RFID—Beyond the Chip

Systems using radio frequency technology are enabling textile service companies to lower costs and enhance customer service.

By George Ferencz

When a textile service operator thinks about RFID, a little circle comes to mind: the RFID chip. While the chip is at the center of this technology, the systems that integrate the information in these chips are where the return on investment (ROI) of RFID can be found.

RFID systems can help operators tackle two of the biggest operating expenses they incur: production labor and merchandise cost. By utilizing RFID, textile service companies can automate or semi-automate their soil sorting, clean sorting and pack-out departments, reducing labor and improving inventory control.

“We have seen a reduction in labor on an average of 1 to 3 percentage points and merchandise cost reduction by 2 to 4 percentage points,” says William Dougherty, Positek RFID, which has been on the forefront of using radio frequency tracking for the development of laundry systems for more than a decade. During the 2007 TRSA Tech/Plant Summit, Dougherty highlighted several systems—in use in more than 75 plants serviced by the company in North America—that integrate data from RFID chips.

The chip is the heart of RFID

As you can surmise, the chip is the critical component upon which RFID technology is built. When considering RFID in a commercial laundry, it’s important to remember that the chips used in our industry are different than those in other sectors. For example, you may have read about RFID chips being used by Wal-Mart or other retailers to track shipments. Another use of RFID, particularly in Europe, is tracking pets or livestock. While these implementations of RFID rely on the same core technology, laundry RFID chips are different because they must be encapsulated in order to withstand the pressure of multiple washings. This fact means that the cost of the laundry chip as compared with those used in retail or agriculture is higher. Despite the cost, the laundry chip still produces substantial ROI for operators when used with the right systems.

At the Tech/Plant Summit, Dougherty reviewed the common types of laundry chips and their benefits. The most powerful is the high frequency, multi-read chips, usually 16 or 22 millimeters in size. “The significant feature of multiple-read, high-frequency RF technology is that many chips can be read simultaneously without being in a direct line of sight with a reading device.”

There are several frequencies on which RF chips can operate. Positek, Dougherty noted, specializes in a 13.56 MHz chip that is ISO15693-02, 03 and ISO1800-03 compliant. “This (ISO standard) is evolving into the de facto industry standard,” Dougherty told attendees. He added, however, that a good system can read any compliant laundry-compatible RF chip, regardless of the manufacturer.
Sorting made easier, more productive

When RFID technology emerged in the textile services industry, the belief was that systems utilizing chips would only be useful for sorting and tracking garments. But, as demonstrated by real-life case studies, all segments of the industry are benefiting from RFID.

One of the most common implementations of RFID in the textile services industry is Positek’s CA Sort System. Through CA Sort, operators processing garments, flatgoods and mats can increase productivity, reduce labor and improve merchandise control, Dougherty said.

CA Sort uses a combination of software and conveyance systems to move items from finishing to pack-out. Some CA Sort systems are semi-automated, instructing employees on the correct rail to place an item in order for it to go to the proper route. Others are fully automated.

“(With CA Sort) there is no more guesswork or exception books and/or charts to memorize or refer to,” Dougherty said. “Productivity is always consistent, with employees that have performed the task for years, or relatively new ones. The software drives the process, not the employee.”

CA Sort for Clean Garments on Hangers is probably the most popular implementation of RFID in the industry. There are several applications of this technology. One method is a semi-automated system that begins with a computer-instructed command that is displayed on a computer monitor and given audibly into a wireless headset in any of several languages directing the placement of the garment onto a spider rail. After this initial scan, the items are sorted one more time into route-delivery sequence.

One can find examples of computer-assisted sorting through RFID in all types of textile service companies. For example, in Clifton, NJ, W.H. Linen has been using CA Sort to organize its hospitality and industrial garments for delivery. The company has been using CA Sort for more than three years. Using a combination of a man-readable barcode and a RFID chip, W.H. Linen has been able to reduce its labor costs and improve the efficiency of its operations. “We’ve gone from needing very skilled labor to requiring very little training,” W.H. Linen’s owner Bill Hermanns told Textile Rental. (See article, pg. 36, December 2003). “We’ve gone from requiring six full-time people in this area to five.”

Across the country in Los Angeles, Medico Professional Linen Service also is using CA Sort to process medical garments. Attendees at the 2006 TRSA Tech/Plant Summit got to see how the semi-automated system works for handling retail medical and other healthcare uniforms.

Most of the implementations of CA Sort to date have been semi-automated, but Positek has been installing enhanced systems that are more automated. Whether the customer selects the newly patented CA Sort Bay system, or a moving graduated hook conveyor system, the total sorting process is reduced to only two touches/steps.

The further development of RFID can be found in fully automated sorting systems now appearing in the industry. The system works similarly to automated barcode-sorting systems, but Dougherty says that Positek has seen an improvement in accuracy with RF chips, most of the time more than 99%.

Once sorted, by using a semi-automated or automated system, there is now an RFID technology that can verify the outgoing garment bundle. “There is no longer a need to scan individual clean pieces to obtain a bundled garment count,” Dougherty said at the Tech/Plant Summit. “With multiple-read chips and the CA Clean
Garment Bundle Reader, operators can now read all the chips in a hangered bundle and verify the contents electronically prior to staging it in the route-ready area. “Productivity is in the 3,000-plus piece per-hour range with this technology,” Dougherty added.

**Benefits in tracking dust control products**

Bulky items, like mats and mops also can be tracked using RFID technology. Positek and other vendors have developed computer-assisted sorting for mats. “Traditionally, mat sorting is a four-step process that is very labor intensive,” said Dougherty. “But with the CA Sort System for Mats, that is reduced to two.”

In highly automated mat-processing plants, mats are dumped from the dryer to a rotating sorting table, which helps to separate the mats and make them easier to retrieve. Once the employee has the mat, it is fed into a mat roller, which has an RFID scanner.

After it is rolled, the mat is moved to the appropriate route-ready bin automatically via conveyor. Mats are scanned into the plant to improve inventory control. Using mat tracking systems, an operator can tell exactly where these items are at any time, whether it is in the plant, at the customer site or on the truck for delivery. This additional functionality can be accomplished, Dougherty said, with no additional labor in the plant or on the route.

“Satisfied customers report a reduction in labor and a 2-4 percent decrease in merchandise costs,” Dougherty told Summit attendees. “In addition to lowering the number of people required to handle clean mats, this system also reduces the space needed in the plant for mat storage.”

Similar systems have been developed for mops, Dougherty added.

**Yes, you can use RFID for flatgoods**

While the most common implementation for RFID has been for garment and mat sortation, Positek has been addressing the growing need for flatgoods tracking by linen suppliers and healthcare textile maintenance companies.

One method of tracking flatgoods is by hanging items and utilizing the CA Sort System for Garments. An implementation of this method can be seen in GBS Linen, Anaheim, CA. Dougherty demonstrated at the Tech/Plant Summit how the system allows GBS to track its table linen. (See article, pg. 36, in the February 2007 Textile Rental).

The process begins in the soil room, where chipped items are scanned and pushed through a vacuum system to one of 16 waiting laundry carts. These carts are then processed. After finishing, items are put on a hanger, with a man-readable tag indicating size. They are then moved to the pack-out area by rail system and processed using the CA Sort for Garments—the system doesn’t care whether the item is a garment or a tablecloth, or anything else that can be hung.

Another method for sorting flatgoods, Dougherty said, is the CA Sort System for Folded Items. “This organizes the sorting and assembly of folded items reducing space and labor required to perform this function.”

There are two versions of this system, one for handling folded garments or linen items; the other is designed for cleanrooms where airflow is controlled.
Soil sorting and tracking

At the Summit, Dougherty discussed three other innovative RFID systems. One advancement is a tunnel reader, which can be used to verify the number of soiled garments or linen received at the plant. Before being sorted, bagged items are passed along a conveyor belt through a tunnel, and by using multi-read chips, an accurate count of the textiles can be made. Another implementation of the Tunnel Reader is verifying the contents of wrapped bundles before being shipped from the plant.

Another technology being used is bag reading of RFID items. This versatile system makes it possible to scan small bags of RF chipped items in the plant, on the route or even at the customer location.

Aiding tracking of items is Positek’s CA Track system. This can be used by companies whose route-accounting systems do not accept or accommodate RF codes. With CA Track, personalized or bulk items can be cataloged in a stand-alone system.

See more examples at Clean

Positek and other RFID vendors will be on hand during the Clean Show, June 11-14, at the Las Vegas Convention Center. When considering RFID technology, remember to think beyond the chip and about the systems that can leverage the power of those chips to improve your company’s productivity, profitability and customer satisfaction.

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