CASE HISTORY

# FIORENTINI ALIMENTARI

## Trofarello (TO), Italy

Food


## The company

Fiorentini Alimentari Spa is the leading company in the sector of crackers and healthy snacks in Italy. Founded in Turin in 1918 as a specialty food shop and ethnic product store, today it is the main producer of bread substitutes and snacks made from puffed cereals, legumes and vegetables. The mission is to bring the healthy product out of its niche and launch it into the mass market, making it appealing and accessible to everyone. The Company, owned by the fourth generation of the family, is present in 55 countries around the world.


## In-house logistics

The partnership with System Logistics started in 2017 with the design of a new logistics hub in the province of Turin and continued in 2023 with the necessary expansion following the constant growth of the brand. With the new hub, the company has internalized the storage of raw materials and finished products ready for shipment, in order to maintain control over the entire storage process, optimizing its management and timing. The intervention has allowed for better logistical traceability in the various production areas up to shipment, with a consequent control over risks and a reduction in costs. With the ongoing expansion, the warehouse area is increasing from about 13,000 pallet positions to over 18,000, doubling the goods receiving capacity thanks to the new external entrance area.

# The new hub in 2019

The plant, commissioned in 2017 and operational since 2019, includes an **automated warehouse** for pallet storage with **6 stacker cranes approximately 27 meters high, of which 4 are single-depth and 2 are double-depth.** These stacker cranes are powered by a handling system with **8 SVL shuttles (System Vehicle Loops)** that transport the pallets to the different areas of the plant on floor-mounted rails. The process of receiving and storing raw materials has been automated through **conveyors and laser-guided AGV (Automated Guided Vehicles) counterbalanced vehicles.**
Specifically, **2 CP medium AGVs** are used, capable of performing deposit and retrieval activities on compactable shelving up to **10m high**, maximizing the efficiency of the available storage space. There is also a lift that connects the ground floor with the first floor, allowing effective handling between the two production levels.
**The management of raw materials** for production is entrusted to **4 CP mini AGVs**, responsible for serving the production areas by delivering materials to the input stations of each line and picking up the finished product, ensuring a constant and timely supply of the necessary resources for production. Subsequently, the **AGVs transport the pallets of finished product to the wrapping station**, from which the SVL shuttles transfer them to the automated warehouse.

This automated and integrated flow improves logistical efficiency, reducing handling times and increasing the precision and safety of operations. The stacker cranes and SVL shuttles then facilitate the **exit of the pallets from the warehouse towards two main destinations: the first with 4 "goods-to-man"** picking bays where the operators, ergonomically assisted in the product withdrawals by the automation, prepare the mixed order pallets for shipment; **the second with 4 outbound bays for shipping**, each equipped with an independent monitor that facilitates the operator in charge of loading the trucks. This system ensures that products are ready for distribution with fast response times, improving Fiorentini's ability to promptly meet market demands.

## The ongoing expansion

At the end of 2023, Fiorentini has entrusted System Logistics with the **expansion of the plant**, a project that was made possible thanks to the innovative and flexible design carried out in 2017.

System Logistics' initial solution had been designed to be scalable and adaptable, allowing to proactively anticipate and meet the client's future needs and respond agilely to the continuously evolving market dynamics.

The extension includes **the addition of 3 stacker cranes, one with a double-depth side and one with a single depth**, to optimize space utilization. Additionally, the integration of **2 CP Mini AGVs will guarantee a 15% performance increase to the automated system.**

The expansion also includes an extension of the **SVL motorized loop with the integration of 4 additional shuttles to support the overall system performance increase.** Thanks to the new external entrance area, the automated warehouse's goods receiving capacity will be doubled.

The AGV system, designed to support 24/7 production, through the automatic battery change is able to drastically reduce the downtime due to traditional recharging and allows to increase the work efficiency of the fleet.
The time required for the battery change is about 1 minute.

The facility complies with fire safety regulations, thanks to the installation of an oxygen reduction system in the warehouse.

With the expansion, Fiorentini Alimentari has significantly increased its production capacity, operating on two shifts to maximize production and shipments.

This technological advancement has not only improved energy efficiency and reduced $CO_2$ emissions, but has also **raised workplace health and safety standards**, allowing operators to focus on higher value-added activities.


## Environmental Benefits

The automation of the storage warehouse near the production site offers numerous environmental benefits. The elimination of the need to transport raw materials and finished products by truck to a remote warehouse **significantly reduces $CO_2$ emissions, contributing to improving air quality and reducing the company's carbon footprint.**
This results in around **8,000 fewer trucks moved per year, just for the finished products part**, with a significant reduction in greenhouse gas emissions and road traffic.

The System Logistics stacker cranes are equipped with an advanced energy recovery system that self-powers during the braking phases. This system reduces the absorption of electrical current from the grid, improving the overall energy efficiency of the plant.

**The integration of advanced technologies such as AGVs and SVL shuttles allows for more efficient management of material flows, reducing transport times and optimizing the use of energy resources**. Furthermore, the adoption of an oxygen reduction system in the warehouse complies with fire safety regulations, improving operational safety and reducing environmental risks associated with fires. These improvements not only make the company more sustainable, but also contribute to improving overall operational efficiency, reducing costs and increasing competitiveness in the market.

# Technical Specifications of the Plant

## 2017 PLANT: EXISTING STRUCTURE

› **Stacker cranes:** 6 units (2 double-depth, 4 single-depth).

› **Racking:** Capacity of 12,936 pallet positions, equipped with an oxygen-reducing fire prevention system. The dimensions of the warehouse are approximately 34x92xh28 meters.

› **SVL Automatic Loop:** System with 8 shuttles, connecting the stacker crane warehouse to various production points, including:

- Finished product entry area from production.
- Raw material exit area towards production.
- Four "goods-to-man" picking bays, equipped with hydraulic platforms to improve operator ergonomics.
- Inbound goods reception area from outside.
- Outbound shipment area.

› **AGV Vehicles:**

- 4 AGV CP MINI, to serve the production lines.
- 2 AGV CP Medium, used for activities on internal compactable shelving, with pallet lifting capacity up to 10 meters.
- 2023 Plant: Expansion of the Existing

## 2023 PLANT: EXPANSION OF THE EXISTING

› **Stacker cranes:** Addition of 3 units (1 double-depth, 2 single-depth).

› **Racking:** Capacity of 5,175 pallet positions, with oxygen-reducing fire prevention system. The dimensions of the new warehouse are approximately 16x92xh28 meters, with the racking erected alongside the existing one.

› **SVL Automatic Loop:** Extension of the loop with the integration of 4 additional shuttles, to improve the overall performance of the system.

- New inbound goods reception area from outside.
- Strengthening of existing areas, including:
  - » Finished product entry area from production.
  - » Raw material exit area towards production.

› **AGV Vehicles:**

- Addition of 2 AGV CP MINI to support the new production line.