CIMTEC

AUTOMATION · ENGINEERING · SOLUTIONS

PRE-ENGINEERED SOLUTIONS CASE STUDY

CIMTEC Bar Code Tunnel Improves Shipping Accuracy and Efficiency, Boosting Bottom-line Profits for Leading Snack Food Manufacturer

> "CIMTEC proved to be the best provider of both our hardware and software needs, and for managing a turnkey implementation."
>
> *Doug McCraven*
> *Materials Manager*
> *Lance, Inc.*

Business Benefits

> With loading inaccuracies reduced by more than 90%, fewer products are being returned, incurring fewer re-stocking and re-loading fees

> Better service helps build better, more profitable relationships with sales reps

> System ROI in less than one year

> Improved inventory accuracies positively impact production scheduling and, ultimately, profitability

> Improved customer service

Summary

When snack food cravings kick in, consumers eagerly tear into packages of Lance's signature Toastchee® peanut butter and cheese sandwich crackers, honey buns and other sweet and salty treats. To ensure that consumers enjoy fresh snacks and distributors receive their deliveries on time, Lance has implemented a state-of-the-art order picking and loading system that features an innovative bar code scanning tunnel developed by CIMTEC Automation. The tastiest benefits for Lance? Greater shipping efficiency and accuracy, leading ultimately to increased profitability.

Challenges

One of the nation's largest manufacturers and distributors of snack foods, Charlotte, NC-based Lance was searching for a way to ensure more timely and accurate delivery of its products. Company managers knew they not only needed to overhaul their order picking and loading processes, they also needed to invest in automation for reading the bar codes on their boxed products. Lance, which ships direct from its Charlotte warehouse to more than 1,800 sales representatives throughout North America and parts of Europe, faced some unique application challenges.

"We ship over 300,000 cases of products per week to more than 1,800 separate locations," explains Doug McCraven, Materials Manager for Lance, Inc. "Delivery accuracy to our sales representatives is a critical issue for us."

Lance wasn't just looking for a system that could read the same type of bar codes on uniformly packed boxes. Since at least two different bar code symbologies are present on all boxes and because of the diverse shipping requirements of its sales representatives, the company needed a system that could accurately read multiple bar code symbologies on various-sized corrugated-cartons, labels and cartons that are over-wrapped with shrink-type film. As an added challenge, the bar codes covered with plastic film and those on the shipping boxes that Lance re-uses to reduce expenses and preserve the environment are often difficult to read because of damage or degradation.

Lance has traditionally stacked up to four outgoing boxes of varying sizes and materials on a conveyor. In order to maintain the high level of productivity on its loading lines by not having to single-stack all boxes or double-stack only similar boxes, the company needed a scanning solution that would accommodate more than a single box height. This is easier said than done, as bar code scanners only output one bar code, and since the boxes move down the conveyor in various orientations, requiring scans from all sides and from the top to ensure accuracy.

In addition, says McCraven, "another key requirement for us was a user-friendly system, one that provides our employees with a good ergonomic layout and a system they could easily adapt to."

CIMTEC Solution

After evaluating several companies and narrowing their choices down to three companies in the scanning business, Lance chose CIMTEC Automation to provide a solution that would address these challenging requirements.

"We were very careful in our selection of a vendor, and we took a unique approach in choosing the best vendors possible," says McCraven. "We actually had vendors set up equipment in our environment, using our current belt speeds and loading methods to fully test their systems. CIMTEC won hands-down with

Datalogic scanners on readability, then brought to the table a high level of experience and integrity in helping us figure out how to apply the technology within our system."

CIMTEC's solution combines proven hardware from the industry's leading manufacturers with a customized software application. Multiple bar code scanners from Datalogic are arranged in a tunnel configuration so that stacked boxes can be scanned from all four sides, on top and at multiple heights. Height stacks are measured to within .38" using miniature light array sensors from Banner Engineering, and this information is added to the bar code data. Lance does not have to re-stack its boxes: a custom application written in Microsoft® Visual Basic® reads all unique barcodes as stacks of up to four boxes high pass through the tunnel, looks up each unique barcode and compares it with a measured stack height to determine the quantities of boxes in the stack. Datalogic's ACR (Advanced Code Reconstruction) technology reliably reads damaged and plastic-covered codes, which are commonly missed by other fixed scanners.

This data is transferred via Ethernet, allowing seamless interfacing with Lance's AS400-based business information system. The system generates updated product lists containing product numbers, UPC codes, descriptions and box heights between loads. Armed with pick lists, operators then load the conveyor line for each semi-truck shipment, verify stack heights and box counts and enter this information into a log that is directly linked with each shipment and reconciled when the boxes reach their destinations.

The CIMTEC solution interfaces with Lance's mechanical reject station that directs boxes with no barcodes or invalid barcodes, or those in a stack that does not correlate with the calculated height, down another conveyor line. From there, the bar code labels are manually read with a handheld scanner connected to the main computer, and appropriate corrective action is taken.

In addition to writing customized software and integrating the hardware and software, CIMTEC helped provide training to Lance's employees during the nine months of start-to-finish system implementation time.

Benefits

Since being implemented, CIMTEC's solution has kept boxes moving even more quickly and reliably from Lance to its sales representatives than the company had anticipated. Loading inaccuracies were reduced by more than 50% in the two weeks following system implementation. By making a few software tweaks and working on internal operational issues, Lance was able to further reduce the number of loading inaccuracies by 90% after two months. The scanners in the bar code tunnel currently return read rates in excess of 99%, even on damaged and degraded labels.

"This level of performance is significant to us in many ways," explains McCraven. "Besides providing better service to our sales representatives, which was our ultimate goal, we also brought much more integrity to our delivery system. Upstream of the delivery system, inventory accuracies have improved, providing a positive impact on our production scheduling—and on our bottom line profitability."

Speaking of the bottom line, the ROI for the systems on each of Lance's three loading lines was realized in only four months. The bar code tunnel's easy-to-use Visual Basic interface and ergonomic design have also enabled Lance to achieve its goal of providing system operators with a user-friendly solution.

"We couldn't have asked for better results than those we have obtained using the CIMTEC system," concludes McCraven.

About CIMTEC
Since 1988, CIMTEC has been offering a wide range of industry-leading control and process products to manufacturers throughout the Southeast. With offices in North Carolina, South Carolina and Virginia, CIMTEC's team of highly trained account managers has been involved in developing solutions that increase productivity and improve information output in thousands of applications. CIMTEC's complete offering of application and product support and services includes hands-on training, 24-hour phone support, application design and full project management.

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