

Automatic stacking and palletization

Once all the articles required to build a complete order pallet are on hand, the handling units are conveyed to a stacking module, which forms order pallets automatically. Considering diverse stacking criteria, the stacking machines form compact pallets for the stores. The completed stacks are then automatically palletized. The pallets are particularly stable and have a packing high density. This reduces the space required on trucks and above all, in stores.

6

Goods-out

The completed pallets are automatically wrapped for transport with a banderole and provided with a shipping label. Pallets ready for dispatch are conveyed on the pallet conveyor system to a pick-up position, from where an employee brings them to goods-out.

MIGROS

"Since we had a good experience with the first automatic picking solution for the fruit and vegetable range, we decided to work with the KNAPP group again. The KNAPP automation technology ensures economical and on-time delivery."

Beat Erb
Head of Engineering, Cooperative Migros Zurich

At a glance

Sector and business	Food retail, distribution of fresh articles
Location	Zurich, Switzerland
System size	4,200 m²
Number of articles	1,400 different articles (dairy, convenience and catering articles as well as baked goods)
Handling unit types	Standardized Migros handling units and foldable crates from external pool crate providers
Ambient temperature	Cold-storage area1–4°C
Core components	OSR Shuttle™ with 12 rack line systems, 7 levels and 12,500 storage locations Fully-automatic special machines for destacking and stacking, as well as depalletizing and palletizing
Performance	Up to 90,000 handling units per day Depalletization: up to 140 pallets/hour Palletization: up to 70 pallets/hour Handling unit destacking: up to 8,600 units/hour Handling unit stacking: up to 4,250 units/hour
Software	KiSoft WCS, KiSoft Command, KiSoft Transport, KiSoft SRC, KiSoft Pack Master