

## CANDY COMPANY DELIGHTS IN ROBOTS' SWEET SUCCESS

The New England Confectionery Company (NECCO®) dates back to 1847 and is the oldest multi-line candy company in the United States. It manufactures a variety of timeless candy classics, including NECCO Wafers®, Sweethearts®, Mary Janes®, Clark®, Haviland and Sky Bar® from its world headquarters in Revere, Mass., just north of Boston. The company employs approximately 500 people and runs 16 production departments covering 30 product lines from its new, state-of-the-art, 816,000-square-foot facility. NECCO candy products, which include chocolate, sugar lozenge, jujy, gummy, caramel, taffy and malted milk balls, are packaged in bulk, pegboard bags, laydown bags, gift boxes, tubs and bars, and are distributed nationwide to mass merchandisers, chain drug, convenience stores, supermarkets, wholesalers and distributors.

The company's number one selling item is NECCO Assorted Wafers, which rank in the Top 10 in the non-chocolate count good category. It is best known, however, for its Sweethearts® Valentine Conversation Hearts, producing an estimated eight billion every year. With such a demand for the tiny sweet treats, NECCO needed to streamline the process for boxing the candy hearts, which was time-consuming and labor-intensive.

### **Production Hits a Sour Note**

The packaging of NECCO's Sweethearts was a two-step process. Boxes were filled by a vertical cartoner at the rate of 500 boxes per minute. The boxes were collected in cartons and staged, creating work in process. Finished good packaging was an offline process. The cartons of boxes on a pallet were transported to a pack line. Boxes were dumped onto a chute where two people loaded them into a feed magazine. Each person was responsible for two stacks of boxes, ensuring that the boxes were properly oriented. The system placed four boxes onto a belt, which fed the shrink wrapper.

If the finished good was an eight pack – two layers of four boxes – two additional people were required to build the second layer. The boxes proceeded through the shrink wrapper and tunnel, and then would be passed under a labeler where a nutritional label was automatically applied. If a label was needed on top of the package, it was flipped over by another person and a label was hand applied.

“We needed to find a way to create a continuous process that would reduce handling by eliminating work in process and hand feeding boxes on the pack line,” said Frank Russo, industrial engineering manager, NECCO. “We also looked at how we could improve wrapper speed and carton matching while also reducing labor costs.”

### **A Satisfying Solution**

NECCO researched and evaluated several robotic and mechanical alternatives for collating boxes from the cartoner and automatically feeding the shrink wrapper. Russo worked with JLS Automation to select an appropriate robotic option from ABB Robotics that could meet pack pattern and speed requirements. Plus, the robot needed to provide flexibility to accommodate future production needs, including varied packing configurations.

“The NECCO sales team developed a new 12-pack product that would have been a major issue for a mechanical solution to handle, which may have delayed production,” said Craig Souser, JLS Automation. “With the ABB robots, it only required us adding another recipe to the program and we were up and running the same day.”

NECCO installed two ABB IRB340 SA (wash-down version) FlexPicker Robots in one line. The robots are used to make carton filling and packaging a continuous process. The tiny conversation hearts are filled on a vertical cartoner. One-ounce boxes of hearts are transferred from the cartoner to a conveyor that feeds the robots. Boxes are oriented depending on the type of wrap used, either shrink wrap or flow-wrapped hanging bags. A series of accumulation conveyors transports boxes from the cartoner to the robot cells. The conveyors are used to accumulate boxes and create a buffer and control the flow of product from the cartoner to the wrappers. A metering conveyor ensures that a consistent gap is created between boxes as they go through the pick and place robot cells. Two robots pick up boxes from the metering conveyor in groups of three or four depending on the pack run. The robots then place boxes on the wrapper’s in-feed conveyor in the desired configuration.

### **A Treat for All to Enjoy**

In the nine months since the robots have been in operation, NECCO has reported a significant increase in production for all products run on the line. "Depending on the product, production doubled for an eight pack and quadrupled for the four pack," said Russo. "This far exceeded our expectations."

In addition, labor costs were also significantly reduced. "The benefits to our department have been enormous," said Supervisor Maribel Caban. "The ABB robots have increased throughput, reduced costs and we have been able to automate the entire process."

With the assistance of robots, NECCO is poised to continue its rich history of candy making and ensure its conversation hearts remain a Valentine's Day tradition for years to come.

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