

Produce processor favors ink-jet coding

Celery packer-processor Leach Farms adds a portable ink-jet case coder with an integrated valve that prints customer-specific information on shipping cases. Mounted on a turnkey conveyor, the coder can be moved as needed.

Lauren R. Hartman, Senior Editor



Leach Farms, Inc., a Berlin, WI, grower/processor of fresh celery and sweet Spanish onions, is through with its salad days of case coding by simplifying its case- and product-identification processes, thanks to an upgrade to its packing operation from Diagraph, An ITW Company. (www.diagraph.com).

The 50-plus-year-old, second-generation, family-owned supplier to food and ingredients processors cuts and dices celery and slices and dices sweet onions, which it then bulk-packs into 45-lb shipping cases and freezes for distribution to ingredients manufacturers across the Eastern part of the U.S. and in Canada.

Leach Farms uses Diagraph's IJ/3000e large-character, drop-on-demand ink-jet printer, an integrated valve system, mounted on a custom, R.L. Craig (www.rlcraig.com) Model RLC2052 4-ft-L rollaway conveyor. Diagraph provided the conveyor equipped with casters. The conveyor and the coder can be easily moved in and out of the packing room as needed (the room doubles as a processing area). Speed is small potatoes for the continuous IJ/3000, which, with four 1-in. printheads, can imprint at rates up to 650 ft/min—just fine for Leach Farms, which handles approximately 116.66 lb of product/min at a rate of about 65 ft/min.

Read about how a dozen of Diagraph's PA/5000 label print/apply systems went into Rite Aid's DC in Lancaster, CA, to generate bar-coded shipping labels for totes of nonprescription products: www.packagingdigest.com/info/rite_aid

Installed in June 2004, the ink-jet unit marks both sides of the corrugated shipping cases in black, water based ink with a crisp, 18-dot font, from one of four printhead sizes available, providing a product description, a manufacturing date and time packed, net weight of the case, a company ID and an address and customer-specific information. The first line of type on the case details product information, while the second is for lot code and weight information. Line three

gives the date, time and case number information and line four notes the packing location.



The ink-jet case coder features four printheads mounted on opposing sides of the conveyor, two printheads per side. Each printhead generates crisp, clear characters up to 2 in. high. Leach Farms imprints the cases with four lines of type per side, and achieves clear, easy-to-read, traceable production codes and product information that stays permanent.

This is all done mainly for product traceability and to improve print quality, explains plant manager Andy Hankes. "The previous coding method required more time to change the rubber type each time a new code was needed," he tells PD.

Until the company installed the IJ/3000, its case codes often made it difficult to keep track of product freshness, due to poor print quality. "We picked the new system because of its ease of use and its print quality," he says. The previous coding process was accomplished with a roller coder, which Hankes says didn't offer the print consistency Leach Farms wanted. "It was a bit of a challenge to achieve clean codes every time," say Hankes. "We had issues with the characters coming off and with inconsistent print quality. Since we need to change coding information often, it was difficult to make those changes using the former coder. Now, coding changes are easily made with the ink-jet printer's controller," he says. Where code changes now are a matter of touching a few buttons on the system's touch screen.

Equipped with a touch screen-control user interface, a built-in Ethernet connection that permits it to network with another computer. New to the Diagraph lineup, the system's controller was developed for flexibility and operates on a web server platform that allows it to be networked with systems using current Internet protocols. The printer has enough memory to store up to 500 messages and 150 characters per message, the compact IJ/3000 ink-jet printing system also applies up to four lines of type to the sides of each of the 44 ECT corrugated RSCs, which Leach Farms obtains from several suppliers.



Leach Farms runs its shipping case-packing line on a seasonal basis, so flexibility is critical. Everything on the line is mobile so it can be moved in and out of the room as the company begins packing bulk bag-in-box totes with celery or onions.

According to Diagraph, the system's integrated valve has a special rubber membrane that precisely controls ink flow at the valve opening in the printhead, along with cylindrical valve channels, as solenoids in the system delivery perfectly formed ink droplets that result in sharp, clear characters.

The printheads deliver a defined mark with a maximum print resolution of 18 dots per vertical inch, while the valve's design isolates the ink from all of the machine's internal mechanisms to prevent ink-related failures. Each 1-in. printhead can print one line using an 18-dot font or two lines using a 9-dot font or two lines of a 7-dot font. It can also print three lines using a 5-dot font or any combination in the message. Each printhead also generates two lines of printed information in characters ranging in height from 3/8 to 2 in. tall, totaling four lines of print on each side of each case. Adds Hankes, "We use different print sizes, depending on how many characters we need to include per line."

The **ink-jet-printed codes** are easier to read and we get more consistent print quality.

The printer's centralized, self-contained ink delivery system pulls ink from a 5-gal pail and pressurizes it to the printheads. Operators can change the ink pail on-the-fly.



The cases holding 45-lb quantities of celery and onions are taped closed automatically and are then coded with a mutli-line case ID for easy traceability.

The integrated-valve (IV) printheads seal the orifices until it's time to print. The valve pistons don't come in contact with the ink, which helps improve reliability. The pistons open and close to print the desired message. Coupled with a 3M-Matic (www.3m.com) case taper and a Rice Lake Weighing Systems (www.rlws.com) weigh scale, Leach Farms is good to go.

As the produce arrives at the packing line, workers erect the shipping cases, insert a food-grade, proprietary polyethylene liner and then transfer the shippers to the weigh scale which, equipped with a vibratory conveyor, automatically deposits the cut, sliced or diced celery or onions inside, filling each case to a specific target weight. The cases then convey through the case taper to be closed and then move onto the custom conveyor equipped with the ink-jet printer.

Customer-specific information is then applied to the opposing sides of each case by the two integrated-valve printheads mounted on either side of the line. The codes are crisp and legible. Coded cases are then off-loaded and hand-palletized.

To change the print information, operators select a new message that has been programmed into the touchscreen controller. The message is sent to the IJ/3000 printhead and is ready to go when the next case passes the printer.

Leach Farms runs the line on a seasonal basis, so flexibility is critical. Everything on the line is mobile so if the equipment needs to be moved away, the ink-jet printer can be unplugged from a power outlet and moved into temporary storage for the packing of bulk totes. For added transportability, an external ink-delivery pump is mounted on a bracketry below the controller, along with the pail of ink.

Says Hankes, "We wanted to print multiple lines of type on each side of the shipping cases. Reliability was key to our making the decision to move to ink-jet printing. We like the level of support we get from Diagraph."

Leach Farms also benefits from a boost in customer satisfaction, Hankes points out. "The date and time codes and product ID information looks clear and legible, so we're seeing good traceability," Hankes says. "It has been working very well so far."

Although Hankes says the company hasn't noticed a significant labor savings, Leach Farms now saves time on code changes and is able to print clear, concise information on the cases when and how they need to be printed. He concludes, "Labor was not reduced, but we can now allow our staff more time to take care of other responsibilities. Our cases have a more professional appearance and this system was more cost effective than others. That means a lot."

More information is available:

- **Diagraph Corp., an ITW co., 800/722-1125. www.diagraph.com**
- **3M Co., 888/364-3577. www.3m.com**
- **R.L. Craig, Inc., 330/424-1525. www.rlcraig.com**
- **Rice Lake Weighing Systems, 800/472-6703. www.rlws.com**