

Drive & Control profile

Cartoner features more modularity, less energy use



Rexroth drive and control components allow Z Automation to design and build the most compact machine for the given cartoner application, without sacrificing performance.

Rexroth integrated motor/drive, controls and pneumatic valves help Z Automation's new horizontal continuous motion cartoner provide more flexibility while reducing "carbon footprint"

Z Automation Company, Inc. (Arlington Heights, IL www.zautomation.com) is a leading supplier of cartoning, tray forming/loading, casepacking and robotic end-of-line packaging solutions for food, pharmaceutical, medical device, personal care and non-durables markets. The company is currently deploying a new generation of high-speed

continuous-motion [horizontal cartoners](#) with the latest controls platform, integrated motor/drive system and energy-efficient pneumatic valves from Bosch Rexroth (Hoffman Estates, IL www.boschrexroth-us.com).

"Z Automation machine designs are modular," explained Randy Spahr, executive vice president for

Challenge

Create next-generation horizontal continuous cartoner with high performance and reduced energy consumption/carbon footprint

Rexroth Solution:

- IndraMotion MLC motion logic platform
- IndraDrive Mi integrated motor/drive
- IndraControl VEP CE-based HMI
- TC15 valves
- AS series regulators, QR1 fittings

Results:

- More flexibility, reduced carbon footprint
- Plug-and-play automation
- Less programming/operator training
- High-speed, compact controls
- Faster engineering/start-up
- Reduced wiring, up to 50 percent less panel space
- Bus sharing saves energy
- High flow, low energy compact pneumatics

the company (ZAC). “We design them for easy expansion to help customers respond to changing market conditions and consumer demand,” he said. “Therefore, we need automation components that offer a real plug-and-play capability to support that modularity. With Rexroth’s technology we get more of that functionality compared to other providers.”

Spahr said the new model *CH 7.5 300C* is a six- to eight-axis high-speed servo-driven horizontal continuous-motion cartoner with dual infeed for single or two-count retort food trays. Standard features include fast “tool-less” changeovers in 15 minutes or less. ZAC chose Rexroth’s high-performance SERCOS-based [IndraMotion MLC](#) controller with built-in motion, logic and Flex Profile capabilities, along with the [IndraControl VEP](#) model [PC-based HMI](#) running on Windows CE.

The IndraMotion MLC offers an ideal fusion of motion control, PLC technology and modular function blocks for a new generation of controller-based motion solutions. The touchscreen IndraControl VEP integrates smoothly with the controls and runs on a standard Windows platform, reducing the need for specialized programming and operator training.

Spahr said ZAC uses patented and proven technologies that offer improved product loading solutions. They chose the IndraMotion MLC platform for its compact architecture designed for high scan rates, eliminating the need for additional controllers and supporting the machine’s high-speed continuous-motion profile.

“With Rexroth we can provide more functionality and throughput with a smaller controls footprint and fewer components, and still have the capacity to add more features at a lower cost,” said Spahr. “Plus, using Rexroth not only helps us reduce engineering and system construction time and start-up costs, it also makes it easier to handle system upgrades and changes in the future.”

ZAC’s modular design reduces the machine’s total carbon footprint, resulting in long-term sustainability. For that reason, ZAC also chose Rexroth’s award-winning [IndraDrive Mi integrated motor/drive system](#) with common bus sharing. With the IndraDrive Mi, the drives are integrated with the servo motors and mounted directly on the machine rather than in a control cabinet. A single daisy-chained cable carries both control and power to all the servo axes, so the resources and materials

needed for wiring and control cabinet fabrication are dramatically reduced. Using the IndraDrive Mi, Spahr said their machine design requires up to 50 percent less panel space. The IndraDrive Mi also features integrated bus sharing, where unused power is shared between the servo axes to help to keep the cartoner’s overall power demands to a minimum.

Rexroth’s pneumatic components will also help reduce the system’s energy demand, Spahr said. Lightweight inline TC15 valves allow flexible mounting close to the work application to reduce tubing and airflow resistance while offering quick response times.

Spahr said Rexroth’s open automation technology and focus on modular solutions helps ZAC develop better equipment. “Rexroth’s plug-and-play technology is much more modular, taking up less space and using fewer components. This really allows us to design and build the most compact machine for the given cartoner application, without sacrificing performance. And that’s huge for us.”

Rexroth
Bosch Group