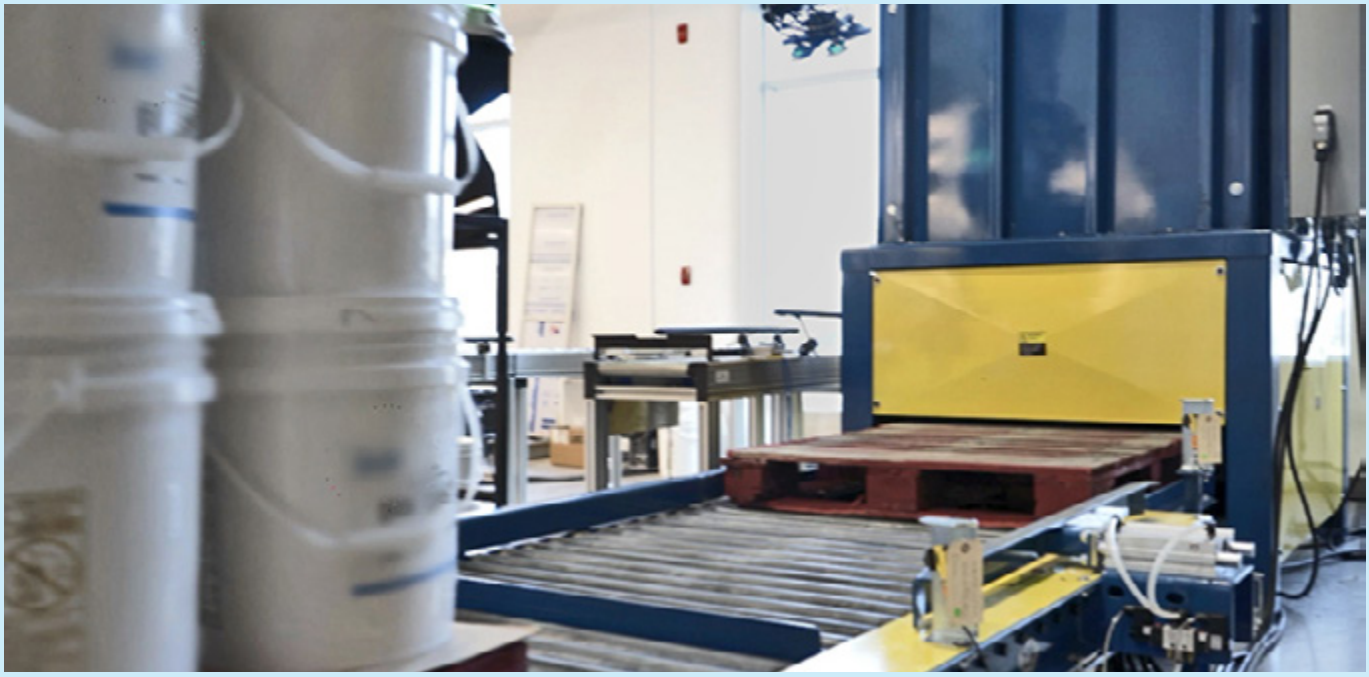
Alba MANUFACTURING

Case Study

Alba Helps Put the Icing on the Cake



Overview

Alba was recently approached by Robotiq, a robotic integrator, to help with a robotic palletizing project where a variety of bucket sizes needed to be palletized. The buckets contained frosting for a bakery company and needed to be palletized prior to shipment on either GMA or CHEP style pallets.

The bakery aimed to automate the process of palletizing, moving away from the manual method of stacking buckets on each side of a pallet. Instead, they wanted to use a robotic system to palletize directly onto the pallet on the conveyor. This company also wanted to avoid allocation of their existing staff to place empty pallets onto the conveyor.

Alba supplied a pallet dispenser to dispense empty pallets and convey them to a robotic pallet build zone where Robotiq use their AX30 palletizing solution. The AX30 is a solution built around the UR30 collaborative robot arm, which is Universal Robot's highest payload arm, able to palletize up to 77 lb. (35 kg).

For this application, the customer needed to move 57 lb. of material per robot pick. While the UR30 has limited reach compared to lower payload robots, Robotiq compensated for this with a "seventh axis" in their solution, allowing the robot to move up and down the "Z" axis to pick and place at its optimal height. Alba provided the conveyor system that spans from the dispenser to the pallet build zone and extends to the fork truck pick-up area. The conveyor was designed with the cobot's limited reach in mind.

The build zone consisted of a CDLR (chain driven live roller) conveyor that conveyed empty pallets to a blade stop and then

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Overview *(continued)*

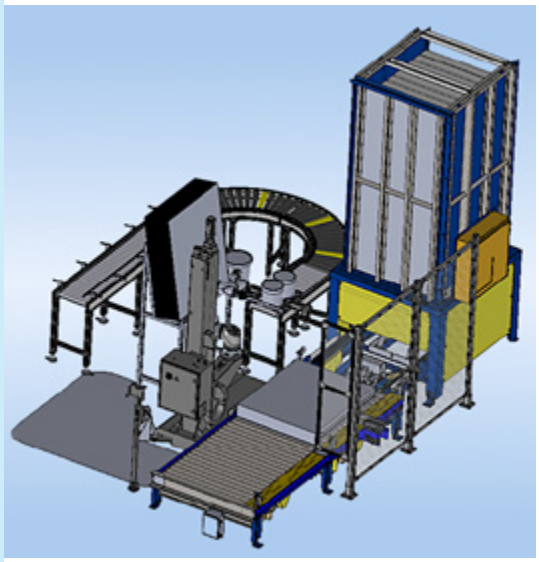
while the pallet was stopped, push the empty pallet to square it against a backstop. This allowed the pallet to be located in a position the robot could identify to begin its palletizing process. In the end, full pallets weighing a maximum of 2,736 lb. would convey to the end of the line for pick-up at a rate of 15 pallets per hour. Alba supplied all the necessary photo-eyes and proximity switches.

When the robot completes loading a pallet, a signal is sent to the pallet dispenser to send the completed pallet downstream to a fork truck pick-up conveyor and to stage another empty pallet at the build zone. The completed pallet would then be picked up by a fork truck before the next pallet build is completed.

The pick-up conveyor was designed for side unloading by a fork truck and featured an ultrasonic sensor to detect whether the fork truck was properly positioned for pick-up. Since there were only two conveyors downstream of the dispenser, Alba also provided the base controls package for this system. This panel included a PanelView 800 HMI (Human-Machine Interface) touchscreen to control the functions of the dispenser, the conveyors at the build zone, and the pick-up zone.

This system allowed for the conveyor cell to operate autonomously during normal operations, with the only exception being the fork truck driver unloading full pallets of finished product. Alba provided zoned conveyors for precise accumulation and repeatable product presentation to the robot.

Robotiq added an interlayer sheet rack for picking and placing two sheets per pallet during the palletizing sequence and provided the safety scanners, wire partitions, and light curtains to separate the palletizing area from the fork truck aisle.



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