

Subject: Cartoner	Product: MP2300/SGDV	Doc#: AO.MCD.06.050
Title: Application Overview: Cartoner		

Cartoner

Application Overview

Although its main purpose is simple to understand, a cartoner is the summation of a number of individual processes that all must be coordinated in order to successfully insert a product into its packaging container. Used largely in food and beverage industries, the cartoner is applicable to a variety of products ranging from inserting pouches of food product into a box, to inserting pharmaceutical bottles into their shipping container. While the cartoner was mainly a mechanical contraption in yesteryear, today's cartoner is an automated, synchronized machine capable of high-speed and integrated operation.

Application Challenges:

- Reduced Mechanical Components – eliminate mechanical components to achieve fall-through design and eliminate mechanical slippage and stretch
- Synchronized Motion for all Axes – coordinate all motion of the feed belts, flap tuckers, carton feeder, and loaders for high speed throughput
- Quick Product Changeover - flexible motion controller to store and create variable product sizing selectable through HMI interface
- Increased Throughput – coordinate axes for faster continuous motion
- Reduced Downtime – offer greater uptime by streamlining the application process, eliminating mechanical breakage, and reducing product changeover time

Yaskawa Products:

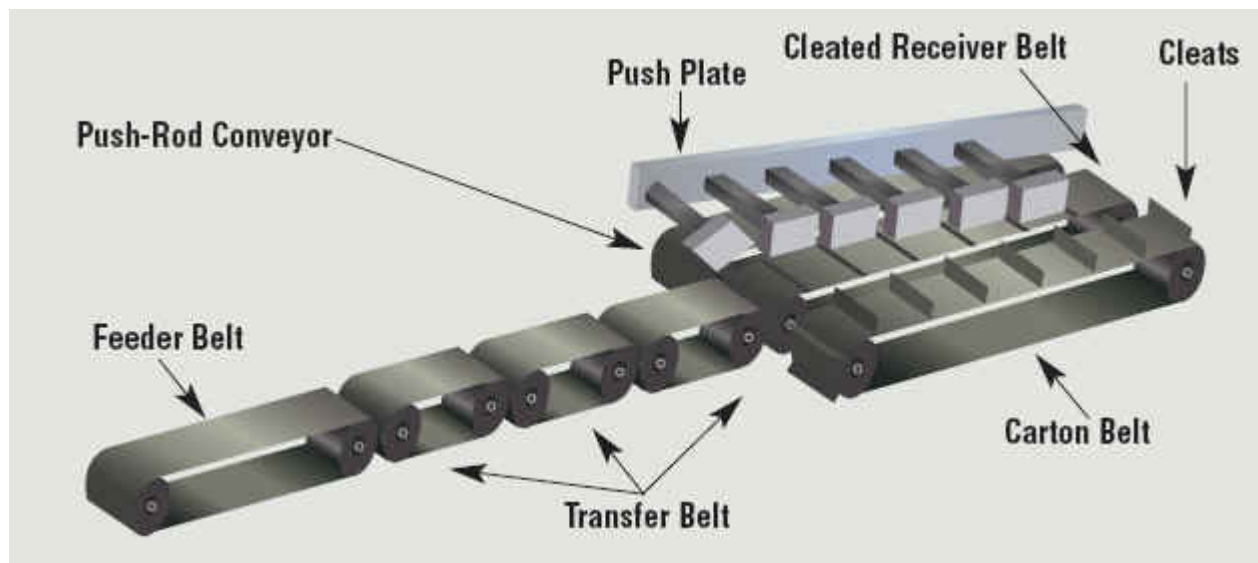
Product	Feature	Benefit
MP2300 Motion Controller with SGDV Amplifier	Up to 48 axes of control	Central point of control for all axes
	Electronic camming and gearing	Synchronized control of all axes for increased throughput and reduced downtime
	High-performance Mechatrolink-II motion network	Reduce mechanical components by integrating all coordinated motion

Application Details:

The cartoner operates as an inline process of a packaging line. Product is fed into the cartoner by an in-feed conveyor that places the product into pockets. Either the in-feed conveyor must synchronize the product to the cartoner pockets or the cartoner must adjust to the product position. When product is detected, the cartoner grabs a carton from a magazine and places the carton into a pocket on the carton belt. As the carton is placed on the belt, the rear flaps of the box are closed and sealed. The carton and the product are then transferred down the belts together and a mechanism pushes the product into the carton. After placing the product in the

Subject: Cartoner	Product: MP2300/SGDV	Doc#: AO.MCD.06.050
Title: Application Overview: Cartoner		

carton, the cartoner folds one of the top flaps of the carton and applies glue through a glue applicator that is activated by a programmable limit switch function. This glue applicator places the precise amount of glue on the carton prior to feeding the carton through the final flap fold and on to the next process.



The cartoner utilizes the carton belt as the master axis to drive the remaining axes. In-feed conveyors align product to the carton belt pockets, cartons are placed in synchronization with the carton belt pockets, the push plate pushes product in synchronization with the carton belt pockets, and the flap tuckers and glue applicators are all run based off the position of the carton on the master carton belt. This application lends itself to one central point of control that is capable of gearing and electronic camming to control and synchronize multiple axes for high throughput.

Incorporating the Yaskawa Sigma-5 line of servopacks and servomotors introduces the highest quality servo equipment in the industry to increase performance and reduce downtime. In addition, Yaskawa motion controllers can be integrated into larger control systems using a variety of communication interfaces to provide ultimate connectivity and more complete Yaskawa solutions.