

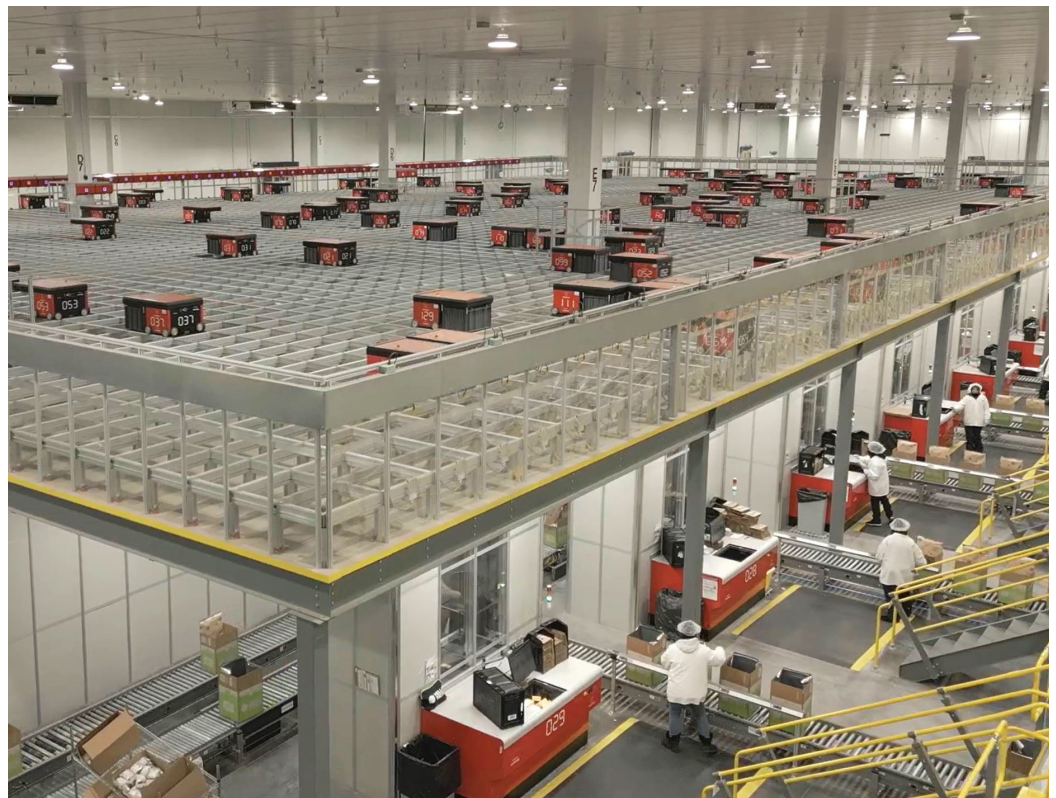
Case Study
HelloFresh
Irving, Texas, USA

Innovative Automation Solution Helps HelloFresh Enhance Fulfillment Speed and Quality

The customer

HelloFresh became the leader in meal kit delivery by offering ready-to-prepare meals with outstanding freshness and convenience. With demand surging and the menu expanding, the company recognized the need to enhance the level of automation in order fulfillment.

The vision was to leverage the reliability, density and speed of AutoStore as the heart of an automated meal kit assembly process. But executing on that vision would require an approach to AutoStore control that few integrators were prepared to handle. Swisslog embraced the challenge and helped HelloFresh establish a new automated distribution center that achieved the company's throughput and productivity goals while minimizing the impact of menu expansion on fulfillment processes.



AutoStore system empowered by Swisslog

» Our planned solution was out of the realm of possibility for a lot of AutoStore integrators, but Swisslog wasn't intimidated by our requirements.«

Kyle DeGroot, Senior Director of Production Technology



A leap forward

"From the beginning we have incrementally advanced our use of automation to maintain the highest levels of freshness, accuracy and predictability in our shipments to customers," said Jason Adamchik, senior vice president, automation and engineering at HelloFresh. "But at some point, you have to take a big step to ensure you can continue to manage growth and support changes to the business."

That step came in the form of a new distribution center in Irving, Texas, which created the opportunity to introduce a higher level of automation that would add needed capacity while also enabling continued inventory expansion.

As Adamchik noted: "Continually expanding our menu is important to customer retention but can strain fulfillment processes because it increases inventory requirements and adds complexity."

Kyle DeGroot, senior director of production technology at HelloFresh, was charged with developing the technology plan for the new distribution center. To understand the challenge he faced, it's necessary to review the company's requirements.

HelloFresh subscribers can customize their meal plans from over 100 weekly menu and market items and choose the day(s) of the week they want to receive delivery. The company sources meal ingredients to minimize the time between receipt and shipping and carefully packages components to ensure freshness and simplify preparation. In addition to proteins, such as fish, chicken and beef, meal kits can include fresh produce, starches, seasonings, recipe cards, and nutritional information. Subscribers can also supplement their meals with items from the HelloFresh Market.

As a result, a typical outbound container can include 16 items, which must be packed in a prescribed order. The entire

process is conducted in a chilled environment that is maintained at 33° F.

"This is a complex process from a fulfillment standpoint that has to be executed with a high degree of precision and speed," DeGroot said. "I was very familiar with AutoStore from a previous role with another organization and we liked the flexibility, reliability and density AutoStore offered. I wasn't aware of any other cases where AutoStore was being used the way we intended, but I believed that with the proper controls and software, it could support the throughputs we were targeting for this facility."

While DeGroot believed AutoStore could support the automation plan, he knew it would be a challenge that most AutoStore integrators couldn't handle.

"Our planned solution was out of the realm of possibility for a lot of AutoStore integrators," he said. "But Swisslog wasn't intimidated by our requirements. Instead, they were excited about doing something that we didn't think had ever been done before. It was evident very early in the process that they were the partner we wanted to go with."

The solution

Developing the solution

The plan for the new distribution center was to begin the fulfillment process outside the AutoStore in a manual pick zone and then induct orders into AutoStore via conveyor in a way that would maximize throughput and operator productivity.

"Achieving our vision required a warehouse execution system (WES) that could not only synchronize processes from manual picking into the AutoStore but also manage those orders and control the AutoStore in a way that maximized throughput of the entire process," DeGroot said. "Swisslog's SynQ software was the only WES that could do that."

SynQ integrates automation control, warehouse execution, and warehouse management functionality in a unified,

modular platform that features a common user interface and single point of control across the components of a complex automation solution. The AutoStore Director module within the platform includes a number of unique features designed to improve throughput and operator productivity.

Once the preliminary design was deemed feasible, HelloFresh and Swisslog began the detailed design process. The two companies worked collaboratively to transform the vision into functional specifications and a detailed mechanical layout.

"Because there weren't any models within the industry for what we were doing, developing a partnership with Swisslog throughout the design phase was critical," DeGroot said.

Swisslog managed the installation of the

solution, which included a 29,858-bin AutoStore system with 150 robots, 18 carousel ports for picking, 11 conveyor ports for induction to support HelloFresh's high inventory turnover rate, and 4 quality control ports. The solution also included a manual pick zone, 6,000 feet of conveyor to move orders through the process, four carton erectors, sortation systems, and carton sealing and labeling equipment. As part of the implementation, SynQ was integrated with HelloFresh's WMS and order management system.

"We were pleased with the quality of the implementation and with the ability of SynQ to integrate with the other systems we have," said Adamchik. "With a solution this complex, we did not want too many systems and SynQ was able to control most of the physical processes within the DC, from the upstream picking through the downstream shipping sorter."

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The solution

An innovative solution

The HelloFresh Irving distribution center opened in 2021 and after a ramp up phase in which processes were stress tested and operators trained, is now operating at full capacity.

Orders are initiated in a manual pick zone where box assembly begins with proteins and ice packs. Orders are then transported by conveyor and inducted into the AutoStore system in a controlled sequence and dynamically grouped in batches of four based on commonalities across orders.

Partial orders are then delivered to pickers working at carousel ports along with the ingredients from AutoStore inventory that are required to complete the order, enabling operators to pick directly to carton at the AutoStore port. Operators can also fulfill four orders simultaneously, maximizing the number of picks they can make from each bin. Inventory is replenished through the 11 induction ports to maintain freshness.

Downstream from the AutoStore, orders are conveyed to automated carton sealers and labeling equipment and sorted for shipping.

SynQ manages the entire process, including routing, all pick zones, AutoStore replenishment, sortation, and label printing. SynQ also provides centralized inventory management and visibility based on a first-expired, first-out (FEFO) strategy that helps ensure freshness.

Delivering on expectations

"Our goal was to fully automate the movement of orders through the warehouse, and we accomplished that while increasing throughput, quality and accuracy," said DeGroot. "This is a very high-volume system with 15-16 lines per order. We have the throughput to handle fast movers with accurate sequencing and, compared to our legacy systems, are seeing significant improvements in speed and productivity.

"We are where we hoped we would be at this stage," Adamchik added. "Now we are



Protein pick zone with pick-to-light cells



Swisslog SynQ software

focusing on enhancements and optimizations that can take us even further than our original design vision."

The solution has also removed a potential barrier to continued menu expansion for HelloFresh.

"The solution gives us the flexibility to easily expand the number of ingredients we support without introducing complexity into our fulfillment processes," said Adamchik. "It has brought a new level of flexibility to our North American network."

"When we started, I wasn't sure the vision we had for this distribution center was possible," DeGroot said. "But the solution we developed in partnership with Swisslog has met our objectives and expectations."

"Swisslog has been a good partner that clearly had a vested interest in our success," said Adamchik. "They accepted the challenge of supporting a complex solution and were committed from the beginning to the success of this project."

Facts and Figures

Benefits

▪ **Increased Fulfillment Speed**

The automation solution enables HelloFresh to reduce order cycle times and maintain freshness as volumes grow.

▪ **Increased Throughput**

The high-volume solution has enabled HelloFresh to manage growing demand without compromising customer service.

▪ **Enhanced Inventory Management and Visibility**

HelloFresh now has centralized visibility into all inventory and can manage inventory based on a first-expired, first-out strategy.

▪ **Improved Productivity and Accuracy**

The company has been able to increase productivity while improving accuracy.

▪ **Future Flexibility**

Before the solution was brought online, menu expansions added complexity to fulfillment processes. With the solution, HelloFresh can continue to add new items without increasing fulfillment complexity.

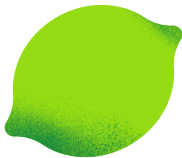
AUTOSTORE SYSTEM

Number of robots	150
Number of bins	29,858
Number of carousel ports for picking	18
Number of conveyor ports for induction	11
Number of quality assurance ports	4
Length of conveyor	6,000 ft.
Carton erectors	4
Protein pick zone with pick-to-light cells	12
Sortation system	
Carton sealing and labeling equipment	

WMS & CONTROLS

SynQ warehouse execution software, which manages warehouse inventory and processes, including order grouping and sequencing and AutoStore bin presentation.

Swisslog conveyor system for light goods.



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