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Automatic picking system for handling large quantities of SKUs and varieties of packages in a frozen environment. The Tosano supermarket case.

The project

Tosano Group represents one of the best rooted and expanding large-scale distribution companies in North-Eastern Italy. Its stores offer a wide variety of shelf products: as many as **30,000 food references** - both from "big brands" and at the same time products from small and medium-sized manufacturers in the Italian food industry - make up a wide choice that satisfies the needs, requirements and tastes of the most demanding consumers.

Following the implementation of a fully automatic picking system for handling groceries in general, Tosano hypermarkets entrusted System Logistics with the supply of an additional **fully automatic storage and picking system**, this time at **"frozen" temperature**. Thanks to this system, the preparation of pallets for supplies to the frozen food industry within their points of sale will be speeded up.

However, the advantages do not involve only service at the point of sale: as a matter of fact, the system will dramatically **optimize all storage, palletizing and shipping operations within the distribution centre**, minimizing and improving **the working conditions of operators in a hostile environment**.

System operation

The system covers an **area of 8,000 square metres** and is developed on two floors. The ground floor houses the **goods infeed and shipping bays**, connected to the automatic warehouse by a **straight shuttle** system. On the first floor, the full pallets are disassembled in the depalletization stations. The goods are then routed within the HBW via an SVL shuttle system. Automatic palletizing of packages is also performed on this floor.

The system consists of an **automatic warehouse** and an **automatic picking system**, sized to manage a total daily flow of **15,000 picking packages**.

The automatic warehouse is used to store the pallets and is composed of **5, 26 metre high stacker cranes** serving the warehouse, where approx. **17,400 double depth pallets** and **1,800 SKUs** are stored. The automatic warehouse alone reaches flows of about **120 IN + 160 OUT**, at a temperature of **-25°C**, thanks to the use of specific technologies designed for environments with temperatures below 4°C.

Picking activities are carried out using the **MOPS system (Modular Order Picking System)**, which prepares mixed pallets fully automatically. MOPS mainly consists of a **depalletization area**, composed of an automatic layer station and a manual station; a **storage warehouse** with a capacity of about **28,000 double depth cells** managed by **6**

System Logistics S.p.A

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Miniloads; a palletization area consisting of two automatic Dual-Robot palletization stations and a manual palletization station.

Advantages for the customer

Thanks to System Logistics' solution, Tosano has optimized its spaces by using **intensive storage (HBW)** and has avoided using operators in hostile environments thanks to the picking system. **Storage takes place at -25°C**, in an area where no operator is required. All **loading, unloading and picking** operations are managed in a **0-4°C** environment.

Thanks to its flexibility, the MOPS system is capable of handling both a large **quantity** of SKUs (automatic handling of more than 1,800 SKUs) and a wide **variety** of individual packages without using trays or other media.

The MOPS system uses a **synchronizer** to assure accurate sequence for each individual package during order pallet preparation, and the **Best fitting algorithm** for the best pallet preparation, assuring pallet stability during its automatic handling. This sequence is dictated both by package stackability and by the palletizing rules required by the customer (according to the shop layout, based on columns etc.).

This system uses **electronic equipment** heated by integrated resistors. The electrical panels are kept at a constant temperature by means of heaters, and are insulated through double-insulation sandwich panels that allow operator access for maintenance activities and inspections in a positive temperature environment.

All the **mechanical components** have been sized and designed using materials that can assure resistance down to temperatures below -40°C.

Conveyor belts for package handling are made of special silicone-based plastics from the military sector. The cables used for the machine edge are **PUR** type.



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For more information: <http://systemlogistics.com/>

The Company

System Logistics provides innovative intralogistics and material handling solutions for the supply chain of warehouses, distribution centres and production centres, with a particular focus on the Food & Beverage sector.

The tailor-made solutions developed are designed, engineered, manufactured and installed by the company itself, and include automated storage systems, automated picking systems, high-density storage warehouses, material handling systems and AGV laser-guided trolleys.

System logistics owns a warehouse management software (Systore), a framework that supports the system in the management of equipment, labour and processes.

Systore has a multi-level architecture: each component in the structure is capable of performing a task corresponding to different areas.

Member of SYSTEM Group since its foundation- a private Italian group based in Fiorano Modenese (Modena) - System Logistic is 60% owned by KRONES, a leading group in the beverage sector, since April 2016.

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