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Photos Necco



The IRB 340 picks up four packs of Sweethearts at a time, orienting the boxes depending on the wrapping used.

# Sweetheart deal

**When it comes to packaging America's favorite Valentine candy, manual production wasn't cutting it. In order to get out 8 billion pieces per year, it takes a sophisticated automated solution.**

> There are few people in America, whether aged 3 or 103, who haven't eaten candy from the New England Confectionery Company (Necco). The producer of timeless classic sweets such as Necco Wafers, Sweethearts and Mary Janes and Clark, Haviland and Sky Bar chocolate bars, the company has been around since 1847.

The company's number one selling item is Necco Assorted Wafers, which rank in the Top 10 in the non-chocolate count goods category. It is best known, however, for its Sweethearts Valentine Conversation Hearts, producing an estimated 8

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.

**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," says Frank Russo, industrial engineering manager, Necco. "We also looked at how we could improve wrapper speed and carton matching while also reducing labor costs."

**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



## >FACTS

### New England Candy Company at a glance

- Founded in 1847, the New England Candy Company (Necco) is headquartered in Revere, Mass., just north of Boston
- Employs approximately 500 people
- Runs 16 production departments covering 30 product lines from its new, state-of-the-art, 816,000-square-foot facility.
- Products include chocolate, sugar lozenges, jujus, gummies, caramel, taffy and malted milk balls.
- Packaged in bulk, pegboard bags, laydown bags, gift boxes, tubs and bars
- Distributed nationwide to mass merchandisers, chain drug, convenience stores, supermarkets, wholesalers and distributors
- [www.necco.com](http://www.necco.com)

### JLS at a glance

- Founded as JL Souser in 1955 by Joseph L. and Polly Souser
- Based in York, Pennsylvania in the U.S.
- Focused in three primary areas – Printing Press Automation, Packaging Systems, and Robotic Systems. Core competencies of the company include motion control, robotics, and vision
- [www.jlsautomation.com](http://www.jlsautomation.com)

### Automation advantages

- Boost in production – doubled for eight-packs and quadrupled for four-packs of candy hearts
- Reduction in costs
- Flexibility means that handling of a new 12-pack product could be programmed and up and running within a short time, compared to a mechanical solution
- Employees formerly taking care of manual packaging and handling can focus on other strategic areas

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,” says 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 (.02 kg) 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.

**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,” says



“Depending on the product, production doubled for an eight pack...”

Frank Russo, Necco

Russo. “This far exceeded our expectations.”

In addition, labor costs were also significantly reduced. “The benefits to our department have been enormous,” says 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. 🍬