For more than half a century, FleetwoodGoldcoWyard (FGW) has been providing advanced conveying, palletizing and depalletizing technology, robotics and process solutions for the food, beverage, personal care, pharmaceutical and household products industries. As a global packaging machinery builder FGW maintains its industry-leading position by continuously innovating to meet market needs. To that end, FGW continues to expand its robotics solutions to help its customers increase their operating efficiency and lower costs.

The company also provides engineering expertise and services from beginning to end, including layout and electrical panel design, programming-code development, technical reviews, line integration and installation. FGW can provide equipment and support for an entire production line, giving customers the cost and time savings of having a single point of contact.

An example of its cutting-edge robotics technology is FGW’s Robotic Automatic Depalletizer. Depending on specific application needs, the Robotic Automatic Depalletizer can depalletize empty or filled aluminum or steel cans, plastic containers or cases. The machine can depalletize and distribute multiple types and sizes of industrial adhesive cans onto conveyors connected to downstream equipment.

With three infeed product lanes, the Robotic Automatic Depalletizer can take three different types of palletized cans from a receiving truck at the same time. When a pallet enters the machine, an automated top frame remover lifts the top frame off the pallet and then stacks it in a bin. The pallet is then conveyed into the robotic cell and delivered to a KUKA Robot. Using an ultrasonic sensor, the robot detects the load’s height and precise position, and uses a full layer magnet to pick and place each layer onto an accumulation table. The layerpad is then placed into a bin. The three types or sizes of empty cans are single filed and then conveyed to three different filling machines downstream.
Unlike conventional depalletizers that handle each load separately, the Robotic Automatic Depalletizer can process three different product loads at one time because the KUKA Robot can quickly reach many different areas within one operation,” said Eric Rohlf of the case palletizing and robotics group at FGW. “This gives customers a smaller, highly efficient, reliable and cost-effective depalletizing solution that easily integrates into existing production lines.”

The Robotic Automatic Depalletizer also allows users to adapt to different production line layout needs, often saving valuable floor space. “We designed this machine with specific customer needs in mind. It’s flexible across a range of floor-space requirements, capable of high speeds to meet or exceed throughput rates, and ultimately improves production line efficiency,” said Rohlf. “This technology can be configured for one or multiple product types.”

Focusing on technologies that deliver high-speed control in a small machine footprint, FGW uses an Allen-Bradley CompactLogix programmable automation controller (PAC) for many types of robotic palletizers and depalletizers. In the Robotic Automatic Depalletizer, the controller tightly integrates with a KUKA robot over the EtherNet/IP™ network to control the robot and make decisions about which infeed lane to take empty cans from at any given time.

The CompactLogix controller provides right-sized integrated motion control while leveraging the unified design and networking environment of the Rockwell Automation Integrated Architecture™ system. This gives users access to the extensive capabilities of the Logix Control Platform and enables seamless downstream communication with other equipment.

“The Robotic Automatic Depalletizer’s design minimizes maintenance because the robot is on a base in the center of three conveyors sitting low to the ground for easy access, cleaning and quality control. The machine also reduces product changeover and troubleshooting time because users can store and recall recipes using the Allen-Bradley PanelView Plus color-screen, human machine interface.

The machine also uses compact Allen-Bradley PowerFlex® AC drives that are tightly connected to the controller via EtherNet/IP, providing multiple axes of complex motion, all on one standard unmodified industrial network. The drives are able to dynamically adapt to the speed of the filler to maintain a steady back-pressure. The use of PowerFlexAC drives on the conveyors allow for gentle starts and stops resulting in predictable product handling as well as reduced strain on mechanical conveyor components.

“The Robotic Automatic Depalletizer is a true testament to our experience in customizing existing standard machine designs using the Rockwell Automation control platform and KUKA Robotics,” said Rohlf. “We successfully integrated technology from three different business units into one solution that saves our customers space, time and money.”

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