

Solutions in Action



Allen-Bradley CompactLogix
Programmable Automation Controller



Allen-Bradley Kinetix 2000
Multi-Axis Servo Drive



Allen-Bradley Kinetix 6000
Multi-Axis Servo Drive



The integrated system is based on the MK-BIB autoloader cartoner (upper image) and TR-QCP Transrector robotic case packer (lower image).

When a leading manufacturer of powdered baby formula required secondary packaging equipment for their Jakarta, Indonesia facility, they turned to an innovative supplier half a world away. Ontario-based AFA Systems provides custom engineered and fully integrated end-of-line packaging solutions to meet exacting – and oftentimes unique – specifications.

AFA Systems’ portfolio extends from horizontal and vertical cartoning and case packing machines to palletizing and specialty solutions. The machine builder has been serving the food and beverage, pharmaceutical and consumer packaged goods industries for more than 60 years.

The company’s Jakarta customer required a two-fold packaging system for its powdered milk application: an integrated cartoner and case packer. AFA Systems delivered a solution based on its new **MK-BIB autoloader cartoner** and **TR-QCP Transrector™** robotic case packer.

As bags of milk powder come off two vertical form fill seal (VFFS) machines, it enters the MK-BIB cartoner’s dual servo starwheel infeed system. At a rate of 150 cartons a minute, the bags are accurately placed in continuous motion buckets, which then load the point-of-purchase cartons. After sealing, the cartons travel downstream via a 10-foot conveyor to the case packer.

At the TR-QCP case packer, cartons are choke-fed to a servo-driven starwheel upender. The upender correctly positions the cartons for loading, and a robotic end-loading tool places the cartons in the case. Unlike typical end-of-arm tools (EOAT) that use vacuum generators and compressed air to pick and place cartons, this device utilizes a clamp mechanism. Since the tool does not use compressed air, it saves a significant amount of energy.

LISTEN.
THINK.
SOLVE.



The cartoner's overhead barrel cam loader and sliding style buckets help ensure positive loading.

"Machine flexibility was the most challenging aspect of the project," explained Eric Langen, sales and marketing representative, AFA Systems. "We had to build a solution that could handle multiple packaging parameters and materials."

On the cartoning equipment, the system accommodates two sizes – one for 400 grams of product delivered in one bag and the other for 1800 grams of product delivered in two 900-gram bags. In addition, the machine can run chipboard cartons for the smaller packages and corrugate for the larger ones. The case packing equipment is equally flexible and can deliver either six or 24 cartons per case.

"To optimize throughput, our customer required a very short changeover time between configurations," Langen said. "They also needed to conserve space on their plant floor."

A Rockwell Automation control and information solution enabled AFA Systems to achieve application flexibility – in a small footprint. An Allen-Bradley® ControlLogix® programmable automation controller manages all machine and motion functions. For motion synchronization, the controller is tightly integrated with Allen-Bradley Kinetix® 6000 and Kinetix 2000 multi-axis servo drives. Allen-Bradley Guardmaster® safety relays help provide machine and personnel protection. The system is integrated on EtherNet/IP™ and monitored on PanelView™ Plus 700 graphic terminals.

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"The compact servo technology helped us significantly reduce size," said Langen. "Our system's minimal footprint was a key differentiator for us."

Impressive changeover times also set AFA Systems apart. While typical machines require 40 to 50 minutes for changeover, this custom solution can complete the process in less than half that time.

"Operators can make most of the adjustments right through the control system's human machine interface (HMI)," Langen explained. "As a result, our machines achieve some of the fastest changeovers in the industry. We can build systems that are ready to run new product in two minutes."

With the initial installation in place, AFA Systems plans to expand the customizable solution to its home market in North America and other regions around the world.

"Globally, Rockwell Automation is a recognized and respected brand," said Langen. "As a Rockwell Automation Machine Builder Partner, we've standardized on Rockwell Automation systems. That gives our large, multinational customers added confidence – wherever their plants are located."

For more information:

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