



YASKAWA

Snack Food Package Collator

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A world leader of snack food production was in the process of upgrading their packaging lines using BluePrint Automation's "Flexible Bag Collators".

BluePrint Automation (Colonial Heights, VA) is a world leader in the design and manufacture of automated case packing systems for flexible bags. Their machines feature open design, proven efficiency, minimal maintenance, and quick and easy changeovers. They provides state-of-the-art solutions on the leading edge of technology. Historically, BluePrint Automation used Servos or high performance AC drives on the Flexible Bag Collator. The servo controllers are used for high performance machines while the AC drives were used on the slower machines.

While working on this project, BluePrint Automation learned their customer had standardized on Yaskawa Adjustable Frequency Drives. Working with their local Yaskawa Authorized Distributor, BluePrint Automation decided to put the Yaskawa drive to the test.

The Flexible Bag Collator takes bags of product lying horizontally on an infeed conveyor and orients them vertically, positioned precisely next to each other, on a discharge conveyor for easy packing in a box for shipment. Upon exiting the bag maker, the bags arrive via a side adjustable chute on an inclined belt conveyor. At the end of the conveyor, the bags are fed into a patented indexing wheel which positions them vertically on a discharge conveyor. The operator then picks up a row of bags from the discharge conveyor and places them into pre-assembled cases.

The indexing wheel had to start and stop in precisely the right position to "grab" the next bag and place it properly on the discharge conveyor. The discharge conveyor then had to start and stop precisely to match the timing of the indexing wheel and not leave any gap between bags. The stop positions for both motions must be precisely repeatable to prevent jamming of the machine, product damage, or gaps in the packaging of the boxes. This project required speeds up to 120 bags/minute or 2 cycles per second.

The fast cycling this application performs, required the use of a dynamic braking circuit on the drive to shunt the regenerative energy. With the drive's built-in dynamic braking transistor circuit, only a small external resistor was needed to provide the braking necessary to stop the load on time every time.

The small size and low watts loss allowed the drive to fit in the NEMA 12 control box on the machine with the PLC and braking resistors.

Using the documentation shipped with the drive, BluePrint Automation had no problem setting the drive up and running it correctly the first time they laid eyes on it.

Performance of the Yaskawa drive was the deciding factor. The V series drive, running in an open-loop vector mode, met the position cycling performance requirements without the need for speed feedback from the motor. While other adjustable frequency drives, even so-called "Vector Drives" were unable to perform repeatable starts/stops in the required time frame, the Yaskawa drive passed this test with flying colors.

While the performance was impressive, "the frosting on the cake" was when BluePrint Automation received the bill. The Yaskawa vector drive cost less than most volts-per-hertz drives presently on the market.

This combination of superior performance, ease of use and low cost has prompted BluePrint Automation to look to Yaskawa for all their adjustable frequency drive needs.