CASE STUDY

SHUTTLEWORTH

Production Up / Defects Down for Schwartz Brothers Bakery

EXECUTIVE SUMMARY

Pumpkin cream cheese muffins, white-chocolate raspberry mouse, cherry crostata and triple-chocolate velvet cake are but a few of the signature, fresh-baked delicacies that Seattle's Schwartz Brothers Bakery has been cooking up for consumers over the past 33 years. Schwartz Brothers is not only an established icon in metro-Seattle, its confectionary influence is felt throughout the entire Pacific Northwest where it services approximately 500 locations including restaurants, hotels, schools, department stores, food service operators, and military installations. Operating from their 35,000 square-foot production facility in Seattle, with an additional 14,000 square-foot satellite facility in Vancouver, Washington, the bakery produces a full line of enticing products including pies, scones, muffins, desserts, cookies, croissants, pastries, breads, rolls and cakes – more than 100,000 items baked from scratch daily.

Customer Challenge

In the 1990's, Schwartz Brothers upgraded its product manufacturing equipment to keep up with increasing demand: such as the latest in vertical, spiral, horizontal and reciprocating-arm mixers; a four-piston batter depositor for muffins and breads; a bread and roll machine; automated make-up tables; and rack and utensil washers. But, the original packaging line was not upgraded, and has been increasingly unable to keep up with improvements in production volume.

Introduction to Schwartz Brother's Bakery

Until recently, Schwartz Brother's packaging line was semiautomatic and very labor intensive. All product was packaged and shipped in cardboard trays of a variety of sizes, which had to be folded and placed on the conveyors manually. Two semi-automatic shrink-film sealers were used, which not only were slow, they were inefficient on film costs and gave off excessive heat. Because of the tolerance limitations with the photo-electric positioning sensors, the sealers would 0.5 percent of the trays causing the film-cutting knife to sever and damage approximately 50 trays of product per 10,000. With the product in place, and the production volume steadily increasing, it was just a matter of time before the packaging line would not be able to keep up with the product flow. In fact, packaging eventually began to dictate production - the produced product would bottleneck in packaging, causing a back-up of the line all the way to the bakers who were literally standing around waiting for the flow to open up. Not only was the old Schwartz Brothers packaging line labor intensive in itself, it was costing wasted man-hours throughout the entire production process.

"If we couldn't pack it as fast as we could bake it, then all the investment we made in production equipment was for no result," says Rachid Ouardi, Logistics & Maintenance Manager for Schwartz Brothers Bakery. "So, we really started to concentrate on the packaging. What was very critical was the staging area - we had to determine how to box a wide variety of cookies, muffins, pastries and bread. We looked at the possibility of using a robot, but that was not feasible - our product line is too diverse with wide variations in product-handling sensitivity."

THE SOLUTION

After reviewing a number of systems, Schwartz Brothers eventually settled in 2005 with a composite equipment package by Doboy/Bosch Packaging and Shuttleworth, and integrated by Excel Packaging. To streamline and automate their tray forming, a Doboy Model 7510 tray-former was selected. This equipment has an independent shuttle motion that ensures accurate glue placement, and an automatic carton-demand photoeye which provides the precise carton flow necessary, based on production demands.

Trays were standardized at 10-7/16" long x 6" wide x 3-1/2" high. No matter if the product is cookies, cakes or pies, the same size tray is now used. The tray-former places the trays down on a Shuttleworth conveyor, where they are then manually filled with baked goods. A Doboy Linium 301 horizontal flow-wrapper was also chosen. This rotary-head, horizontal wrapper offers the option of manual, semi-automatic or fully automatic feeding. It has the capability of wrapping up to 100 trays per-minute with proper infeed indexing, although the bakery typically runs it at about 65 trays per minute.

1973

SCHWARTZ BROTHERS BAKERY

COMPANY BACKGROUND

Schwartz Brother's bakery has been family owned and operated since 1973. Schwartz Brother's celebrates diversity with team members from all around the world where everyone is treated with honesty, courtesy and respect whether customer, vendor or team member.

"Wholesome Baked Goods," means two things: creating scratch recipes using the best ingredients, and artisanal processes and techniques—striving to be a bakery you can trust, a group of people that values respect, honesty, and kindness for our customers, vendors, and team members.

For the infeed system, Schwartz Brothers chose a SmartFeed™, manufactured by Shuttleworth. Once the trays are manually filled, the conveyor moves them into the SmartFeed. Low line pressure throughout the SmartFeed accumulation area allows for gentle accumulation of the products without causing product damage. Should the wrapper need to stop or slow, SmartFeed can continue to take trays from the line, using a continuous-motion function, for a period of time instead of stopping. A low-pressure accumulation buffer absorbs irregularities in the production flow, which provides for a smooth, gentle even flow of trays.

"The automatic wrapper becomes a slave to the feeder," says Keith Fehrman, an engineer with Doboy/Bosch Packaging. "When there is a delay with a tray, SmartFeed tells the wrapper that no tray is in position, and to slow down or stop. When the next tray is in position, SmartFeed tells the wrapper to start, providing accurate indexing of the product to be wrapped. If the feeder is not giving the wrapper a tray, then we are not wrapping that product."

"If we didn't have SmartFeed, then it would have to be done manually," Fehrman continues. "The trays would have to be manually inserted into the wrapper, which is more time consuming, less accurate and more labor intensive."

An important aspect of SmartFeed is its use of Slip-Torque® technology for creating low back-pressure. This utilizes the coefficient of friction between the individually powered rotating roller shafts and the loose fit rollers, to control the drive force of the trays. The size and weight of the tray determines the driving force and roller selection. When a tray stops on the surface of the conveyor, the segmented rollers beneath the tray also stop, generating low back-pressure accumulation, and a more continuous product flow.

"We selected Doboy and Shuttleworth primarily because of SmartFeed," says Ouardi. "We wanted the tray indexing capability on our line. The infeed and the wrapper are always talking to each other, and reacting to whatever product we are moving through. We meshed that capability with controls we installed upstream, in the middle of the line, and by the infeed, that regulate the speed of the line throughout. It is an integrated system monitoring the flow of product right through to the wrapper. Sometimes we will do cookies, which are easy to pack, and the line is moving along steadily. Then when we do a delicate product, the line will automatically slow down, and that is all aligned with the infeed and wrapper."

"If we didn't have SmartFeed, then it would have to be done manually . . . which is more time consuming, less accurate and more labor intensive"

- Richard Ouardi, Logistics & Maintenance Manager, Schwartz Brother's Bakery

TRAY FORMERS MANUALLY FILL TRAYS WITH BAKED GOODS

RESULTS

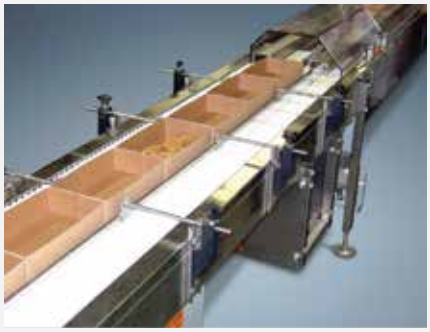
"With the new packaging line we saved on labor, and we invested that into quality," says Ouardi. "Now, our packers are more attentive to product quality, like color, size similarity and weight. We didn't have the time to do that before, they were too busy hand wrapping. Our defect

rate has dropped tremendously as well, from 50 damaged trays for every 10,000 wrapped, to 10 trays."

"We have also saved on costs by combining our purchasing into one size of tray, instead of multiple sizes," Ouardi continues. "And we don't have our bakers waiting around with down-time any longer either."

"Before we installed the packaging equipment, we were running about 75 - 80 cases packaged per labor-hour," Ouardi says. "Now we are up to 90 - 95 units per labor-hour. A 20 percent efficiency improvement in the packaging line itself, and we are only running the line at a 50% capacity. We can still go faster if we want, we still have a lot of room to grow. It is a very successful line."

The broad majority of bakers in the U.S. continue to run manual or semi-manual packaging operations, where in many situations automated procedures such as Schwartz Brothers Bakery has implemented, could attractively streamline their delivery and profit margins.



SMARTFEED™ TECHNOLOGY

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SHUTTLEWORTH

10 Commercial Road
Huntington, IN 6750
P: 260-356-8500
Toll Free: 800-444-7412
E: Shuttleworth.Sales@PromachBuilt.com
www.shuttleworth.com