

Thermoformer Packaging Machine Provides Best-In-Class Performance with Reliable L Series PLC Control

SOLUTION

- L Series Modular PLC
- CC-Link IE Field
- MR-J3 Servo
- E700 VFD

ADVANTAGES

- High-performance operation
- Increased reliability
- Improved modularity

BENEFITS

- Expandable design
- Flexible machine control
- Comprehensive warranty



“The i-Series Thermoformer runs on a very stable and proven control platform helping to provide customers with the flexibility they need.”

- Tom Fritz, VC999 Packaging Systems

Challenge

When VC999 Packaging Systems developed their i-Series Thermoformer in 2009, a unique and innovative design concept was unveiled to deliver high performance operation. Strict specifications were in place for new features that would make the i-Series more flexible and easier to use for the thermoforming process that creates plastic trays or blister packages for the food, medical, or general retail industries. New technologies involved an automated servo-driven in-feed roller, a two stage die-lift station, and an integrated machine safety network that would provide customers with one of the most advanced thermoforming systems on the market. During the design phases of the i-Series Thermoformer, VC999 was adamant that a high-speed, cost-effective Ethernet-based fieldbus network be used to provide the interconnectivity between machine segments. A comprehensive warranty also commanded the use of best-in-class, reliable automation control equipment.

Background

As part of the Inauen Group headquartered in Herisau, Switzerland, VC999 Packaging Systems' U.S.A. facility celebrated its 25th year of sales, manufacturing and service in 2011. The innovative i-Series is a testament to VC999's leadership in the design of advanced packaging machines. Facing the universal challenges to easily provide optional features and modify machine length, VC999 elected a modular design, which would also allow individual sections to be disassembled for transportation and cleaning. The modular design would include three main segments; Form, Seal, and Discharge, each with their own control enclosures. And to meet their needs for interconnectivity, high-performance operation, and reliable control, VC999 conducted in-depth interviews with a number of industrial automation control vendors.

Solution

With the release of the new L Series modular Programmable Logic Controller (PLC) in 2009, Mitsubishi Electric Automation was able to offer an attractive solution to VC999 Packaging Systems. The PLC provided a versatile rack-free design to allow for future expansion while including connectivity over CC-Link IE Field, the industry's first and fastest 1 Gigabit per second Ethernet-based network. The high-performance L Series PLC came with a 3-year warranty to satisfy VC999's reliability requirement, and it would also enable the implementation of an all-inclusive safety system.

Power Motion, Inc., a long-time strategic partner and industrial automation parts supplier to VC999 in the area, provided insight regarding the integration of L Series with Mitsubishi's MR-J3 servo motors and E700 Variable Frequency Drive (VFD) products. The servos would provide index control for the discharge station while the VFDs would provide the trim wind up motor control. It was the combination of these products that would help bring the i-Series design concept to life. The L Series' single-CPU architecture was ultimately chosen as the control platform for the i-Series Thermoformer machine.

Results

The i-Series Thermoformer from VC999 Packaging Systems successfully integrates Mitsubishi Electric's reliable L Series control system supporting industry-leading Gigabit Ethernet speeds. According to Tom Fritz, Electrical Engineering Manager at VC999, "The i-Series Thermoformer runs on a very stable and proven control platform helping to provide customers with the flexibility they need." Mitsubishi Electric's CC-Link IE Field industrial network improved the overall equipment effectiveness of the i-Series machine through its fast speed, and has further resulted in reduced wiring and installation efforts. As a system that comes complete with safety elements, a modular design, and flexible configuration options, the i-Series Thermoformer is a best-in-class packaging solution that ships with a comprehensive 2 million cycle warranty.



The i-Series High Performance Thermoformer from VC999 Packaging Systems is powered by Mitsubishi Electric's L Series PLC and utilizes the 1 Gbps Ethernet-based CC-Link IE Field industrial network.

