

Solutions in Action



**Rockwell
Automation**

**Machine Builder
Partner**



Allen-Bradley ControlLogix L71
Programmable Automation Controller



Allen-Bradley Kinetix 5500
Servo Drive



Allen-Bradley PanelView Plus 700
Human-machine Interface



The HD-CMA Continuous Motion Autoload Cartoner from AFA Systems.

A sleeve of crackers or packet of medicine goes through a long process before reaching the last phase of production. Ingredient procurement, food processing and primary packaging all lead to product cartoning. Throughout this progression, food and beverage manufacturers invest heavily into each product, and they don't want product cartons to be damaged right before they leave the plant floor to be sold. The product must be handled with care and efficiency, and be in the right orientation for carton loading.

Carton sizes vary due to the variety of product coming down the line. Bottles of contact solution may come in a package of two, but tablets may be grouped in packs of 10. Any delays from machine changeover can slow production – and add unnecessary costs.

AFA Systems, headquartered in Brampton, Ontario, designs and delivers customized end-of-line solutions for palletizing, cartoning and case-packing applications. Its advanced machines provide flexibility in package and carton sizes for global manufacturers in food and beverage, pharmaceutical, nutraceutical and household product industries. AFA Systems' machines feature Allen-Bradley® controllers and servo drives from Rockwell Automation to help significantly reduce changeover time.

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To meet the specific needs of a potato chip producer, AFA Systems recently developed the HD-CMA Continuous Motion Autoload Cartoner. The machine provides low-risk and reliable cartoning with an efficient infeed system, and end-loads the chip bags into glue-style cartons.

At the infeed, the product is timed into the servo pack through a series of metering belts. Dual servo-pack infeed conveyors accurately collate the bags at a high speed.

The new cartoner uses a Codian Delta 3 robot to automatically place bags onto a continuous motion bucket conveyor. Codian is a Rockwell Automation Encompass™ Product Partner.

The robot and the rest of the machine's actions are controlled by an Allen-Bradley ControlLogix® L71 programmable automation controller. The single control platform for both sequential and motion control helps simplify operation and maintenance.

Simultaneously, a rotary feeder opens the cartons. The feeder is equipped with Allen-Bradley Kinetix® 5500 servo drives and VPL low-inertia servo motors, which precisely manage the equipment's motion axes. The cartons are then glued at the bottom and ready for the chip bags.

A barrel cam loading system uses a series of pushers to more smoothly move products into cartons. The HD-CMA machine can run 320 products per minute, cartoning one bag of chips per carton.

"The machine's continuous motion design allows our customers to run the machine at higher speeds, increasing their productivity and potential profitability," said Paul Langen, president, AFA Systems.

In addition, bags of chips typically come off vertical form-fill-seal machines bigger than the cartons. AFA Systems designed an overhead confining system, which more securely confines the bag on the top and side. At loading, two walls of the bucket come in to hold the bag, and the bag is slotted into the cartons with greater efficiency and less risk of product damage. Cartons are then manually boxed.

The cartoner also has a fall-through design so product spills fall directly onto the floor instead of being caught in the machine. Plant floor staff can more easily clean and wipe down the machine and surrounding area, without needing to go directly into the machine's components. Staff can also manage and monitor all machinery operations from an Allen-Bradley PanelView™ Plus 700 human-machine interface.

AFA Systems has been a Rockwell Automation OEM Partner since AFA's founding in 2001 – the machine builder relies on the expertise and support the company provides.

"We increasingly ship our machines worldwide, including recent entries into the Australian and Chinese markets. Knowing that Rockwell Automation provides global support for products helps us feel more secure that our customers will have local support whenever they need it," said Langen.

For more information:

Eric Langen

Sales and Marketing Representative

AFA Systems, Inc.

Phone: 905.456.8700, Ext. 244

Email: eric.langen@afasystemsinc.com

Website: <http://www.afasystemsinc.com>

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www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846