

CMD Corporation Has Customer Expectations in the Bag

OEM Improves Bag-Making Process with Logix Control Platform and Kinetix Integrated Motion

Solutions

- Allen-Bradley CompactLogix programmable automation controller – Controller for small to midrange applications helps OEM meet cost target with same high performance of Logix control platform
- Add-On Instructions with Rockwell Software RSLogix 5000 programming software – Customized, reusable code simplifies programming, helps reduce development time, and improves design consistency
- Kinetix Integrated Motion, including Allen-Bradley Kinetix 6000 servo drives featuring a SERCOS interface plus MP Series servo motors and 1326AB servo motors with Smart Motor Technology – Integrated discrete and motion control helps improve machine performance, and reduces wiring and components
- High resolution encoders – Helps improve machine performance with higher servo loop gains and tighter velocity control
- Allen-Bradley PanelView Plus operator interface terminals – Allows maintenance personnel to monitor in real time and diagnose problems

Results

- Reduced wiring and components – Integrated control platform helped reduce wiring by 25 percent and number of components by 20 percent
- Faster assembly and commissioning time – OEM reduced machine assembly time by 10 percent and commissioning time from five days to less than two days
- Ease of use – Diagnostic capabilities through Logix control platform and Allen-Bradley PanelView interface help ease maintenance activities and reduce support needs
- Improved machine performance – Kinetix integrated motion solution provided reliable and repeatable performance that helped save downtime, achieve higher throughput and improve product quality



CMD Corporation implemented Rockwell Automation solutions to address cost, quality, time and usability challenges in developing its 5213ED Rotary Bag Machine.

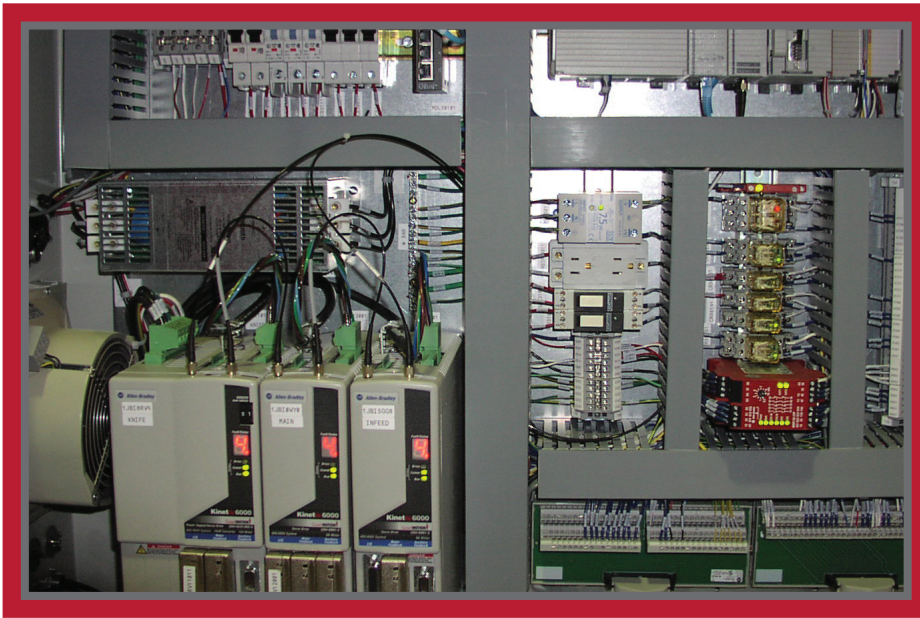
Background

Experts estimate that the world uses 500 billion to one trillion plastic bags each year. With a market this large, the companies producing plastic bags are sprinting to keep pace with consumption rates. CMD Corporation makes a full line of machinery for the manufacturing of plastic trash bags, and is committed to providing machines that will help its customers become more competitive and profitable.

Challenge

Three factors remain in constant tension when developing machines – cost, quality and time. CMD Corporation has taken on the difficult objective of improving and ultimately conquering all three. Furthermore, the company's customers also desire machines that are simple to operate with minimal downtime, leading CMD Corporation to take on a fourth objective: ease of use.

“We strive to design the most intuitive equipment,” said Paul Johnson, senior electrical engineer, CMD Corporation. “This improves the manufacturing process for our customers so they can get production up and running quickly, operate their machine at faster rates, and deliver a consistently high-quality end product. The challenge for us is to provide all of this value without increasing the machine's final selling price.”



Kinetix Integrated Motion integrates seamlessly with Allen-Bradley Logix controllers.

and I/O modules. The seamless connectivity also allows for improved diagnostic information. Additionally, the servo motors use Smart Motor Technology, which provides automatic identification of correct motor-to-drive connectivity, helping to reduce commissioning time.

Allen-Bradley servo drives and motors use high resolution encoders to electronically monitor the position and velocity of the axes. The encoders are embedded in Rockwell Automation products to help optimize overall system performance and ease of use. For CMD Corporation, the encoders allow higher servo loop gains than lower resolution encoders, helping improve accuracy and flexibility of the bagging machine's motion control for increased productivity.

Also, improving the usability of the bagging machine, CMD Corporation implemented an Allen Bradley PanelView™ Plus operator interface, allowing maintenance personnel to monitor the servo axes in real time, and to identify and diagnose any problems.

“All of our new control, motion, networking, visualization and information technologies are part of the Rockwell Automation Integrated Architecture™,” said Johnson. “Having a fully integrated and scalable automation solution was the primary enabler for us to address cost, time, quality and usability challenges.”

Results

With a single, integrated control platform, CMD Corporation reduced the amount of wiring on the 5213ED by 25 percent and the number of components by 20 percent. Overall, the company reduced assembly time of the machine by 10 percent. Commissioning time of the machine – from power-up to a complete first cycle – also improved from approximately five days to less than two days.

Because CMD Corporation customers have improved diagnostics through the Logix control platform and the PanelView operator interface, the new 5213ED is easier to understand and operate, and helps reduce their need for field support. In fact, no installation or start-up support was required for these first-of-a-kind machines. Since the first five installations of the

CMD Corporation met this challenge when it sought to improve its 5213ED Rotary Bag Machine, which converts plastic film from an extruder into rolls of perforated bags including trash bin liners and grocery produce bags. The company worked with Rockwell Automation to find a solution that would address the need to improve performance quality and usability, reduce delivery time, and lower the total cost of the machine.

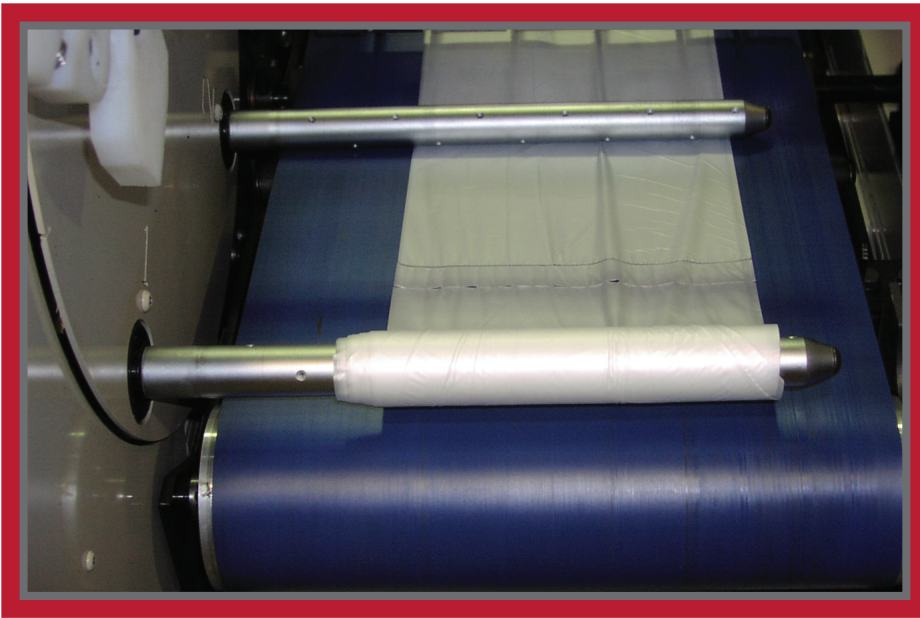
Solution

In the past, CMD Corporation had success using the Allen-Bradley® ControlLogix® programmable automation controller (PAC) from Rockwell Automation, and wanted a similar platform that would be energy- and cost-efficient for the three-axis 5213ED. It selected the Allen Bradley CompactLogix™ PAC, a controller in the Rockwell Automation Logix controller family designed for small to midrange applications. The high-performance capabilities and availability of EtherNet/IP™ connectivity made the small controller an especially attractive choice.

Because all controllers in the Logix control platform use Rockwell Software® RSLogix™ 5000 programming software, CMD Corporation quickly configured the machine's control sequence. The OEM took advantage of the software's latest feature – user-defined Add-On Instructions – which provided the ability

to develop custom, reusable code modules that simplified the programming process for each axis and improved design consistency. Additionally, the inhibit features of RSLogix 5000 gave CMD Corporation the ability to create one version of the application program for all machine options, including options that require adding I/O modules or additional servo axes. This helped eliminate the need to maintain multiple versions of the program. The software also provided CAM simulation and trending capabilities that helped the machine builder predict functionality and optimize performance before the machine ever reached the plant floor.

In addition to the controller, CMD Corporation implemented Kinetix® Integrated Motion from Rockwell Automation, which features the seamless integration of Logix controllers, servo drives, servo motors and actuators. Allen-Bradley Kinetix 6000 servo drives, Allen-Bradley MP-Series™ low-inertia servo motors and Allen-Bradley 1326AB medium-inertia servo motors are used to control the velocity, torque and positioning of the infeed, sealing and perforating mechanisms of the machine. Because motion control is integrated into the Logix platform over a SERCOS interface, the drives and motors require less wiring and supporting hardware such as fuses, contactors, resistors, filters, wiring



The solutions from Rockwell Automation help provide reliable and repeatable performance for CMD Corporation's customers.

redesigned machine, CMD Corporation engineers have received only one customer support call to simply clarify one of the machine's functions. This represents a reduction of 200 percent in support calls.

Additionally, the Kinetix Integrated Motion solution has helped improve machine operation with a dependable process that helps save downtime, achieve higher throughput and improve product quality.

“In the end, it's about helping our customers' processes to be more reliable, and consistently meet production and quality targets,” said Johnson. “Rockwell Automation solutions have helped us meet these goals.”

The results mentioned above are specific to CMD Corporation's use of Rockwell Automation products and solutions in conjunction with other products. Specific results may vary for other customers.

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