

Cartoning machine

Salad made simple



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The allure of packaged salads remains strong. The convenience of this healthy food option makes it accessible and attractive to many, but consumers are also price sensitive. Like others in the food processing industry, packaged salad producers often devote a large portion of their time and financial resources to packing their products by hand. While this may have worked in the past, increasing pressure to maintain low prices and improve production efficiency is motivating packaged salad producers to embrace new technologies in order to remain competitive.



California-based Pro Pack Systems used this knowledge as an opportunity to offer a more efficient case packing solution to packaged salad producers. Pro Pack has delivered advanced end-of-line packaging machines since 1991, with current customers including Taylor Farms, Fresh Express, Earthbound Farm and Dole Fresh Vegetables. Among its specialties are robotic case packers that incorporate state-of-the-art package handling technology.

Innovation with ease

Pro Pack knew that a new case packing solution would have to provide the innovative automation technology that customers have grown to expect, including advanced features for label inspection and package orientation. Yet the machine would also have to be especially flexible and intuitive to operate while remaining price competitive. And so the RoboLoader™ was born. The RoboLoader's extremely robust frame and conveyor are constructed from corrosion- and stain-resistant powder-coated or electropolished stainless steel, offering trouble-free operation and a sleek, hygienic design. A delta robot from Codian Robotics – powered by a B&R control system – runs the case packer and is the key to the machine's flexibility. The robotics platform can handle a wide variety of package styles, pack patterns, payloads and speeds, reducing the time and cost of production changeovers. Whether the operator is running a bag line or a clamshell line, the case packing equipment is very similar in operation. Pack patterns can simply be selected from a drop-down recipe menu on the HMI. Changeovers involve nothing more than switching out guide rails and require no tools whatsoever.

All of these features greatly ease the training burden on machine operators and maintenance staff.

Freedom of choice

The RoboLoader takes a unique approach when it comes to robotics. The open architecture of the Codian robotic solution allowed Pro Pack to choose control components according to specific design needs rather than being bound to proprietary products – as is the case with most off-the-shelf robots. Based on its long track record of innovative solutions, B&R was selected to provide machine control for the RoboLoader. "In the four years that Pro Pack has worked together with B&R," says David Zurlinden, president of Pro Pack Systems, "we have built the full spectrum of secondary packaging machines – including servo and pneumatic case erectors, conventional and robotic case packers and case sealers – all using B&R technology. When this project began it was clear that the new machine would benefit greatly from their expertise."

Pro Pack selected a B&R Power Panel to unite PLC and HMI functionality in a single device. The Power Panel allows integration of the RoboLoader's motion control technology into the same system used for the rest of the machine. Since Pro Pack uses robotics to handle a range of tasks throughout the line, this not only greatly simplified the design but the troubleshooting process as well. Compact, multi-axis servo drives from B&R control the machine's motion and communicate via the real-time industrial Ethernet POWERLINK protocol. RoboLoader's architecture requires less wiring and cabi-

net space than traditional solutions, affording significant cost savings in hygienic environments such as salad processing.

Enhanced programming and diagnostics

Using B&R's Automation Studio development environment, Pro Pack creates highly modular code that makes manufacturers in the food industry even more efficient when using the RoboLoader. This approach produces higher quality software with vastly improved long-term sustainability, thereby decreasing the instances of programming errors, preventing machine downtime and reducing the time and expense of software development. "Using Automation Studio helps us substantially improve integration of machine and robotic control across the line," explains Zurlinden. "It makes life easier not only for Pro Pack engineers but for the machine operator as well."

When a standalone robot is placed in a work cell, the level of integration is often very limited and may entail multiple electrical cabinets with various electrical components and a dedicated robot HMI. This limits the developer's ability to provide operators with useful diagnostic information. With a truly integrated approach, on the other hand, alarms and errors associated with the robot are handled in the same way as any other axis for consistently simple diagnostics across the board. "Our next venture will be robotic palletizing for the salad industry. That market poses challenges for conventional palletizers due to the spatial limitations of their existing production lines, but we are confident that, with B&R as our partner, we'll soon be shaking things up with an innovative solution," concludes Zurlinden. ←

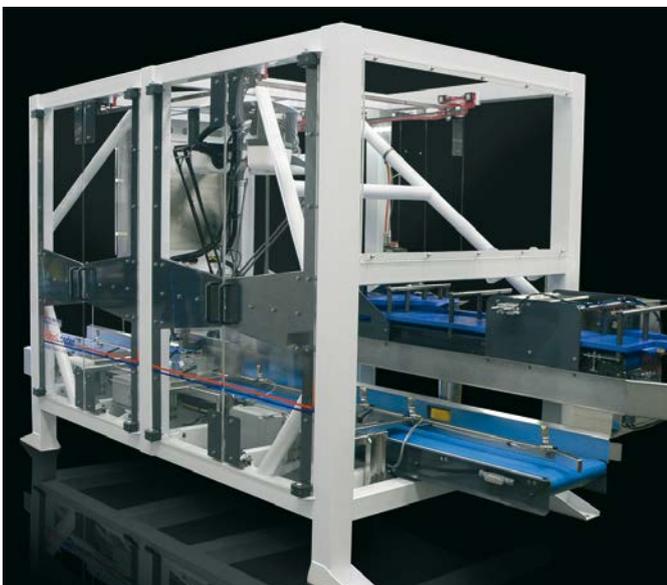


David Zurlinden
President of Pro Pack Systems

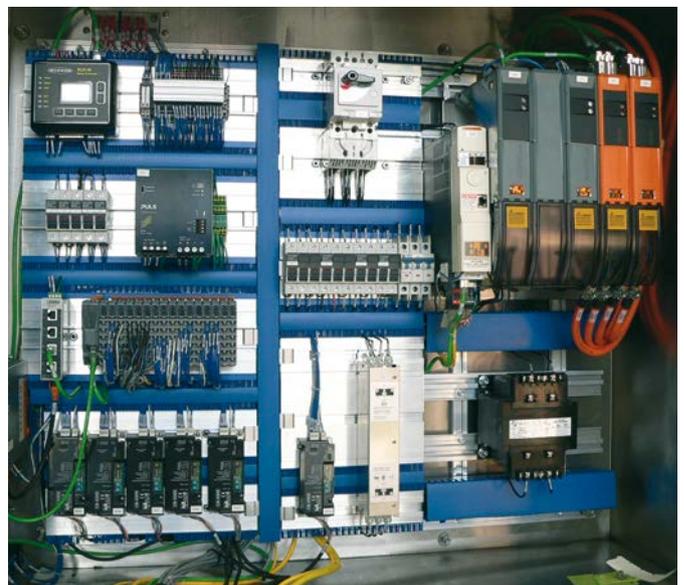
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