



Baking company implements new tray stacking system using Omron controls to boost productivity and improve employee safety

Saginaw Bakeries is a family-owned company based in Surrey, British Columbia, Canada, that was founded in 1993 and currently employs 87 people at its 34,000-square foot production facility on the outskirts of Vancouver. It produces a variety of doughnuts, cookies, brownies, muffins, sliced cakes and other sweets for roughly 400 customer locations on a daily basis. Given that the departure time for trucks leaving the facility is critical, the time window for producing baked goods for delivery is extremely limited.

During the past few years, Saginaw started investing in high-performance automation systems and equipment to improve productivity and customer service while lowering the risk of repetitive motion injury for its workers.

In one recent project, the company worked with Apex Motion Control and Vital Manufacturing Inc. (both based in Surrey) to develop an automated tray stacker using controls from Omron.

Apex Motion and Vital Manufacturing chose Omron's technology thanks to the complete line of automation products and extensive service channels. Joshua Bradshaw, Vital Manufacturing's president, stated that Omron was the "obvious choice" because "They are one of the only manufacturers that can supply world-class PLCs, HMIs, remote I/O couplers, VFDs (variable frequency drives), servo motors and drives, safety light curtain, vision systems, electronic door locks, sensors and switches - all of which are utilized within the tray stacker system."

Business need

Saginaw Bakery wanted to improve productivity, reduce product damage and eliminate the potential for injury caused by manual tray stacking in delivery preparation.

Unique solution

The company worked with automation solution providers to develop a fully automated tray stacking system using Omron control and safety technologies that can stack any collection of industry-standard bread baskets at a speed of 15 trays per minute.

Customer benefits

The new tray stacking system's speed provided a 25% improvement over the productivity of a three-person stacking crew and allowed these employees to take care of other tasks while also protecting them from repetitive motion injury.

The solution

A fully automated tray stacking system



The need

Saginaw wanted to eliminate the potential for injury caused by manual tray stacking and also improve product delivery times overall, as tray stacking was a major bottleneck during the process of preparing for deliveries. The manual task could also cause product damage if trays were misaligned, so the new system needed to also ensure proper alignment every time.

Before the system was installed, Saginaw would have two or three employees responsible for manually stacking the loaded bread baskets in 96-inch columns and then transfer them onto the trailers using wheeled dollies. Some employees would require stepladders to place trays in the highest position, which created another potential hazard. The manual tray stacking was proving to be both a bottleneck and a safety issue.



The technology

The new, fully automated tray stacking system specifically addresses the needs of bakeries that make daily deliveries to convenience stores and chain restaurants with variations in product quantities and order requirements. The servo-driven system can stack any collection of industry-standard bread baskets at a speed of 15 trays per minute and sort stacks by order and route.

The stacking system uses several Omron 1S servo motors and drives and has an Omron programmable logic controller (PLC) inside it controlling all mechanical functions. Operators can use an intuitive Omron human-machine interface (HMI) terminal to select programs on the machine. Omron's F3SG series light curtains, D4SL door interlock switches and G9SE safety relays are incorporated into the system to ensure operator safety.



The outcome

The new system dramatically smoothed out the production flow thanks to the elimination of manual tray handling, which was a significant bottleneck. This was a highly error-prone stage of production, and inconsistencies in tray stacking could cause customers to receive the wrong orders. The tray stacking solution also eliminated product damage due to tray misalignment and optimized truck loading capacity and sorting.

The tray stacker's speed provided a 25% improvement over the productivity of a three-person stacking crew, and it freed up several employees to take care of other tasks. The new system also allowed employees to avoid repetitive motion to reduce their risk of injury. Apex Motion and Vital Manufacturing found Omron to be a phenomenal automation partner thanks to its open channels of communication, its excellent team of application engineers, and the seamless integration of its built-in EtherCAT network.

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