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CANON COMMUNICATIONS LLC

April 2010

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Bean bags

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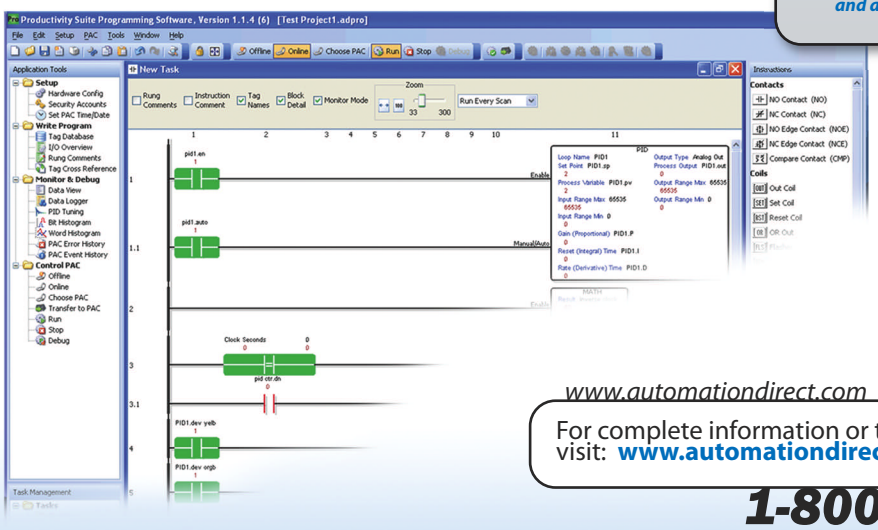

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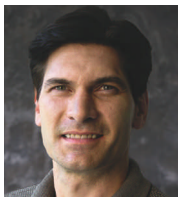

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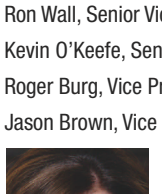

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packaging concepts

Liquid Wrench creates tool box of products

To further solidify the market position of its lubricants, penetrants and specialty products, Liquid Wrench® has redesigned its packaging and product line to be more educational than ever before. The company also announced its nationwide marketing campaign, including "how-to' videos, to educate professionals and Do-It-Yourselfers (DIYers) on how to select the right wrench for every job application. The innovative packaging lets consumers check a seasonally-updated list of uses by texting a code from their mobile devices.

"DIYers know one size doesn't fit all and that there's no one tool that can solve every problem," says Aaron Martin, director of marketing for Liquid Wrench. "That's why we have designed specific formulations to tackle even the toughest jobs. With the new packaging, reformulation and educational campaign, DIYers will have the confidence of knowing they have selected the right tool in every situation." Liquid Wrench's line-up includes newly reformulated penetrating oil, new anti-sling formula of chain lube, lubricating oil, silicone spray, white lithium grease and dry lubricant.

In addition to the reformulations, Liquid Wrench has repackaged its core line as well. The new campaign, which includes detailed copy on each can and the mobile texting program, is centered on the premise that to get the job done right you need "a wrench for every job." Says Martin, "This A Wrench for Every Job position became the core message for everything from the logo and slogan to the advertising campaign. DIYers and consumers will see a new Liquid Wrench logo featuring an 'expert' carrying a wrench to depict professionals and consumers who embody this extensive knowledge about home improvement projects."

New Liquid Wrench packaging also plays off this idea by offering a special mobile text code, a first in the industry, according to the co. Consumers enter the can's code onto their mobile devices to receive instant advice while shopping. "No longer will consumers have to hunt to find a salesperson to answer their questions or guess which product will solve their problem," Martin explains. "And, no longer will consumers mistakenly select Liquid Wrench versus an 'all-purpose' alternative."

Starting this spring, all six products will appear on shelves individually and will cost about $5 each. Later this fall, a six-pack will become available, retailing for approximately $20.

No-label look dawns for dish soap

Representing a departure from the original Dawn dish soap packaging's look with its glue-applied paper labels, the Dawn Plus Bleach Alternative dish soap PETE bottle features a no-label look created by p-s labels made from co-extruded clear film. Each bottle holds 19-fl-oz of Dawn Plus Bleach Alternative dish soap and sports a Fasson label, supplied by **Avery Dennison Corp. (http://na.fasson.com).**

The label material can be die-cut in a wide range of label shapes to complement varied bottle shapes as the Dawn product line expands with new bottle shapes and other value-added products for the line. According to the label manufacturer, p-s labels can offer production run efficiencies over glue-applied labels by enabling higher labeling speeds and shorter setup, cleanup and changeover times.

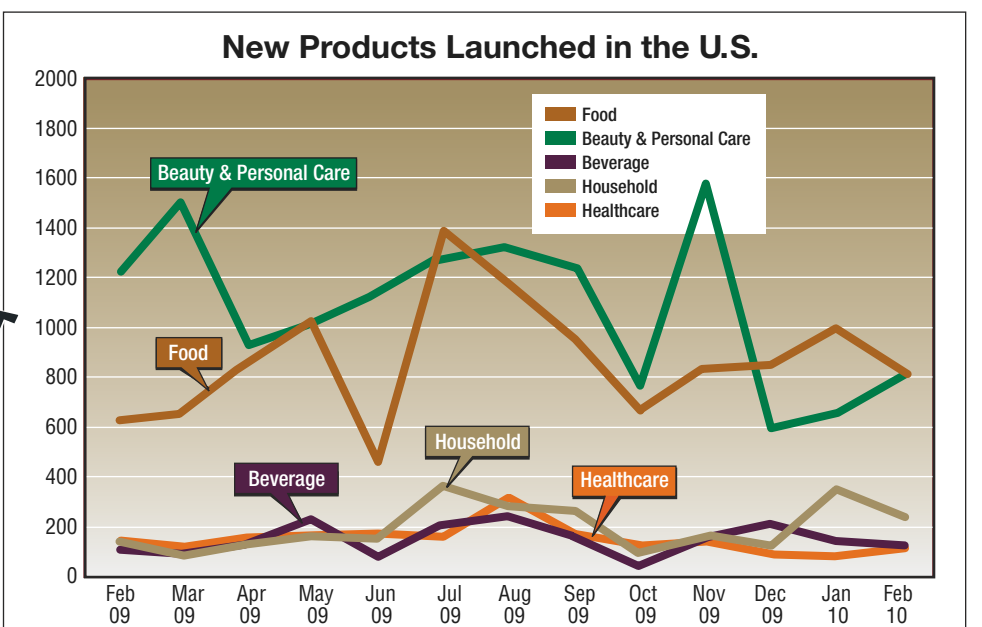
Launch pad

New Product of the Month

Yoplait Elivae Prebiotic Yogurt

Portion-packed foods may be a popular trend in packaging weight-control food products, but the practice is seeing some backlash. Consumers bemoan the environmental impact of portion-controlled packs versus multi-serve packs, as well as the added costs associated with this packaging practice.

In Australia, Yoplait has created a solution to this problem with the launch of its Elivae Prebiotic Strawberry Yogurt in a 100-mm deep PP tub, supplied by **Visy Packaging (www.visy.com.au).** The tubs use windowed in-mold labeling to clearly mark each of the seven yogurt servings, resulting in consumer convenience without packaging guilt.



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packaging concepts

Paint brand strips away dated look

Travis Perkins Group updates the packaging for its reformulated Wickes Paint product line. The packaging refresh was a collaborative effort between Travis Perkins Group and packaging communication company **Reach (www.reachbrands.co.uk).**

Reach worked with decorators and serious DIYers to identify the barriers to purchasing Wickes paint and tested possible visual strategies that might help overcome them. Reach found that the product's target audience was far more design literate and savvy than originally expected.

A more refined packaging design was achieved by stripping back the design to only the key elements: A large swatch communicates the color and the finish offered by the reformulated paint, while household icons suggest possible applications. Labeled paint cans and decorated PP tubs for the line were supplied by **J.W Ostendorf (www.jwo.com).**

Additionally, the packaging was designed to work in concert with a newly designed store fixture. This results in a store-within-store shopping experience that better communicates the benefits of the reformulated household product.

Downy bottle packs comfort for kids

In celebration of Downy's 50th anniversary, Procter & Gamble (P&G) is offering the softener in limited-edition packaging and has pledged to donate five cents from every purchase to provide quilts to hospitalized children.

The HDPE bottles, supplied by **Graham Packaging Inc. (www.grahampackaging.com)**, will be used for its original scent, April Fresh, which P&G brand manager Marty Vanderstelt says is still the brand's best selling scent, and will feature specially designed in-mold labels.

P&G had considered several decorating options, including simply adding a sticker to Downy bottles, before choosing to redesign the bottle label.

"But we wanted to design something that would bring the program to life on shelf and be easily recognizable as a special package," Lauren Hurwitz, senior design manager at P&G, recalls.

Working with its design agency, **Landor Associates (www.landor.com)**, P&G created a label that visually represented a quilt with enough whimsy to evoke an emotional connection to childhood. **Multi-Color Corp. (www.multicolorcorp.com)** then used P&G and Landor Associates' design to produce the in-mold labels.

Pail playfully presents 'Chicken Poo'

To extend the branding offered by the quirky and colorful name of Chicken Poo, Vital Earth is using 10 L pails, supplied by **RPC Containers Ltd. (www.rpc-group.com)**, that are dry-offset printed with brightly colored, comic-like graphics.

Like other products manufactured by Vital Earth, Chicken Poo is 100 percent natural and 100 percent sustainably sourced. Source material for the fertilizer comes from free-range British hens, which Vital Earth says, is converted into an end product that is a rigorously researched fertilizer with wholly natural ingredients.

The new branding and brightly printed packaging are expected to appeal to both established gardeners and younger enthusiasts.

Steel can performs for fuel additive

Originally known for its carburetor cleaner for outboard motors developed more than 60 years ago, Sea Foam now develops products that also address the automotive market, including Sea Foam Motor Treatment. The additive is housed in a two-piece steel can from **DS Containers (www.dscontainers.com)** and topped with a specially-designed plastic closure from **Bericap North America (www.bericap.com).**

"We like to think we can do a superior cleaning job on anything touched by gasoline, motor oil, ethanol or diesel fuel," said Matthew Hanson, president of Sea Foam Sales Co. "And we are impressed by the distinctive look, durability and the improved pouring characteristics of the two-piece package."

Bio-film wraps up laundry naturally

Umbria Olii International "Ecolive" laundry soap, which is manufactured using 100 percent olive oil, is now available in compostable packaging. The certified EN 13432 biodegradable bio-film wrapper is made from Bio-Flex F 2110 and Bio-Flex A 4100 CL from **FKuR Kunststoff GmbH (www.fkur.com**).

Explaining why his company chose the bio-film, Sergio Montano, president of Umbria Olii Intl, says, "The high content of renewable resources and the appealing glossy surface along with the certified biodegradability of the multilayer bio-film convinced us."

The glossy bio-film is extruded by **Poligrafica Veneta srl** and then printed by **Cartotecnica Veneta spa (www.cartotecnicaveneta.com)**. The converters report that the film material had a straightforward conversion process and good printability.

comment

John Kalkowski, Editorial Director

Open innovation primes the pump for packaging

Suddenly, it seems, open innovation has become a hot topic in packaging. At trade shows, conferences and in conversation, companies are talking about the need to keep a steady stream of innovations flowing. The challenge, though, is how to achieve this when R&D budgets are being squeezed or simply can't keep up with the demand for new products and packaging that have shorter and shorter life cycles.

Open innovation is a term coined by Henry Chesbrough, a professor at UC Berkeley, who defines the process as: "The use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively." The best definition I've seen is: "Open innovation is using the market instead of internal hierarchies to source and commercialize innovations."

Many of the largest consumer packaged goods companies (CPGs), such as Procter & Gamble, Kraft, Nestle and General Mills espouse open innovation. They have developed sophisticated networking systems and "innovation portals" to gather and evaluate innovations from a variety of sources, most frequently from small and medium enterprises. Even packaging suppliers are jumping on board. For Crown Holdings Inc., the goal of its open-innovation program "is to help our customers use metal packaging as a powerful means to build stronger brands.

In a *Harvard Business Review* article, two P&G executives wrote that most mature companies have to create organic growth of up to 6 percent annually. For P&G, that's the equivalent of building a $4 billion business each year, something they cannot achieve based solely on internal R&D. Under its Connect and Develop program, more than 50 percent of product initiatives at P&G involve significant collaboration with outside innovators.

Since the Industrial Revolution, companies have worked to conceive and develop their own innovations, gaining a competitive advantage as the first to bring a product or process to market and owning the exclusive intellectual property rights of the concept.

To make open innovation work in packaging requires companies to alter this business paradigm. By using an open approach, businesses increasingly are able to launch innovative products more quickly and at lower cost. Those companies that fail to grasp the opportunity risk losing market share.

Innovation is a core driver of business, and packagers need to make it one of their top priorities.

John Kalkowski

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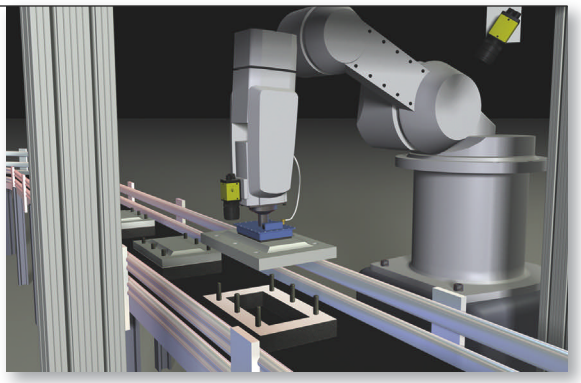
Mettler-Toledo Inc. , 800/447-4439.
www.mt.com

3D Locate The co.'s 3D-Locate system delivers accurate, real-time, three-dimensional position information that enables automation equipment to work with a wider variety of parts, including items that are stacked or tilted, the co. says. The system uses multiple sets of two-dimensional features found by the geometric pattern matching tool, PatMax®, to determine an object's precise three-dimensional orientation. Using the location system can improve vision performance for challenging applications, such as logistics, robot-guided de-palletizing and precision assembly, and it can eliminate the need for expensive mechanical fixtures or measurement devices, the co. states.

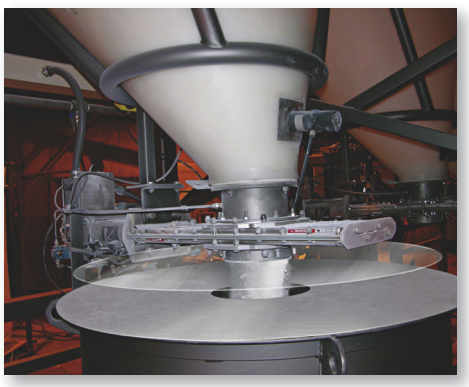


Cognex Corp., 508/650-3000. **www.cognex.com**

RFID controller The co. introduces IDENTControl Compact, one- and two-head RFID controller solutions to complement its family of four-head IDENTControl RFID controllers. The controller system delivers the same easy-to-use software features and robust operation as the co.'s four-head solutions, but in a compact housing that is four times smaller, which enables users to connect all read/write heads, even with different frequency ranges, to a single control interface.

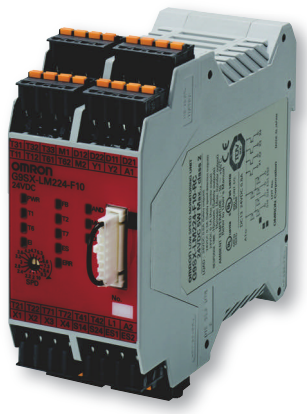
Pepperl+Fuchs, 330/486-0001.
www.pepperl-fuchs.com

Batching system The co.'s new, fully-automated, self-contained precision batching system for dry ingredients features internet-based programming, monitoring and diagnostic capabilities. The system uses an Allen-Bradley PLC for the input of up to 100 recurring process recipes, and a variety of QC functions. Weighing accuracy is +.02-lb. per ingredient on a 1000-lb. recipe. Systems use three or more FDA-USDA PE dispensers, each with capacities between 3.5- and 100-cu-ft. In addition to the inline dispenser configuration, the system can be set up with modular dispensers to accommodate non-recurring recipes.



Ingredient Masters, 888/345-4729.
www.ingredientmasters.com

Safety monitor The new G9SX-LM Low-speed Safety Monitoring Unit consists of two proximity sensors and a G9SX safety controller with fault diagnostics. This safety monitoring unit is a category 3 (EN954-1), SIL 3 (IEC/EN 62061) certified redundant safety system that monitors and confirms motor rotation speed to facilitate safe machine maintenance. The system can also provide standstill monitoring. The monitor allows an operator to access the machine for maintenance work while the machine is running at a safe, maximum set operating threshold of 10 Hz. Should the motor speed exceed the preset speed, the system will stop the machine immediately. An optional A4EG enabling grip switch provides an additional layer of safety protection that, if pressed or released, will also immediately stop the machine.
Omron Scientific Technologies Inc., 800/479-3658. **www.sti.com**



Slitter/inspector The KSI ProCombi two-in-one slitting and inspecting system offers versatility to the pharmaceutical industry by reducing production line changes and increasing space utilization. The system handles materials such as unsupported film structures and self-adhesive label stock, with a performance of up to 300-m/min. The ProCombi was designed with the Smart Label Counter Management System that uses advance technology for precise label count and multi-lane missing label detection. It comes with a separate stand for vision system installation and it has the option to install a Web guide system and mechanical device for a swing table for vision system requirements.
Karlville Development, 305/533-1051.
www.karlville.com

Metal detector The extra wide combination E-Z Tec® Dual-Beam Multi-Zone X-ray and Metal Detector System offers optimal detection and precise rejection of virtually any foreign object for packaged or bulk flow applications, the co. states. The X-ray can detect foreign objects for ferrous, nonferrous, stainless steel and non-metallics such as stone, glass, bone and some plastics. Additionally, the metal can provide detection for aluminum, a difficult metal for the X-ray machine to detect.
Eriez, 888/300-3743.
www.eriez.com

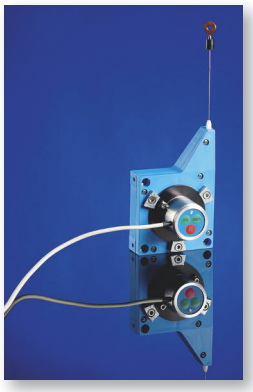
Bar code reader The FAST Label® print-and-apply systems enable the implementation of cross-docking and automated receiving strategies that can increase throughput by 66 percent, the co. states. The bar-code readers can compare the shipping label and product bar code to verify that items were picked correctly, thus eliminating picking errors. Furthermore, the co.'s bar-code equipment can detect non-singulated (side-by-side) packages, preventing inventory problems caused by "phantom" packages, the co says.
Accu-Sort Systems Inc., 800/227-2633.
www.accusort.com

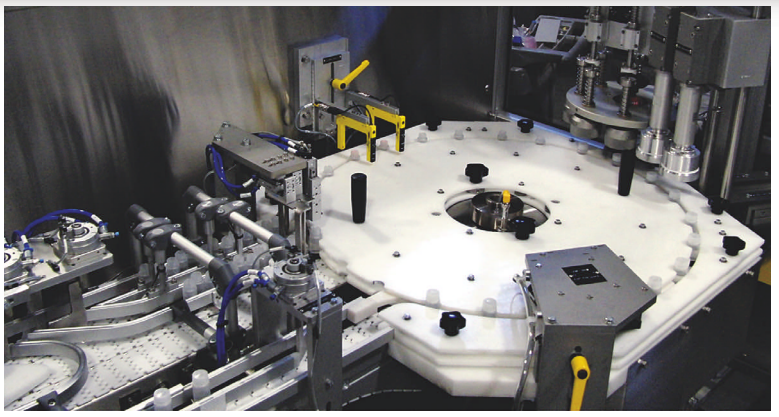
new products equipment

Powder dispenser The benchtop Xcelolab™ powder dispenser uses its technology to build "micro-bridges", making it ideal for scientists who repeatedly weigh small amounts of any type of powder by hand or need to dispense amounts too small to be accurately dosed by conventional techniques, the co. states. Using the "micro-bridge" technology, it is possible to dispense any type of powder, whether cohesive, micronized, free flowing or inhalation powder. A range of interchangeable balances makes it easy to dispense into a variety of receptacles including capsules, vials, beakers and flasks, etc. The simple touchscreen operation, featuring a color-coded progress bar, allows scientists to run fully automated dispense cycles as soon as the system is installed, as well as easily program and store multiple settings for different samples.
Capsugel, 888/783-6361
www.capsugel.com

DC motors The co.'s new IronHorse™ permanent magnet DC 56C-frame motor line features totally enclosed non-vented (TENV) and totally enclosed fan-cooled (TEFC) models. The motors are constructed of a rolled steel frame with cast aluminum end bell, and are available in sizes ranging from .33- to 2-HP. The motors are designed for applications that require adjustable speed, constant torque, dynamic braking and reversing capabilities, such as those involving conveyors and turntables.
Automation Direct, 800/633-0405 .
www.automationdirect.com

Distance encoder The BCG EcoLine Wire Draw Encoder is an economical distance measurement solution with a scalable analog output (4-20mA or 0-10V) that easily interfaces with control systems, the co. says. This encoder is enclosed in a thin, compact housing, making it ideal for applications with limited installation space, and it features a pushbutton that allows users to configure the unit for different lengths. The encoder offers two versions of standalone MRA-F Wire Draw Mechanisms that, when combined with the co.'s existing encoder portfolio, give users advanced customization capabilities.
SICK, 952/941-6780.
www.sick.com



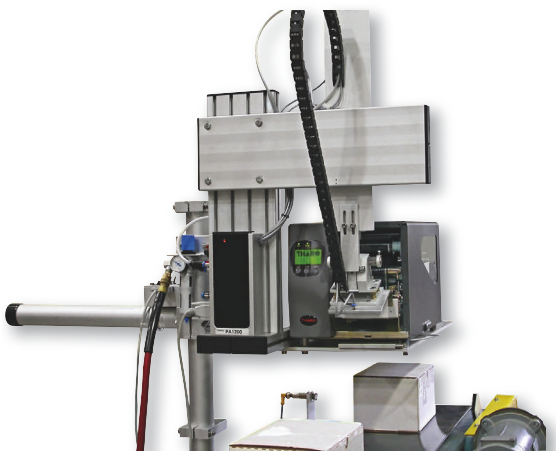


Filler/capper The monoblock Filler/Capper is a precise filling system for bottles, micro-tubes, vials and syringes. Integrated scales measure and record the weight of the container prior to and again after filling to verify exact fill amounts with an accuracy of ±2-mg. The filler/capper with integrated net weigh system will handle rates up to 70-containers/min. A large, full color touch screen provides an operator interface to adjust the servo controls for the diving nozzles as well as the pump fill rates.
ESS Technologies Inc., 540/961-5716. **www.esstechnologies.com**

Eddy displacement sensor The CE-compliant ECL101 Eddy-Current displacement sensor offers improvements in immunity to electromagnetic interference (EMI) and thermal stability as well as lower power consumption. The linear output sensor is available with a selection of probes offering measurement ranges from 0.5- to 15-mm, and features a unique front panel range indicator to alert the operator to out-of-range conditions. The sensor has applications in any industry requiring precision noncontact displacement measurement, especially in a hostile environment involving fluids or debris in the measurement area.

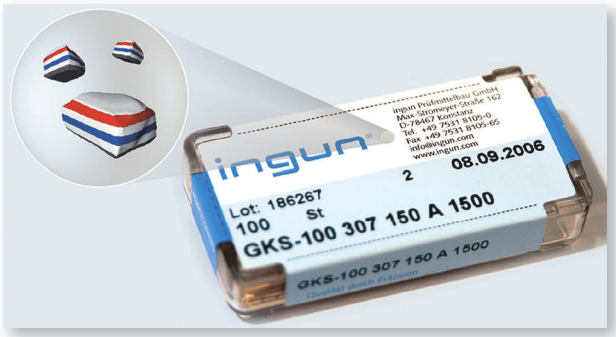
Lion Precision, 651/484-6544.
www.lionprecision.com

Printer/applicator The PA1200fa Front Apply Label Printer/Applicator is available using the co.'s H-Series direct thermal or thermal-transfer printers with resolutions of 203 or 300 dpi and can image labels sized from 3x1 to 4.5-x8 in. Printed labels are stripped from their liners and held by suction on the applicator tamp pad. Mounted on a heavy-duty swing arm, the tamp pad travels over a conveyor to place labels on the leading side of packages moving down a conveyor.
Tharo Systems Inc., 330/273-4408. **www.tharo.com**



new products materials

Security tag Security seals equipped with the SECUTAG® micro color-code system help this tag protect against counterfeiting. The co. has opted for the legally binding labeling of their primary packaging with the micro color-code technology SECUTAG® from 3S Simons Security Systems. The test probes are packaged in plastic boxes with special security seals. These closure seals are manufactured from document foil and are affixed crosswise over all four sides of the box. They adhere to the corporate design of the co. and are provided with the individual micro color-code SECUTAG® for anti-counterfeiting. The variable data and contents are printed onto the seals via thermal printing according to requirements. The new seals are integrated into the production and packaging procedure without process changes. Additionally, the special form and material of the security seals constitute a barrier against reproduction and manipulation. The test probes in this packaging are unambiguously identifiable as originals; unauthorized opening of the boxes is immediately detected.



Ingun Security/Simon Security Systems, +49 7 53 181 050. **www.ingun.com**

Reuse program The AcuTemp REPAQ™ (Reusable Enviro-friendly Program Assuring Quality) is a reuse program for the line of AcuTemp insulated shipping boxes. The program helps foster environmental responsibility by reducing landfill waste and ensuring thermal integrity of passive shippers for multiple uses, the co. states. Qualified shippers are returned to the company's manufacturing and processing facility by end users via a prepaid shipping label. All shippers go through a visual inspection and any obviously damaged components are replaced. After cleaning, the thermal components of the box, tracked by customer and serial number, are retested to original specifications to confirm the thermal performance before being returned to service.

AcuTemp Thermal Systems, 937/312-0114. **www.acutemp.com**

Labels Extended-content labels with proprietary designs for information-rich products, multiple language translations and lengthy and complex drug facts target cylindrical bottles and vials. These labels combine a p-s label with an attached leaflet or booklet containing several pages and having a thickness to 1/8 in. The labels can be custom designed to fit a variety of shapes and sizes and include a resealable closure, for repeated referencing. Configured with a patented easy-release design, the labels double the content area by allowing text to be printed on the underside of the label. They can be easily lifted up and repeatedly reapplied onto the container. Wraps around itself to double the copy space. Can also be used for international product distribution and multiple language translations, the co. states.

Cortegra, 800/242-4657. **www.cortegra.com**

PET films Camclear®, AlOx-coated clear barrier PET films, are available in both 36- and 48-gauge. These films are an improved barrier alternative to PVdC-coated PET and EVOH coex films, allowing converters to achieve OTR of 0.20-cc/100-in²/day and WVTR of 0.13-g/100-in²/day. This product line complements the co.'s existing line of clear barrier films, CERAMIS® SiOx-coated PET, OPP and nylon for retort and other demanding clear barrier film applications, as well as the co.'s extensive line of metallized films such as SUPERMET™ for high metal adhesion, FOILMET™ for high barrier, ENVIROMET™ for high barrier PLA and CEL-MET Sealants and Barrier Sealants to combine metallized and sealant layers.

Celplast, 800/866-0059. **http://cmp.celplast.com**

Copolymer Covinax 404 is a vinyl acrylic copolymer, specifically designed for use in adhering vinyl to other substrates. This newest adhesive is ideal for vinyl lettering applied on banners and other signage, works on metal and performs well in outdoor environments. The copolymer also offers a rare balance of good peel and tack with high shear strength (approximately three of peel and 3,000 minutes in shear), making it ideal for use as a permanent general-purpose adhesive. It works well on many substrates, including polyester and paper as well as vinyl. The adhesive's high shear strength also speeds up the die-cutting process by reducing adhesive build-up on cutting blades. Minimal build-up keeps blades dry and reduces printer misfeeds, increasing productivity in sheet-fed operations, the co. states.
Franklin Adhesives & Polymers, 800/877-4583 .
www.franklininternational.com

Resealable tape An improved, low-temperature, resealable tape for the co.'s Peel&Seal feature is a p-s resealable tape with a dry area in the linear direction that is applied to the film in the direction of package flow when manufactured. The consumer opens the bag at the end seal, uses product, peels back the seal, rolls down the end, extends the tape over the end of the roll and sticks it to the other side of the package. The feature is compatible with low temperature and light condensation and the new material provides a better reseal for very dense products that remain frozen even after being removed from the freezer for a long period of time.
Sealstrip Corp., 610/367-6282.
www.sealstrip.com

Bio-based composites
Two products in a new line of LNP Thermocomp specialty compounds that use curauá fiber and wood flour natural reinforcements are bio-based materials that offer sustainability, the co. says. The materials give customers options to create next-generation sustainable solutions to differentiate their products, grow current markets, expand into new sustainable market and application areas, and increase overall productivity and profitability, the co. states.
SABIC Innovative Plastics, 413/448-7110.
www.sabic-ip.com

Go green

High eco impact

Conference attracts more than 300 registrants seeking to learn about latest developments in sustainability for packaging.

In recent years, many in the packaging function have felt that sustainability would soon fade as an issue and a driver in packaging innovation. However, swelling attendance at the Sustainability in Packaging 2010 conference, held March 16-17 in Orlando, FL, indicates that interest in the topic is growing.

"It's great to see that sustainability is taking off," says Olga Adamovich, director of the conference produced by Pira Intl. and *Packaging Digest*. "This conference was about more than just planning and measuring. Companies are really executing sustainability strategies at all levels of their organizations."

The conference keynote address was delivered by David Hoover, chairman and CEO of Ball Corp. In his presentation, Hoover stated the case that sustainability is good business, but making packaging more sustainable depends on cooperation of the entire value chain. He says Ball has engaged all its shareholders, who help drive the company's sustainability priorities in areas such as recycling, material use, energy efficiency, greenhouse gas emissions and safety. The result, Hoover says, has been a stream of innovations, such as its Alumi-Tek® metal bottles and PET wine bottles.

Representatives of U.S. and European packaging organizations updated the audience on sustainability developments. Julian Carroll, managing director of the European Organization for Packaging and the Environment (Europen), described development of The Consumer Goods Forum's global packaging sustainability project. The forum is composed of many of the world's largest consumer packaged goods companies (CPGs), retailers, packaging manufacturers, associations and academic institutions. In this project, these groups are attempting to provide guidance on how to improve global packaging sustainability, covering the role of packaging, common definitions and principles of sustainability, and establishing packaging sustainability indicators and metrics to enable better internal decision making and improve trade dialogue on packaging improvements.

Katherine O'Dea, senior project manager of the Sustainable Packaging Coalition, described how her group's efforts to develop packaging indicators and metrics dovetail with the global project.

The conference also featured presentations that were divided into specialized tracks, including updates on bioplastics, branding and sustainability, a look beyond packaging, recycling and waste management, materials, design and supply-chain sustainability.

Numerous CPGs, including Morton Salt, Coca-Cola, Safeway, Crate & Barrel and Procter & Gamble offered insights on how they are meeting the challenges of sustainability and their expectations of their suppliers, while the supplier community explained how they are responding to retailer and consumer concerns.

105 million

beverage cans or 3 million lb of aluminum were collected over 12 weeks in the America Recycles Day Challenge, which raised $23 million for Habitat for Humanity.

Greenopolis rewards consumers who recycle

The concept of cradle-to-cradle management of packaging materials is a kind of Holy Grail to CPGs, retailers and packaging suppliers seeking to minimize their environmental footprints. Waste Management, the nation's largest residential recycler and waste disposal company, has launched a project that seeks to build a community of consumers who can help close the recycling loop.

In 2007, Waste Management met with Whole Foods Markets and Nestle Waters to discuss how they might create the first consumer and product-oriented tracking and recovery system for bottled water. A year later, this strategic partnership launched a venture that would use technology to boost recycling by engaging consumers online and encouraging them to return used packaging at kiosks where the container is recorded when bar codes are scanned and the consumer receives reward points for their actions. The points can be accumulated for rewards from more than 130,000 companies. The CPGs, meanwhile, are able to recover their own packaging to be recycled or reprocessed into other end-of-life uses such as other new products or incineration for energy.

Rethink. Recycle. Reward.

Users can register for the program at www.greenopolis.com. The Website provides stories, blogs and videos about the environment, while offering members the opportunity to review their points and redeem rewards online.

The company began placing kiosks in 2009, deploying 100 machines at Whole Foods markets and collecting more than 1 million containers. Further expansion is planned in 2010.

Sustainable packaging factors into consumer buying decisions

Recent consumer studies performed by the **Shelton Group**, a Knoxville, TN, advertising agency specializing in "green" and energy efficiency campaigns, confirm that consumers are searching for greener products.

The Ecopulse 2010 study shows that 63.5 percent of consumers say they are trying to buy products that are more "energy-efficient, natural and sustainable." However, the survey also shows that economic conditions have affected consumers' green purchase decisions. While those buying the same amount of green products grew 8 percentage points in 2009 versus 2008, the number saying they increased purchases of sustainable products shrank 5.7 percent in the same period.

Suzanne Shelton, CEO of the Shelton Group, says the packaging and product labels are major sources of information on whether or not a product can be considered green. "The package is critical to a consumer deciding what to buy," she says. "The packaging itself can be a reason to buy, too, and it can sometimes help products command a higher price point."

That is one of five insights that Shelton says the group's research has helped them develop about the green market. The others include:

- Green is now officially mainstream.
- Most consumers know less than you might think they do.
- Most people don't go green to save the planet.
- Consumers are skeptical about green claims.

The studies also show that the role packaging plays in purchasing decisions can vary depending on the type of product, such as detergents, food or cosmetics. The Green Living Pulse 2009 study shows that 41.6 percent of consumers feel the most favorable description of packaging is that it is naturally biodegradable, followed by its recyclability and whether or not it is made of recycled materials.

That study also shows that nearly 60 percent of consumers don't know what packaging materials can leach Bisphenol A into the products. In addition, the studies show that consumers will choose their own comfort and convenience over environmental reasons when making purchase decisions.

For more information, visit www.sheltongroupinc.com

sustainability

Sustainable packaging doesn't exist

I find it dismaying to read articles about the uncertainty of capitalizing on "sustainable packaging" because there isn't a clear definition. The Sustainable Packaging Coalition (SPC) does offer a clear definition but it's not about a specific package.

The SPC definition of sustainable packaging goes beyond the package and into some of the challenges inherent in moving toward more sustainable production systems. Why?

"One Planet Living" is the tag line of World Wildlife Fund (www.worldwildlife.org) and a good reminder of what we ultimately seek. The organization cites that if we all lived like North Americans do today, it would take five planets to meet our needs. And the denominator for One Planet Living goes up with each child born.

According to the Global Footprint Network (www.footprintnetwork.org), human demand for bio-based resources eventually will exceed the earth's biocapacity by 40 percent. The think tank also says that the trajectory of this deficit grows dramatically each year as population, consumption and economic development expands.

As long as the production of materials or goods incurs significant and measurable environmental impacts, true sustainability will remain elusive. The best we are likely to do is communicate specific environmental improvements using clear standards and measures.

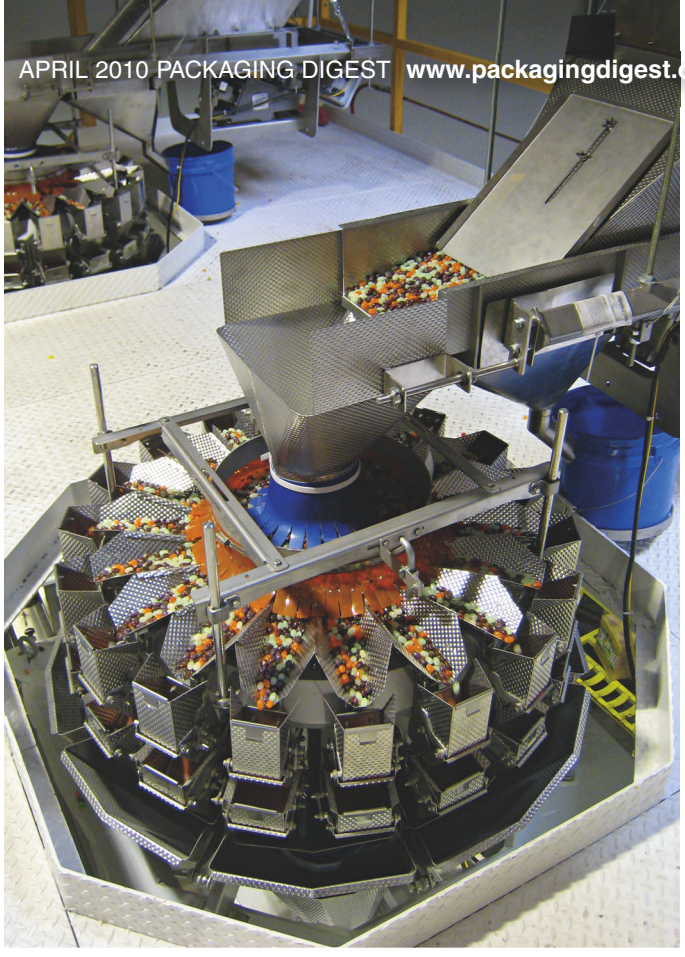
There is a lot of work being done to this end in the Global Packaging Project and in the new ISO Packaging and the Environment committee. Much of this work is based on life-cycle analysis (LCA). When done well and with representative data, LCA is a tool that can quantify select environmental improvements. However, it does not answer larger questions about whether we are transforming systems. To fundamentally transform the most impactful systems of how we make and consume products, packaging operations should look at the energy systems used in production; the waste management systems that landfill resource-intensive materials; and the management of minerals, oil and bio-based source materials.

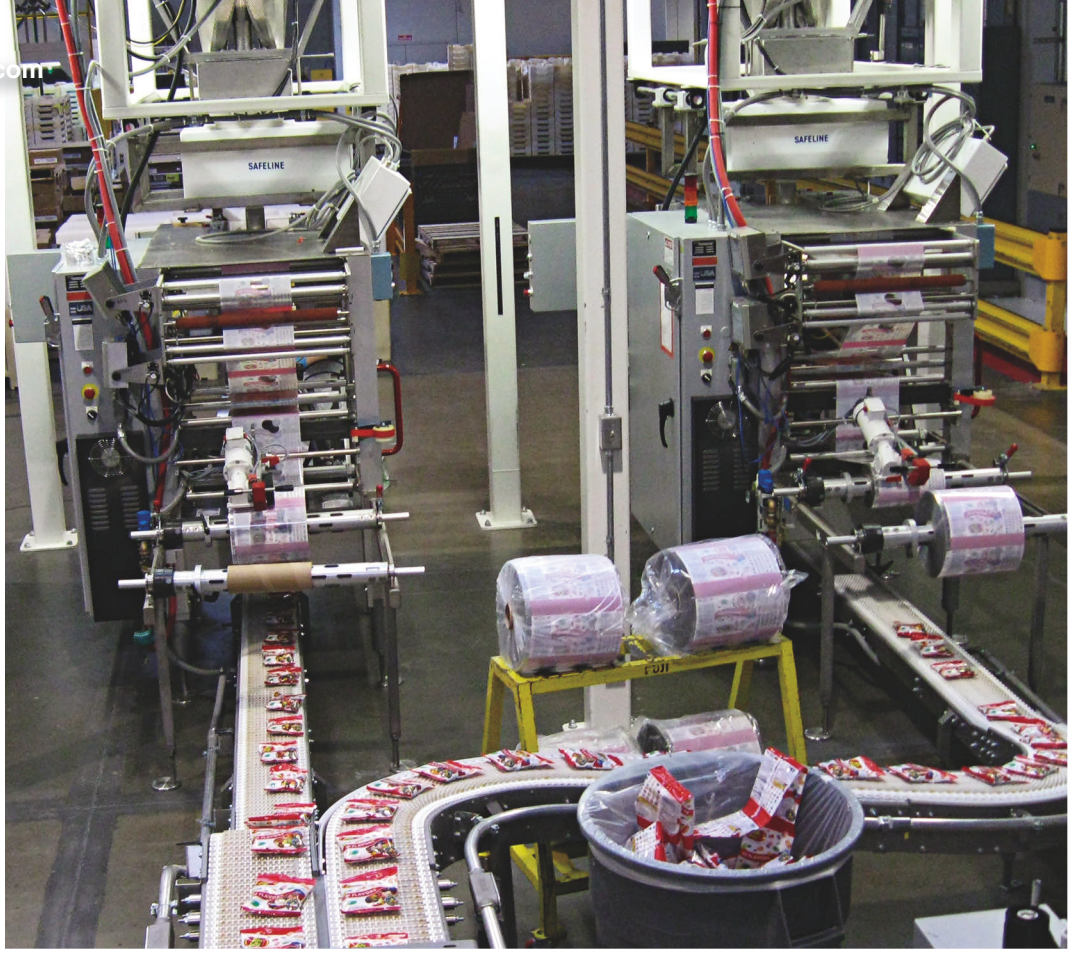
Perhaps we should recognize that specific environmental improvements are indeed beneficial, but in the marketplace it may be more accurate to describe the resulting package as environmentally improved or environmentally preferable, but not an example of sustainable packaging. There just is no such thing as a "sustainable package."

Incremental environmental improvements in packaging are critical, though. When these improvements come with a sound business case, as is the often the case with lightweighting or source reduction, they can facilitate widespread adoption. It is in the collective that these positive changes may reach a magnitude that really makes a difference.

BIOCAPACITY is an aggregate measure that represents a biosphere's ability to provide ecological services. The ability of terrestrial and aquatic areas to produce crops, livestock, timber products and fish, as well as to uptake carbon dioxide in forests is considered. Infrastructure (built-up land) is considered when evaluating a biosphere's regenerative capacity.

Anne Johnson is the director of the Sustainable Packaging Coalition, a project of GreenBlue (www.greenblue.org). For additional information, email info@sustainablepackaging.org.





Two radial weighing systems, above left, feature 18 individual weigh heads each to keep up with the speed of the vertical form/fill/seal machines, above right. Jelly Belly beans discharge through metal detectors installed between the scales and the bag machines and continue into the bags being produced below.

Jelly Belly is the whole package

A new packaging line at **JELLY BELLY CANDY CO.,** Fairfield, CA, features two vertical form/fill/seal machines that together produce 240 bags of jelly beans/min. as well as three pick-and-place robots that place the bags in cartons.

Jack Mans, Plant Operations Editor

A new $2-million packaging line that incorporates two vertical form/fill/seal machines and a robotic carton packer at the giant Jelly Belly Candy Co. plant in Fairfield, CA, has cut labor costs by 75 percent and reduced changeover times dramatically compared to other lines in the plant. "This line, which requires only two people, does the work of three of our other lines, each of which has two or three workers," says director of global engineering Jim Schneider.

Founded in 1898 as the Goelitz Confectionery Co., the company, in 1976, began making a new type of product, a gourmet jelly bean, appropriately named Jelly Belly, and this became a runaway favorite. The company changed its name to Jelly Belly Candy Co. in 2001.

See an interactive version of the Jelly Belly story with videos of the packaging line in action at www.packagingdigest.com/jellybelly

It now produces 50 official flavors of Jelly Belly beans, which it packages both in single flavors and a mind-boggling array of mixtures in an equally mind-boggling array of package types and sizes. In total, the company produces more than 1,500 SKUs. Jelly Belly currently has factories in Fairfield, North Chicago, IL, and Thailand.

Probably the most famous proponent of Jelly Belly beans was U.S. President Ronald Reagan, who kept a jar of them on his desk in the White House and on Air Force One. He also made them the first jelly beans in outer space, sending them on the 1983 Challenger shuttle as a surprise for the astronauts. President Reagan was responsible for one of the most popular Jelly Belly flavors, when he asked the company to produce blueberry-flavored beans so he could have a red, white and blue mixture at his inauguration.

Started looking in 2008

"We began looking into a new high-speed, automated line in April 2008," says Schneider. "We have 16 packaging lines in the plant, but we make so many changeovers to run all of our products, that they are all relatively slow and labor intensive. We wanted an efficient line that we would use for much longer runs.

"We had some **Bosch Packaging Technology Inc.** equipment in the plant that was working out very well for us, so when company owner and chairman of the board Herman Rowland Sr. saw a complete bag line using robots to pack cartons in the Bosch booth at the 2008 Interpack show, that pretty well cemented the decision."

Bosch took on the project as systems integrator, and first installed the entire line at its plant in Wisconsin to ensure that it was operating properly. Jelly Belly personnel went there for the factory acceptance tests. "The line had to be actually producing product by the end of 2008 for tax reasons," says Schneider. "So a key requirement of the contract was that they had to deliver the equipment by Nov. 15, or we could refuse delivery. That was a real challenge, because nothing goes perfectly and things change on a project of this size, but they actually beat that deadline."

Local contractors installed the equipment, and Bosch personnel spent two weeks at the plant getting everything running. "We started the line before Christmas, and it has been running ever since," says Schneider.

Rotary scales have 18 weigh heads

The new line, which produces about 60 SKUs, incorporates two Bosch model SVE2510 vertical form/fill/seal machines installed beside each other—each running 120 bags/min. Both machines run the same product simultaneously, and the discharge from the two machines is combined onto a common conveyor.

Each bagger has a **Yamato Corp.** radial weighing system mounted on a platform above it. Jelly Belly beans are transported to the packaging line in plastic tote bins or in plastic cases.

The plastic bins discharge through a bottom gate into a vibrating pan that feeds them into a bucket elevator system that lifts them to the scale platform. Workers dump the plastic trays onto a stoker belt located opposite the bins, and it also discharges into the bucket elevator. This entire product feeding system was supplied by **Frazier & Son**.

The elevator travels above both scale systems

and discharges the beans as needed. In an unusual operation, the elevator runs continuously rather than stop when the scale hoppers are filled. A sensor in the bucket loading station senses which buckets are empty and triggers the vibrating feeder to fill only those buckets, while not discharging into buckets that are full.

The Yamato weighing system above each bag machine comprises 18 individual weigh heads mounted around a vibrating top cone and associated radial feed pans. Each head of the scale consists of a feed bucket and a weigh bucket.

Incoming product discharges from the customer's infeed conveyor onto the vibrating top cone. From there it is dispersed evenly into the 18 radial feeders. The radial feeders vibrate at a set amplitude and time causing the product to flow from the top cone to the feed bucket.

The amount of amplitude and time is established to put a set amount of product into each feed bucket. The feed buckets, in turn, control the product flow into the weigh buckets. The ideal amount of product delivered to each weigh bucket is about one-third to one-sixth of the weight of the finished package.

For each weighment (product bag weight), the Yamato control system evaluates the weights in all of the available weigh buckets. The system identifies the best combination of weigh buckets that come closest to containing the total bag weight without being underweight. The selected weigh buckets then are activated to discharge to the bagger.

The Yamato Frontier scales are unique to the industry in that each weigh bucket has two doors that open to inner and outer funnels that discharge into collection buckets at the bottom of the scale. The product is discharged from this point into the bagger. For this system, the Frontier scale utilizes a three collection-bucket system that discharges the product charge alternately into the bagger.

Thus, each set of collection buckets is actually running at half the speed of the bagger. The dual funnels and collection bucket features found on the Yamato Frontier scales are required for the Jelly Belly operation because of the high speed operation of the bagging machine. Slower packaging operations typically operate with weigh buckets that discharge directly into the bagging machine.

Each product discharge (weighment) is displayed on the scale's computer monitor, showing the fill weight, speed, which buckets released product and statistical data. The weighing system automatically calibrates itself for bulk product as it passes through the system, tracks the product and continuously compensates and updates itself for optimal sensitivity.

Product from the scales passes through a metal detector from **Mettler Toledo Safeline** that is mounted just below the scale platform and above the bagger.

The unit automatically calibrates itself as product passes through the system, tracks the candies and continuously compensates and updates itself for optimal sensitivity.

Three pick-and-place robots pick up bags of jelly beans from the incoming conveyor and place them into cartons. The system incorporates a vision system that locates the bags and directs the robots.

"This was one of the items that changed during the course of the project," says Schneider. "We had originally planned to put the metal detectors after the bagging machines, but then our marketing people decided that they wanted to use metalized film, so we put it between the scales and the baggers."

Two vf/f/s machines

The film for the bags is supplied by **Innovative Packaging Solutions Inc**. The film is OPP that is printed on a nine-color rotogravure press.

The film is mounted on the back of the continuous-motion bagger and is pulled into the machine by a combination of rollers and dancer arms on the back of the machine and vacuum belts on the front of the machine. A powered roller running on top of the roll of film provides tension and maintains equilibrium as the film is pulled into the machine.

The film travels over a roller down the front of the unit, where it passes around a forming tube, and a heated shoe produces a vertical overlap seal. Two belts on opposite sides of the forming tube use a unique vacuum technology to help pull the film

Continued on page 22

through the machine.

The belts, which are adjusted to be very close to the tube, but not touching it, contain slots through which a vacuum pulls the film slightly away from the tube as it travels. As described previously, the beans drop intermittently from the overhead weighing system through the forming tube into the continuously moving formed cylinder of film as it leaves this vertical forming section.

Next, the film passes through the continuous motion, servo-driven sealing jaws, which move synchronously with the film. The jaws move in against the film and induction-heat a horizontal seal across the film as they travel downwards.

They then move away from the film and reciprocate up to start the next sealing cycle. At the end of each sealing cycle, before the jaws disengage, an air-actuated blade shoots out from the center of the jaws and cuts the bag loose, after which it drops onto the takeaway conveyor.

The vf/f/s is equipped with a sensor mounted on the film carriage that detects the eyemark on the film. This sensor adjusts the speed of the vacuum belts described previously and compensates for any slight changes in the film length.

This ensures that the film for each bag is always in perfect registration. This registration initiates the start of each cycle and tells the horizontal sealer and cutoff knife when to energize and the Videojet printers when to operate.

The machines are controlled by Allen-Bradley Control Logix PLCs with A-B Sercos servo-drive technology. The Allen-Bradley components are supplied by **Rockwell Automation**. An industrial touchscreen PC is provided for the operator interface.

The machines utilize software from **Wonderware, a business unit of Invensys Systems Inc.** that maintains the recipes for all of the products in memory. The operator can recall them at a touch. The software automatically sets the operating parameters, including the sealer temperatures and the servo drives that, among other things, set bag length. Additional touches to the screen display the settings currently in use, causes of operating problems and maintenance requirements.

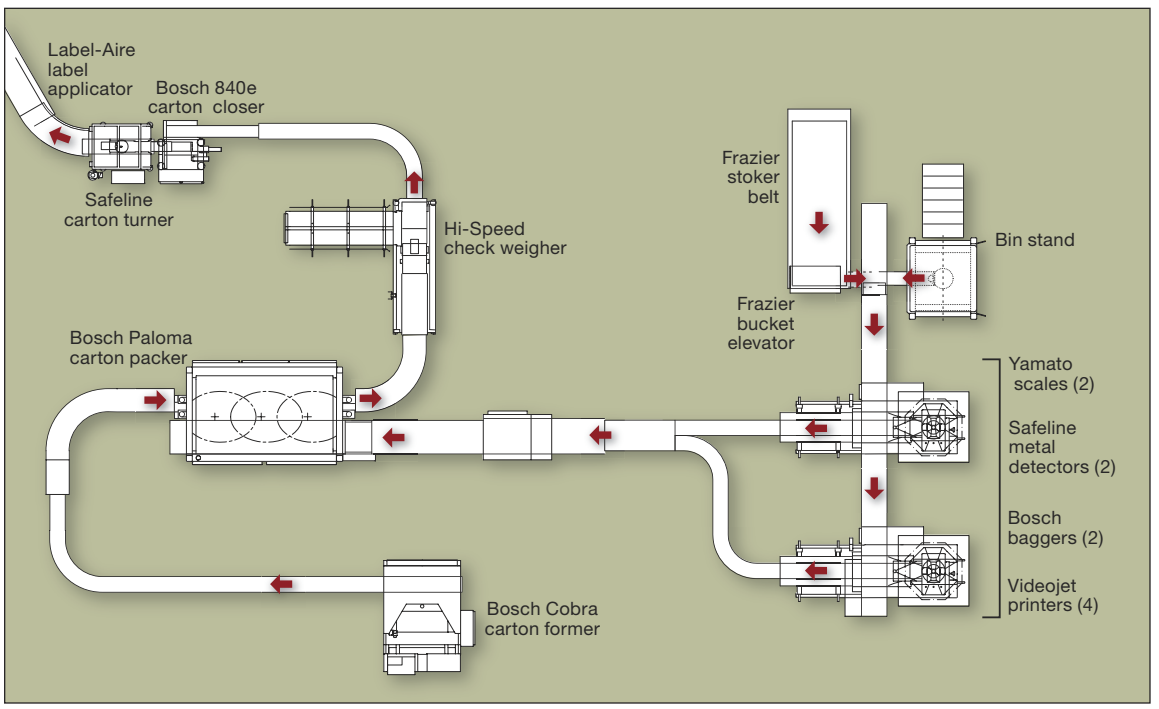
Thermal transfer printer applies code

Two DataFlex® Plus thermal-transfer ribbon over printers from **Videojet Technologies Inc.** are mounted on the back of the machine just before the film enters the machine. Jelly Belly runs both preprinted and generic film. The preprinted film requires that only a date code and best-before date be printed. The generic film contains the logo, color bars and generic information, and these printers print specific information about the bag being run, such as product name, date code, use-by date, weigh and ingredient statement.

The DataFlex Plus printing system is characterized by its low-maintenance, direct ribbon drive, which minimizes downtime and delivers high availability. The long ribbon length together with the ribbon save technology minimizes the number of ribbon changes and downtime during production changeovers. The nominal ribbon loss between consecutive prints is just 0.5mm.

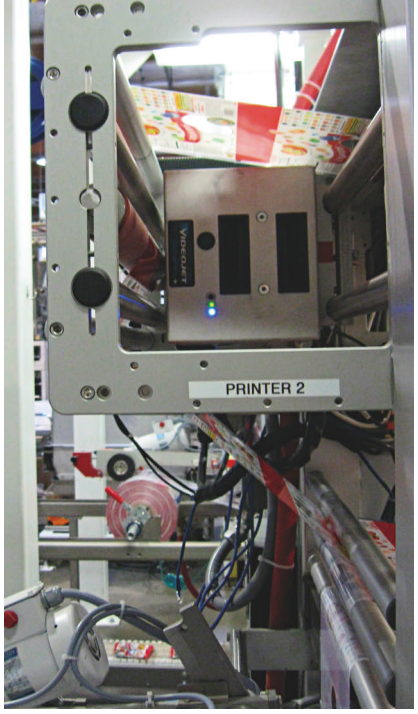
Jelly Belly has incorporated Videojet's CLARiNET® package-coding management software to manage the printing on all of its packaging lines at all three factories. This single-network setup and control solution for all of the printers on the line features integral bar code setup, control and pack validation.

"We just scan in the bar code for whatever product we want to run, and the system automatically sets up all of the printers on the line from information stored on our central database, says Schneider. "All three of our factories pull their printing data from one location. With 1,500 SKUs it is the only way to insure what we print is accurate and up to date. This basically eliminates errors from someone entering the wrong data."

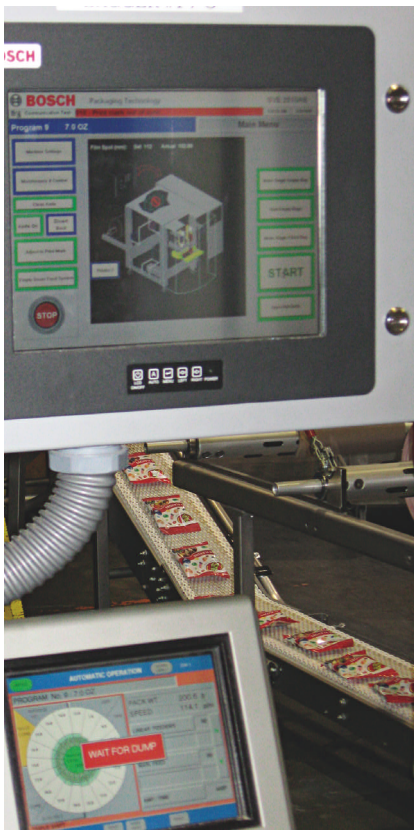


Carton former provides positive control

Bags discharge from the bagger onto individual conveyors and then are merged onto a mass-flow belt that transports them to a Bosch Paloma robotic



Two thermal-transfer printers print selected information on the film as it travels up the back of the vertical form/fill/seal machine, above. Operator stations are mounted next to the machines, below, for easy access.



packer, The cartons for the bags are formed from blanks by a Bosch Cobra carton former. A key feature of this machine is its unique blank transport mechanism, which provides positive blank control from the magazine picking through hot-melt application to the forming-head placement. In this process, once a blank is in place, the glue is applied, after which the forming head descends and pushes the formed carton down onto the take-away conveyor, which delivers it to the Palomar robot.

Three pick-and-place robots

The cartons enter the Paloma, which has three Delta robots in a row, on a flow conveyor running parallel to the robots. A sensor detects the leading edge of each carton and the length of the carton. Since the controller knows the position of the carton, it can calculate the exact location of each carton as it travels through the unit. This information is transmitted to the robots, so they know exactly where to place the bags.

Jelly Belly hand packs some products from the baggers, so there is a pullnose-conveyor system to divert bags to the manual operation just ahead of the robot. Otherwise, the bags discharge onto the mass-flow belt conveyor that transports the Jelly Belly bags through the Paloma robot in the opposite direction to the cartons. The Paloma is equipped with a vision system from **Matrox Electronic Systems Ltd.** that detects the locations of the bags on the belt and transmits that information to the robots.

The robots pick up individual bags with vacuum cups, and the robot arms place the bags into the carton in the correct orientation, pack pattern and count. In this operation, the first robot is told the location of all of the bags entering the loader.

After it picks up bags to place in the cartons, the computer removes those bags from its memory, so the second robot is told only the location of the remaining bags. Likewise for the third robot.

The Jelly Belly system incorporates Bosch's new Gemini

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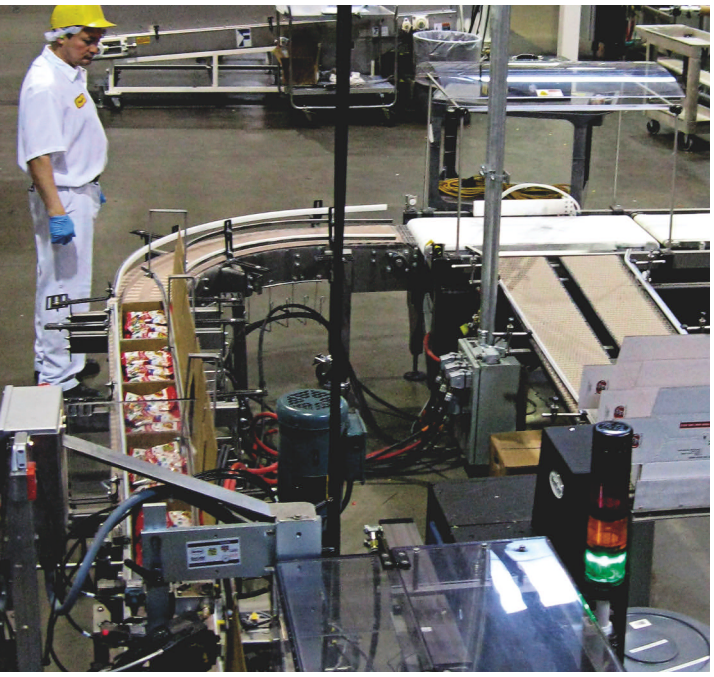
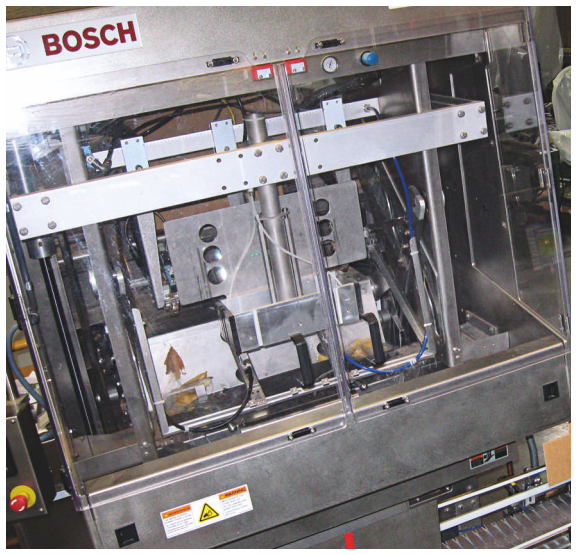




Cartons are formed from blanks, above, and are then delivered to the robotic case packer. Filled cartons from the packer travel over a checkweigher before they enter the closer, left.

3.0 software for Delta style, pick-and-place robots, which allow 3D simulation of new production processes or optimization of existing products, while the machine operates, dramatically reducing installation and changeover times. The system incorporates BLOB (binary large object) technology that provides superior vision recognition which requires less calculation time and which was an important consideration in this operation.

The counter flow of the carton and bag conveyors through the case packer was a deliberate design element of the system. In this arrangement, the first robot sees all of the bags entering the unit, so if the carton that is leaving the packer is not filled, the robot is assured of having all of the bags it needs to complete the fill.

If the bag and carton conveyors were running in the same direction, the robot filling the carton as it leaves the unit might not have enough bags available on the conveyor belt.

"We originally planned on two robots, but that was stretching their capacity, so we added the third," says Schneider. "The same thing with the vision capability. This way, we don't have to orient the bags coming into the packer."

The PC-controlled packer runs cartons that contain from eight to 154 bags, and it can be programmed for all of these packs with the data retained in memory. The operator only needs to enter the product name to change its operation.

Case closing

The cartons from the carton loader pass over a Mettler-Toledo Hi-Speed checkweigher and then enter a Bosch Model 840e case closer. The cartons can enter at random, and are automatically timed into the gluing section, where glue is applied to the major and minor flaps by a **Nordson Corp.** glue applicator.

The cartons are then transported to the dual-cylinder closing section. The first cylinder pushes the carton 90 deg into the compression section, while folding down the top cover.

The second cylinder pushes the carton up into the compression section, which folds down the minor flaps. At this point all three flaps are folded and under compression. The next carton entering

the compression section moves the previous carton up into the discharge section. From the case closer, cartons travel through a Mettler-Toledo Safeline case turner where some cases are rotated 180 deg for special printing, while others travel through without turning.

The cartons are then conveyed past a Model 3138 print-and-apply labeler from **Label-Aire Inc.** that is equipped with a **Sato America, Inc.** M8485e printer. Jelly Belly requires that the line must be able to pack into standard tri-seal shippers and into specialized combination store-shelf display shippers called caddies.

These cartons are a combination shipper and shelf-display all in one. The caddies require an additional UPC code and product-description label, which is applied by the Label-Aire print-and-apply labeler.

The cases are then printed with a case bar code by a Videojet Marsh Encore inkjet printer. This code is used downstream for palletizing. All of the cartons produced on this line then run to a centralized palletizing area, which palletizes all of the cartons produced on all 16 packaging lines.

System integrator for line

As mentioned previously, Bosch was the system integrator for this entire line. The system includes complete line controls with sensors to detect product shortages or backups and operating problems.

Each machine has its own on/off switch, but the conveyors and equipment are controlled so that they automatically will shut down and start up in sequence if there is a problem anywhere on the line.

All of the controls were supplied by Rockwell Automation. All of the bag and carton conveyors on this packaging line were supplied by **Nercon Engineering & Manufacturing Inc.**

"Bosch did a great job for us," says Schneider. "We were on an extremely tight schedule, and they met our deadline. Another feature of the line and equipment is that it is relatively easy to use.

"We wanted to be able to do our own programming and maintenance, and we have achieved that goal. Scott Patrick, president of **Bay Area Packaging,** our local Bosch, Safeline and Hi-Speed distributor, was involved in the project from the beginning and was a tremendous help. He worked closely with us on this project from conception through startup."

More information is available:

Bosch Packaging Technology Inc., 715/243-2557. **www.boschpackaging.com**
Bay Area Packaging, 925/933-8700. **www.baypack.com**
Frazier & Son, 800/365-5438. **www.frazierpack.net**
Innovative Packaging Solutions Inc., 951/693-5580. **www.ipspack.com**
Label-Aire Inc., 714/441-0700. **www.label-aire.com**
Matrox Electronic Systems Ltd., 514/685 2630. **www.matrox.com**
Mettler-Toledo Hi-Speed, 607/257-6000. **www.mt.com/hi-speed**
Mettler-Toledo Safeline, 813/889-9500. **www.mt.com/safelineus**
Nercon Engineering & Manufacturing Inc., 920/233-3268. **www.nercon.com**
Nordson Corp., 770/497-3700. **www.nordson.com**
Rockwell Automation, 414/382-2000. **www.rockwellautomation.com**
Sato America Inc., 704/644-1650. **www.satoamerica.com**
Videojet Technologies Inc., 800/843-3610. **www.videojet.com**
Wonderware, a business unit of Invensys Systems Inc., 949/727-3200. **www.wonderware.com**
Yamato Corp., 262/236-0000. **www.Yamatocorp.com**

Various flavors of Jelly Belly candies are stored in trays for curing before being fed into packaging lines prior to being shipped to more than 50 countries.

Sweet success

Candy maker overcomes packaging challenges for global market at NEW FACILITY IN THAILAND.

John Kalkowski, Editorial Director

The whole world, it seems, has a sweet tooth. With a goal of reaching international sales of 5 million pounds of its American classic jelly beans, the Jelly Belly Candy Co. is trying to capitalize on that fact with its first overseas manufacturing facility.

Jelly Belly faced a capacity problem. Its two U.S. manufacturing facilities could hardly keep up with U.S. demand, let alone the growing demand for its intensely-flavored confections from consumers in other countries. So, in 2006, Herman Rowland Sr., chairman and CEO of the company, began searching for a site and finally settled on Thailand after a nearly yearlong search.

Meets needs to supply global market

According to Mike Bianco, Jelly Belly's senior vp of global operations and distribution, Thailand was chosen because it is business-friendly, has a good labor supply and all the raw materials needed to produce the candies are readily available. Working with the Thai Board of Investment (BOI), an agency of the Thai government, Jelly Belly located a site within a manufacturing estate southeast of Bangkok and near the country's major ports. There, they built a 50,000 sq-ft plant, which was opened in October 2008.

Bianco says the facility is located within a free-trade zone in Rayong Province owned by a publicly-traded company. The manufacturing estate, which houses a number of international companies, such as Ford, General Motors, Johnson Controls, Tetra Pak and SIG Combibloc, provides an infrastructure to support manufacturing. The BOI also helped Jelly Belly with tax incentives, sourcing local materials and hiring and training of local employees.

Herman Rowland Jr., a member of Jelly Belly's founding family and a fifth-generation candy maker, now is the managing director of plant in Thailand.

He acknowledges there were some difficulties in constructing the plant, but says now it is running, and Jelly Belly is producing candy to the same specifications as the U.S. facilities and shipping to more than 50 countries. The production at the Thai facility is primarily directed to global markets outside the U.S. and, surprisingly, it is not sold in Thailand yet because of restrictions due to its production in a free-trade zone.

Candy meets demanding specs

Some customers were concerned that the candies manufactured in Thailand might not measure up to the company's high standards, Rowland Jr. says. "We use only the best ingredients, and it's got to be right or it doesn't leave here," he remarks.

The company's jelly beans and other candies come in a wide variety of packaging that ranges from PP pouches to overwrapped gift boxes and hand-packed tins. Because of this, Bianco says, the plant in Thailand has eight different packaging lines with varying degrees of automation to handle the multitude of packaging types.

Bianco says that Thailand's tropical climate presents additional challenges to both the candy-making and packaging processes. The high heat and

In the far left photo, each Jelly Belly bean is imprinted with the company's logo just prior to packaging. Despite the extensive use of automation in the Thailand facility, some Jelly Belly packaging in the near left photo requires manual cartoning, weighing and overwrapping.

humidity can cause the sugars and starches to melt or become tacky. The process of making jelly beans can take several days as the mixtures are colored, flavored and cured to form hardened layers.

"We spent a fortune on air handlers, chillers and insulation to control the plant's climate," Bianco points out, adding that the candies are shipped to other countries inside climate-controlled containers.

Packs printed in multiple languages

"What makes our packaging process in Thailand unique is that we ship to many countries so we have to print items like ingredient lists and other country requirements in multiple languages," Bianco says. To achieve this, he says, pouches and other types of packaging are first printed generically with Jelly Belly's logo and other standard marks. Then, just before the packages are filled, the company uses **Videojet** inkjet printers to add necessary information in whatever language is required.

Bianco says the company assembled packaging equipment from a number of sources to meet these diverse needs. For instance, they have bulk packing systems, drop form fillers, pouching lines, a pyramid machine, flip-top box machine and a **Scandia** overwrapping system. The product feeding system is largely on conveyors supplied by **Frazier & Sons.**

Some of this equipment comes from Jelly Belly's U.S. facilities, and was rebuilt before being shipped to Thailand for installation. The facility's two **Hayssen** baggers were sourced from the United Kingdom. Bianco says Jelly Belly also has "a great little machine shop," which the company used to engineer its own bulk packer and gift-box packer.

He points out that every package of candy passes through a **Mettler-Toledo** metal detection system at least twice before shipping.

Although the plant in Thailand does utilize automated systems, Rowland says several types of its packaging require manual steps. That is one of the benefits of manufacturing in Thailand, where Jelly Belly has a staff of 90 persons with only three "farang" or foreign managers. He says the Thai personnel are hard-working and well-trained, and the labor costs make the manual packing competitive when it's needed.

While Jelly Belly has relied on multiple international sources for its packaging equipment, Rowland Jr. says that when it comes to packaging materials, the company does try to buy locally. Most of the jelly beans are packed in OPP pouches, and Bianco says there are a number of international suppliers for this material based in Thailand.

With only a year of production under its belt, Jelly Belly is happy with its results in Thailand and already is considering plans to double the capacity at its site there.

More information is available:

Frazier & Son, 800/365-5438. **www.frazierpack.net**
HayssenSandiacre, 864/486-4000. **www.hayssensandiacre.com**
Mettler-Toledo Hi-Speed, 607/257-6000. **www.mt.com/hi-speed**
Mettler-Toledo Safeline, 813/889-9500. **www.mt.com/safelineus**
Scandia Packaging Machinery Co., 973/473-6100; www.**scandiapack.com**
Videojet Technologies Inc., 800/843-3610. **www.videojet.com**

Robots palletize paint cans

A palletizing operation with two robotic cells and a pallet dispensing and conveying system at **KELLY-MOORE PAINT COMPANY INC.,** achieves a 66 percent ROI from reduced labor costs.

Jack Mans, Plant Operations Editor

A new $1.5-million, two-robot palletizing installation at Kelly-Moore Paint Company Inc., San Carlos, CA, saved $1 million in labor last year for an ROI of 66 percent. The robots serve four paint-filling lines; two identical lines run 1-qt and 1-gal plastic cans at 25 cans/min and two other identical lines run 5-gal buckets at 40 buckets/min. "We were manually palletizing all of these products, but this was very labor intensive," says plant manager Keith Hussinger. "In 2008, we decided to investigate an automatic palletizing operation. We didn't have room for mechanical palletizers, so we settled on using robotic units."

Kelly-Moore is the largest employee-owned paint company in the U.S., with approximately 163 retail stores, two major manufacturing facilities in San Carlos, CA, and Hurst, TX. that produce nearly 15 million gal of paint per year.

Kelly-Moore looked into several vendors, but settled on FKI Logistics (now **Intelligrated Inc.**). "They weren't the lowest-cost vendor," says Hussinger, "but we were very impressed by all of the upfront details they offered. They provided at least five design iterations for us to look at, and they were very professional." Intelligrated provided complete system integration for the project, including product infeed conveyors, a pallet dispensing and handling system and a loaded-pallet take-away system.

Kelly-Moore has two robotic-palletizing cells; one for the pair of gal/qt lines and one for the pair of five-gal lines. The gal/qt cans are loaded onto trays before being conveyed to the palletizer, four gal cans/tray and nine qt cans/tray, while the five-gal buckets are conveyed individually.

Tray packers

As part of the project, Kelly-Moore installed two Model 170 tray packers from **A-B-C Packaging Machine Corp.** on the two gal/qt lines. The machines are installed in left- and right-hand configurations, so one line attendant can easily refill the tray magazines and glue reservoirs. No lifting is required to load stacks of tray blanks into the low-level extended magazine, and a conveyor moves one stack at a time into the machine, where the stack is raised to the infeed level.

Cans are conveyed from the filler to the side of the packer, where they are accumulated in lanes—two wide for the gal and three wide for the qt. At each loading cycle, a conveyor with chain-mounted flight lugs pushes the top tray blank into the forming section of the machine, where the front flap is folded up. The lugs then push the tray into the loading section, where the back flap is folded up and a load of cans is pushed onto the blank; four gal cans or nine qt cans.

At this point, the front and back flaps are extending out past the tray, and the side flaps are still flat and also extending outward from the tray. A harmonic-motion drive transfers the tray through the hot-melt glue applicator from **Nordson Corp.,** which sprays the glue onto the end flap extension. In the next machine zone, the side and end flaps are folded around the product load by steel folding

Kelly-Moore has two robotic-palletizing cells: One for the pair of gal/qt lines, and one for the pair of 5-gal lines. The gal/qt cans are loaded onto trays before being conveyed to the palletizer, while the five-gal buckets are conveyed individually.

The gal/qt robot picks up three trays at a time. Its end effector is a large foam-covered plate that features a series of valves in the plenum that shut off if they are not covered by the cans being picked up. Thus, the vacuum is applied only to the area where cans are present. This combination of a strong vacuum generator and a directed vacuum application provides a very strong lifting capability that can handle the heavy load of cans.

The tray packer, top, is easy to load because of its low-level tray magazine. features an easy-load magazine. The bucket robot, above, required a unique end-effector design, because the 5-gal bucket has a small port in the top that must be shielded from the vacuum.

arms that securely square and seal each tray, for tight-pack trays that palletize well. The trays are then conveyed to the palletizer.

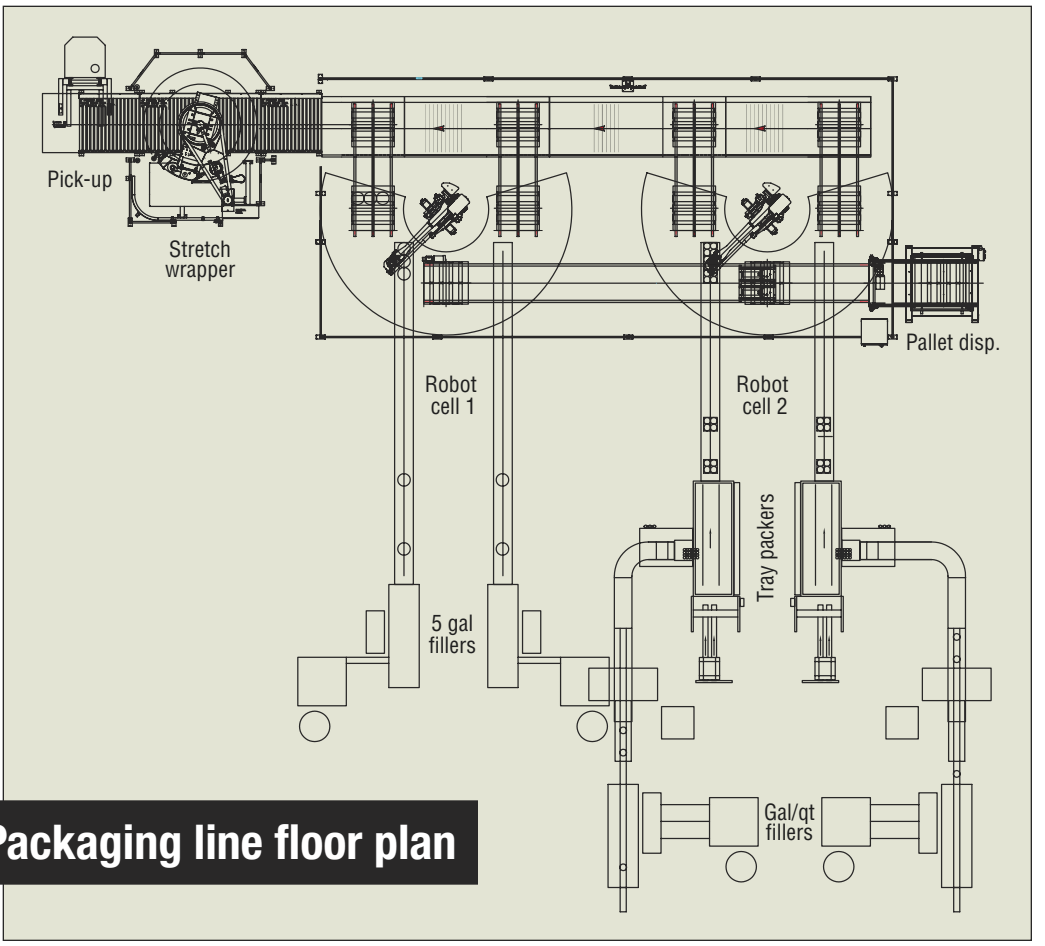
The packers are controlled by Allen-Bradley PLCs from **Rockwell Automation**. Safeguards switch the packer to standby mode if the tray or product supply is interrupted and resume normal operation when the supply returns.

Unique end effectors

The paint cans/buckets from each pair of lines enter the palletizing cell dedicated to those size containers on two parallel conveyors, and the containers from each conveyor are palletized on a pallet dedicated to that conveyor. Thus each filling line can run a different product. The robot swings from one conveyor to the other to pick up the cans and place them on their respective pallets. For this project, Intelligrated selected Model EPL 160 robots from **Motoman Inc.** Designed specifically for palletizing, these four-axis units feature internally routed air and I/O signal lines between the base of the robot and the end-of-arm tool to virtually eliminate cable and hose wear. This improves flexibility and minimizes downtime.

The end tools for the two robots are both vacuum-activated, but otherwise are very different. The gal/qt unit, which picks up three cases at a time, utilizes an end tool from Swedish supplier **Tepro Machine & Pac System AB**. This tool, which uses a blower to generate vacuum, is a large foam-covered plate that features a series of valves in the plenum that shut off if they are not covered by the cans being picked up. Thus, the vacuum is applied only to the area where cans are present. This combination of a strong vacuum generator and a directed vacuum application provides a very strong lifting capability that can handle the heavy load of cans. Another feature of this tool is a vacuum arm that swings in against the tray and holds it in place when the robot is lifting the load. This is required because the top vacuum only holds the cans, so the

Continued on page 30



Packaging line floor plan

tray would fall off if this arm was not present.

The bucket robot, which picks up three buckets at a time, has a more-standard end effector from Intelligrated that uses a compressed-air venturi to produce the vacuum. This effector required its own design because the five-gal buckets have a small port in the top through which tinting color can be added to the contents.

To ensure that this port would not be opened inadvertently during palletizing, it was necessary to make sure that the vacuum would not be applied to the port. Intelligrated accomplished this by designing a 2-in. wide ring with raised lips on the end effector that would contact the lid of the bucket and shield the port from the vacuum.

The palletizing installation includes a pallet-dispensing system with a magazine that holds 20 to 24 pallets. When the controller calls for a pallet, the entire stack is lifted. Fingers come in below the second pallet from the bottom, after which the bottom pallet is lowered onto the conveyor and conveyed to the robotic cell that needs it.

When a pallet is completely loaded, it is transfered onto a cross conveyor that transports it to a **Lantech.com** stretch wrapper.

PC-based control

The entire palletizing operation is controlled by a Motoman NX100 PC-based pendant controller that features a Windows® CE programming pendant and fast processing, easy-to-use INFORM III programming language. Advanced motion-control provides high-performance path accuracy and vibration control, while dual-channel safety features include enhanced E-Stop functionality, integrated speed monitoring and manual brake release for the robot. The NX100 eliminates the need for a separate PLC, providing significant cost savings and decreasing system complexity.

The NX100 teach pendant features a unique cross-shaped navigation cursor that reduces teaching time by 30 percent. Other features include a full color touch display, compact flash slot for easy backups and an optional online troubleshooting guide for expert system maintenance. Most operator controls are located on the pendant, allowing the NX100 control cabinet to be mounted remotely.

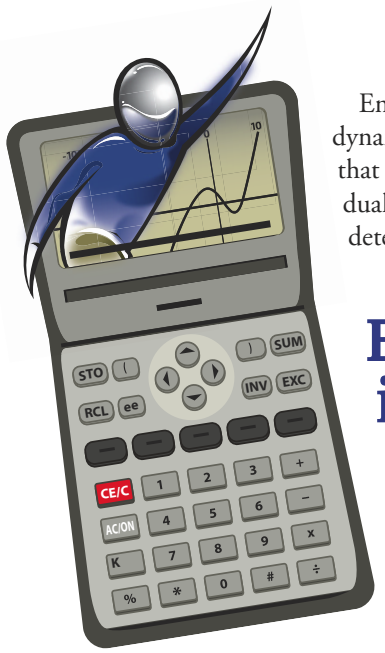
Intelligrated has been great. They assisted with the installation and startup … The uptime from maintenance blew away my expectations.

"Intelligrated has been great," says Hussinger. "They assisted with the installation and startup and also provided onsite training for our operators. We run the systems constantly, and the uptime from maintenance blew away my expectations. They have local representatives who are always available, and their service has been superb. We had a mishap that damaged some equipment, and a service man flew out here from St. Louis on a Friday night and was in the plant Saturday morning."

More information is available:

Intelligrated Inc., 513/701-7300. **www.intelligrated.com**
A-B-C Packaging Machine Corp., 727/937-5144. **www.abcpackaging.com**
Lantech.com, 502/267-4200. **www.lantech.com**
Motoman Inc., 937/847-3200. **www.motoman.com**
Nordson Corp., 770/497-3700. **www.nordson.com**
Rockwell Automation, 414/382-2000. **www.rockwellautomation.com**
Tepro Machine & Pac System AB, +46 560-27270. **www.tepro.nu**

engineers' outlook



Engineers should take initiative to earn place on innovative projects

Envision working on the dynamic, cross-functional team that develops a self-dissolving, dual-chamber, dishwasher detergent package.

Innovative projects like these captivate our passion for packaging, challenge us intellectually and, when successful, reward us on many levels. So it's no surprise that they are highly desired within packaging departments.

Unfortunately, due to the investment and risk associated with bringing these projects to market, positions on these projects are few and frequently are assigned to seasoned engineers with established records of delivering innovation. So how do the rest of us gain the experience to become one of these seasoned packaging innovation engineers?

Initiative. Yes, initiative separates the packaging engineers who almost exclusively support front-end innovation from those who support brand maintenance and cost improvement.

Create opportunities both within and outside your company to engage in innovative projects regardless of how small your contribution may seem. Then deliver exceptional results each time.

Analyze projects for opportunities to gain added value through innovation. For example, an engineer working on a case redesign project can take the initiative to design a case that's easy for the brand owner to manufacture, for the retailer to place on the shelf, and for the consumer to recognize the product contained, remove the product from the container and recycle the packaging.

Investigate the packaging's impact on the entire value chain and include these risks with the benefits when presenting your ideas to management.

Offer to do the non-glamorous portions of an innovative project, such as the background research or to create drawings.

Learn from your peers and especially your suppliers by asking questions.

If packaging is truly your passion, you'll enjoy networking with other packaging professionals and sharing your packaging-related interests outside of the workplace, too. Every day, note new packaging by taking pictures, collecting samples and discussing them with family, friends and colleagues.

Consider the underlying packaging development concepts and identify the standards of excellence in design and execution implemented. Participate in online forums belonging to IOPP, LinkedIn and Facebook or *Packaging Digest.* Also, don't forget to attend and explore trade shows.

Participate in open innovation projects and be prepared to submit your creative solutions to tough packaging problems for companies such as Procter & Gamble or Kraft or take the initiative to volunteer to help a local business or organization.

Being involved in packaging projects shouldn't really be just a job; it should be a passion. So, lest our days be relegated to the equally important but more-mundane material changes, supplier qualifications, artwork changes or cost improvements, engineers need to take the initiative to make innovation happen.

Profiles in packaging:

"Never say never. If there's a problem, then there's a solution, even if it's not evident today"

Name: Alan Blake

Position: associate director, corporate packaging sustainability and front-end innovation at Procter & Gamble

Almost 28 years ago, Blake began his career at P&G in Europe on the process and product development side of the business. A few years later, he attended a P&G regional meeting where he met a packaging development manager, who would help him discover his talent for packaging.

Armed with a passion for interacting with cross-functional peers, Blake began working on and leading packaging projects that delivered significant growth for P&G.

He soon was given responsibility for P&G's Fabric Care packaging across Europe, before earning the assignment that would bring him to the U.S.

Blake's perspective on packaging innovation: "If an innovation provides value to our customers or P&G, then it's valuable to our company, irrespective of its origin," he explains. "The great majority of innovations in the world will be created outside of P&G. My role is to identify these innovations and then ensure we develop both our internal and external ideas to maximize their impact for our business, our customers and our consumers. A key part of being innovative is being able to identify and manage the risk associated with the unknown."

His career advice: "Find a coach, a mentor, someone who understands your strengths and will be an audience for your thoughts," Blake suggests. "Be open-minded and adapt to an industry. Be entrepreneurial and courageous enough to take every opportunity to build your knowledge."

Prateek Lal, author of Engineers' Outlook, is managing director of Adept Packaging, an international firm of consulting packaging engineers. For more information, email prateek.lal@adeptpkg.com.

HDPE bottles are filled with capsules containing the powdered juice concentrate, sealed, then capped.

More than a pretty **face**

Juice Plus+ uses **FULL-COLOR, SINGLE-FACE, LAMINATE SHIPPERS** for a more efficient and cleaner pack-out process that helps make a stylish first impression.

Linda Casey, Senior Editor

National Safety Assoc. (NSA) Corp., Collierville, TN, says its Juice Plus+ product line has enjoyed double-digit market growth for the last 15 years. This didn't stop the brand owner from looking at how a packaging update could

1.) excite its direct sales franchisees

2.) reinforce the product's benefits by visually depicting the nutritious produce used to create the powdered juice concentrate (PJC)

3.) better address the product consumer base

4.) optimize the packaging structure's functionality to enable easy reclosure for the product's two-stage pack-out process.

Woman-dominated sales force

"Almost 40 years ago, we actually pioneered the home and office fire prevention system" says John Blair, vp of product and research for NSA Corp. "Our previous products were more of the appliance type—they were the fire prevention system, water filtration at point of use in the home, and air filtration in the home and office.

"We entered the nutrition business some years ago," Blair adds. "Since that time, we have gravitated from a sales force that was made up of mostly men to one that's mostly women. So we wanted the packaging to be softer [to reflect the move from an appliance-based business to nutritionals business] and more appealing to female consumers and distributors."

Working with its design agency **Bray Leino Ltd**, NSA designed new corrugated shippers. Light tan backgrounds with printed textures soften the overall look. The fruits and vegetables used to create each product are visually highlighted with vibrant photography. Previously, the packaging used abstract graphics to represent the produce.

Design that goes beyond just graphics

More than the graphics were updated in this project. NSA also worked with design-and-supply company **Peek Packaging** to create a structure that would better fit the Juice Plus+ pack-out process.

"In our discussions with NSA, we found that when they receive the filled shippers that they actually open the box back up, place literature inside the shipper, and reclose the box," Bob Peek, owner of Peek Packaging, recalls. "The problem NSA was having is with the tie-locks. Tie locks use little slits to make sure a

tab once tucked in doesn't come undone easily.

When a corrugated box with tie locks is reopened, the box tends to tear, which disfigures the top."

Peek Packaging designed a new packaging structure that used a friction lock on the tuck instead.

"We added two little bumps to the sides of the top box panel. This design helps keep the box from accidentally being opened, but still allows the box to be opened and closed repeatedly without damage," remarks Peek.

To quicken the pack-out process for NSA's copacker **Natural Alternatives Intl Inc. (NAII),** Peek Packaging also changed the base of the corrugated shipper to an auto-bottom. This simplifies box erection as a line worker would only need to press on the edges of the box to move the box's tuck tabs into place, thus creating a secure base.

Peek was so confident of his company's solution that he had a short run of the boxes manufactured before he even had the client sign-off.

"I didn't have a contract; I wasn't doing their boxes," Peek recalls. "But I went ahead and contracted with my box supplier to have a short run of 1,000 boxes manufactured on my dime. NSA had a show coming up. I knew that they would want to show off these new boxes. I invested the money on solving the problem because I also knew that because the boxes are single-face, laminate that the lead time was long."

Tuned colors

Before the files could be reproduced on press, Peek Packaging's supplier **Allpak Trojan** fine-tuned the color and layouts.

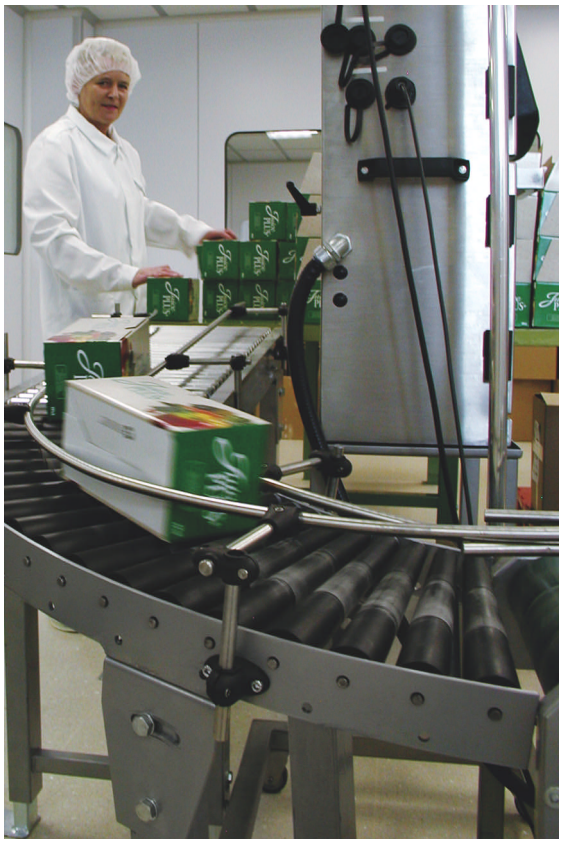
"Our prepress equipment, all our computers, everything, are specific to the process of preparing art files for our printing presses," explains Jackie D'Ambrosio, an account representative for Allpak Trojan. "Our technicians use the equipment to show customers exactly what will yield on our printing presses. So while a proofing printer in a graphic artist's studio might have been calibrated a certain way and produced a proof that reflects those adjustments, the reality is that the file might look very different on a printing press than it did on the proof."

The combination of brightly

Continued on page 36

colored photography and the four-color beige background made file preparation and color correction challenging.

"The four-color process background was extremely sensitive to the slightest shift in any of the processing," D'Ambrosio recalls. "You've got this vignette with fruits and vegetables that are very saturated, and all these graphic elements are all tied together on the same four process plates. If you manipulate, say the carrot, you can cause a very strange coloration shift in the background that you didn't intend."



A line sends filled corrugate boxes down a conveyor. The boxes' auto-bottom design (seen against the conveyor track) enable quick and easy pack outs.

To ensure that Allpak Trojan met customer expectations, it used a **Rampage** workflow that enabled it to rasterize the file only once before output to any of the package printer's presses or devices.

"We RIP (raster image process) the file once for consistency of data," says D'Ambrosio. "This way you don't risk any corruption of the file or changes to the file [not being present in all versions]."

Proofs were made using an **Epson** inkjet printer, which is profiled to match the package printer's presses.

Once the final proof was approved, the package printer and converter used a **Screen** PlateRite Ultima CtP device to image the aluminum plates. To help reduce color shifts, stochastic screening was used to image the dots.

Box manufacturing

Imaged plates are mounted onto a **KBA** Rapida, eight color plus coating press, which prints the solid bleached sulfate (SBS) sheets that become the outmost layer of the shipper.

The printed SBS sheets are laminated to the open-face corrugated web using a laminator from Asitrade, a tradename belonging to equipment supplier **Bobst Group**. Rolls of liner board and medium are loaded onto the Asitrade, which then flutes the medium and applies it to the liner. The open-face corrugated web is topped with the printed SBS top sheets. The Asitrade then cuts the finished corrugated web back down to sheets, which are stacked in the machine's delivery.

The composed single-face sheets are moved to the Allpak Trojan's finishing area, where postpress operators use a Bobst CER with a laser-cut die to die-cut the composed single-face sheets.

"What makes our boxes superior is that we cut flatbed with a counter die and matrixes and we cut from the backside of the box," D'Ambrosio comments. "A lot of people who do this style of box—the single-face, litho-lam—cut from the topside of the box. This causes score lines to fracture when the box is folded."

The die-cut carton blanks are then run through a Bobst Domino straight-line gluer, which converts the blanks into auto-bottom boxes.

The boxes are carefully case-packed to prevent warping or bending while in transit 1,200 miles to the copacker.

Product manufacturing, packing

Juice Plus+ products for U.S. distribution are manufactured at NAII's facility in San Marcos, CA.

The JPC is manufactured according to NSA specifications, then packed into capsules supplied by **Capsugel, a division of Pfizer Inc.**

Filled capsules are loaded onto the packing line using a hopper hoist; HDPE bottles enter the packing line from a **Kaps-All** unscrambler.

One of NAII's many slat fillers, which include models from **Integrated Packaging Systems Inc.** and **IMA Swiftpack,** are used to dispense the capsules. Filled bottles are first checked for weight

by an Alpha checkweigher from **All-Fill Inc.**; either a **Lock Inspections Systems Inc.** or a **Loma Systems** metal detector ensures that bottles have nometal containments.

To further ensure consumer safety, an **Auto-Mate** induction sealer secures liners over bottles' openings. An **Arol** rotary capper closes containers. Shrink equipment from either **Marburg Industries** or **PDC Intl Corp**. is used to apply tamper-evident bands around the Juice Plus+ flip-top caps.

NAII flexo-prints the labels using an Arpeco Ink press (Early this year, the Arpeco brand was acquired by **Mark Andy** and has been folded into its Rotoflex line) using DuPont Cyrel plates. Label artwork is prepped using software from EskoArtwork.

A Bronco labeler from **NJM/CLI Packaging Systems Intl** places the printed labels onto the bottles. Lot codes and expiration dates are placed by either a **Videojet** printer on the bottom of the HDPE container or by a **Markem** thermal-transfer printer onto the label.

Positive feedback

The new shippers have been well received. NSA partially attributes the continued market growth of Juice Plus+ in Europe and the strength of U.S. product demand to its packaging update.

More information is available:

Peek Packaging, 760/438-1616. **www.peekpackaging.com**
Natural Alternatives International Inc., 800/848-2646. **www.nai-online.com**
AllpakTrojan, 425/227-0400. **www.allpaktrojan.com**
All-Fill Inc., 800/334-1529. **www.alphacheckweighers.com**
Arol USA Inc., 678/318-1290. **www.arol.com**
Auto-Mate Technologies Inc., 631/369-3903. **www.automatetech.com**
Bobst Group North America Inc., 704/587-2450. **www.bobst.ch**
Bray Leino Ltd., +44 1598 760 700. **www.brayleino.co.uk**
Capsugel, a division of Pfizer Inc., 908/901-8000. **www.capsugel.com**
Epson America Inc., 800/463-7766. **www.proimaging.epson.com**
IMA Swiftpack, +44 789 400 880. **www.swiftpack.com**
Integrated Packaging Systems Inc., 973/664-0200. **www.ipsnj.com**
KAPS-ALL Packaging Systems Inc., 631/727-0300. **www.kapsall.com**
KBA North America Inc., part of the Koenig & Bauer AG group, 800/522-7521. **www.kba.com**
Lock Inspection Systems Inc., 800/227-5539. **www.lockinspection.com**
Loma Systems, an ITW Co., 800/872-5662. **www.loma.com**
Mark Andy Inc., 636/532-4433. **www.markandy.com**
Marburg Industries, 760/727-3762. **www.marburgind.com**
Markem Corp., 800/322-0057. **www.markem.com**
NJM/CLI Packaging Systems Intl, 800/432-2990. **www.njmcli.com**
PDC Intl Corp., 203/853-1516. **www.pdc-corp.com**
Rampage Systems Inc., 781/891-9400. **www.rampageinc.com**
Screen (USA), 800/372-7737. **www.screenusa.com**
Videojet Technologies Inc., 800/843-3610. **www.videojet.com**

A custom-manufactured tamp pad places a label onto the side panel of a case.

Armed for precision labeling

A print-and-apply labeling system with **CUSTOM-ENGINEERED TAMP ARM** precisely labels corrugated cases and reusable plastic totes, even when the label placement area is tight and recessed.

Linda Casey, Senior Editor

ITW Highland, Waterbury, CT, has finished a yearlong packaging line upgrade that so greatly improved the efficiency of one of its four metal parts packing lines that the majority of its packaging is now done on this updated line.

As one of four businesses units within ITW Drawn Metals Group, Highland provides deep drawn and progressive metal stamping for customers in the automotive, medical, telecommunications, industrial, consumer goods and electronics industries.

The contract manufacturer produces more than 300 different products, and in a typical day can prepare and label 1,000 parts packages. For many of its customers, these parts orders can be packed in corrugated cases that Highland purchases from U.S. Corrugated Inc. One customer has embraced the reusable packaging movement though.

"This major customer wants everything in reusable totes," says Karl Knightly, automation technician at Highland. "Every week, they send a tractor-trailer with the totes and we fill the totes up with probably 40 or 50 different parts."

Reusable packaging benefits, challenges operations

These HDPE, utility-grade plastic totes offer some logistical benefits, e.g., their consistent size and their cross-docking features, allow 30 totes to be stacked on a skid. Because the corrugated cases differ in size, a skid can contain from 20 to 40 cartons and typically averages 27 cartons, which is three fewer filled packages than a skid of totes.

Unfortunately, the reusable totes present a significant packaging challenge: The labeling area for the plastic totes is recessed by 0.5 in. and doesn't allow for a lot of play in label placement. The customer who owns the totes also does not tolerate inconsistent labeling.

"With this particular tote customer, it has to be right," remarks Knightly.

Working with limited resources

To ensure proper labeling of all packages, including these plastic totes, Highland was labeling all the totes manually. This proved to be an especially time- and labor-extensive step in the pack-out process.

"It might seem like labeling is not a big deal because it doesn't take long to grab a label and put it on a box," Knightly explains. "But jobs that are packed with oily parts are packed by an operator wearing gloves, so the operator has to take a glove off, remove the label from the printer, place the label on the tote, and put his gloves back on."

When Knightly joined the company in 2006, he was charged to execute a packing line improvement plan that included automating the package labeling processes. After researching different print-and-apply options on the market, one was from another Illinois Tool Works division, **ITW Diagraph**, but the other devices were manufactured by companies outside the ITW conglomerate of compaines.

"I just wanted to be sure that we were getting the best," Knightly says. "This wasn't a million dollar project, but it still involved a considerable amount of money. I wanted to be sure that when it's all said and done that the machine I put on the floor worked reliably and consistently."

He also wanted a unit with all the major components—print engine, label applicator, conveyors—already integrated.

"One of the things I really wanted was for this to be a plug-and-play type of unit," Knightly remarks. "I could have purchased a conveyor and then try to integrate it. But we have limited resources, and I work by myself many hours in the day. Sometimes, it's easier and better if you can find a company that will do the integration for you."

The deciding factor on this purchase ended up being something other than cold, hard metal.

Building a support team

The customer support offered by the Diagraph salesman is what ultimately sold the integrated system for Knightly.

"The salesman from Diagraph—Chris Nevin—made me feel confident that they knew what they are talking about and that they would stand behind the product," Knightly comments. "A lot of the solutions out there are pretty similar—there's not a big difference in price. I wanted to be sure that I wasn't getting just a lot of talk."

To ensure that he wasn't giving Knightly 'just

The reusable plastic tote presents a labeling challenge because it is recessed 0.5 in. and demands exact placement.

a lot of talk,' Nevin brought in technical experts as early as the bidding process.

"I think salespeople know the systems fairly well," says Nevin. "But for me, a key part of my service is including the technical field people because they make it happen."

Nevin brought in two technicians straightaway: Chuck Wyke, who worked with Knightly during the design process; and Damon Neal, who took the specifications gathered in the field by Wyke and Nevin and applied them to the manufacturing and assembly process.

Three machines that work as one

The Diagraph solution utilizes three integrated machines: a Diagraph Platinum Series PA6000 FASA with a front apply swing arm and custom tamp pad; a **Zebra** 110 PAX 4 print engine; and a custom integrated **R.L. Craig** conveyor.

The custom tamp pad was important because of the tight constraints of the plastic tote's recessed labeling area. Nevin explains, "There was very little room for error—maybe a sixteenth or eighteenth of an inch."

The system not only can place the 4 x 6-in. label with the part number, lot number, quantity, customer name, customer part number, date and bar-code on the plastic totes. It also is being used to place labels on the leading panel and the side panel of the corrugated cases.

Multiple upgrades offer multiple benefits

The print-and-apply labeling system is one of many upgrades made to the packing line. Highland replaced its 2 cu/ft hopper with a 15 cu/ft model, which often is large enough to hold a complete lot of work. The manufacturer also added a **Rice-Lake** checkweigher.

Commenting on the improved workflow, Knightly says, "Now we can fill level, close the box and push it through the Little David automated box taper [supplied by **Loveshaw**]. It goes to the labeler and it's done. It just makes it so easy."

Knightly is so pleased with the print-and-apply labeling system that, at time of publication, he is installing a second system. The new labeling system will be installed at the end of a parts washing line.

More information is available:

Diagraph, 800/722-1125.
www.diagraph.com
Loveshaw, an ITW Co., 800/572-3434.
www.loveshaw.com
U.S. Corrugated Inc., 973/353-8088.
www.uscorr.com
Zebra Technologies Corp., 866/230-9494.
www.zebra.com

A carton top-loading system at **NUTRI-NATION FUNCTIONAL FOODS** uses a pick-and-place robot to place different size food bars into cartons at speeds up to 350 bars/min.

Robotic loader improves **flexibility**

Jack Mans, Plant Operations Editor

A new robotic carton loader at Nutri-Nation Functional Foods, Port Coquitlam, BC, has dramatically improved productivity and flexibility. Nutri-Nation is a contract manufacturer of private-label, functional-food products specializing in energy bars, sports nutrition bars, as well as total meal-replacement bars.

Nutri-Nation differs from many private label manufacturers in that it does not simply draw from a stock set of products that are sold to multiple customers. Every formulation is unique, and customers have access to the company's inhouse research and development team to create bars that fit their individual product concepts.

Nutri-Nation began operations in 1998, and now has three production lines, but it was packing its bars into cartons manually. "This had become a problem," says president Richard Schroeder. "Although we produce trailer-load quantities for many customers, we also accept relatively small orders, some as small as 50,000 bars. Because we run many different bar sizes, we sometimes have a number of changeovers during a single day. Plus, we needed different numbers of workers as our operations changed, so we sometimes end up with more people than we could use, which was very inefficient. We had reached a point, where we needed an automated carton loader."

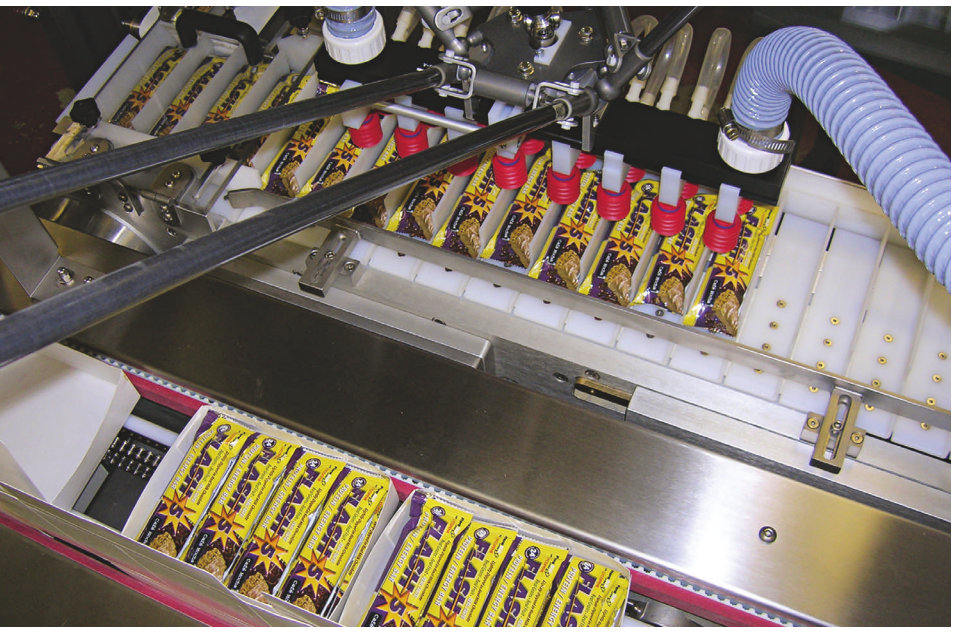
Robot loads up to 350 bars/min

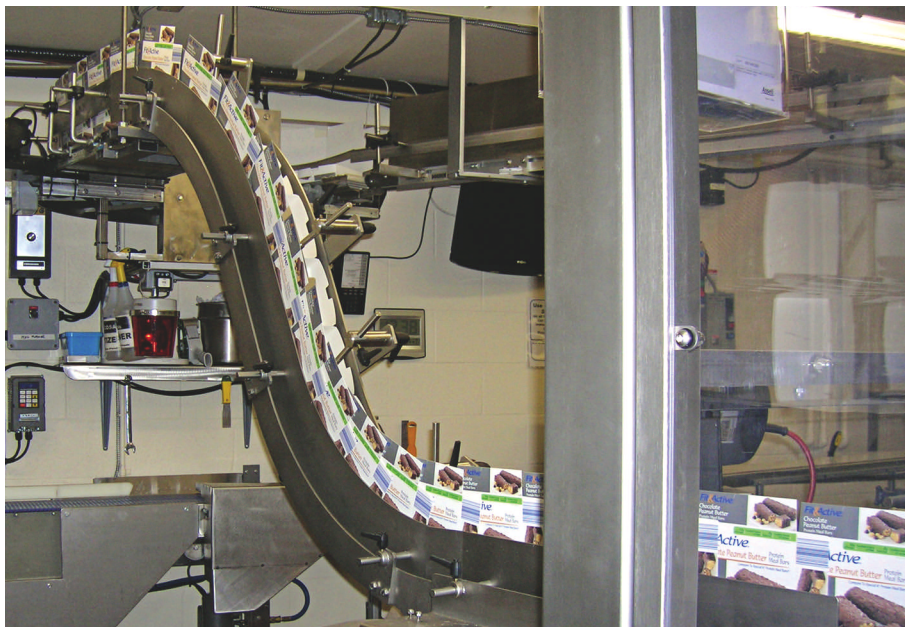
After investigating what was available, Schroeder decided to install an Model LJ SRT robotic top loader from **Propack Processing & Packaging Systems Inc.** that is equipped with a Model IRB 360 pick-and-place robot from **ABB Inc.** The machine can run up to 350 bars/min. "We had been discussing this with Propack, and they were familiar with our facility, so we decided to proceed with them," says Schroeder. "We have a small plant and space was at a premium, so the first thing they had to do was come out, take measurements and figure out how to fit the loader into the available space. It turned out that we had to put the controls for the machine in another room."

Cartons are erected in another area of the packaging room and are delivered to the loader on an overhead conveyor and down a Propack-designed slide chute that delivers them to the intermittent-motion loader. This overhead delivery turned out to be very beneficial, because it opened up the area around the loader and provides the operator more access. The cartons enter an indexing lug conveyor that places them exactly in the loading zone of the robot during the pick-and-place process.

Simultaneously, the bars are delivered from a flow wrapper to a product-infeed conveyor that runs at a right angle to the loader's direction of movement. From this conveyor, the bars are metered into the loader's product-indexing conveyor, which runs parallel to the carton conveyor and also places the bar very precisely for pickup. A photo eye on the product-infeed conveyor checks to make sure that there is a gap between the bars, so that there will never be two bars placed into a space on the indexing conveyor. The indexing conveyor incorporates an on-demand system, so it only moves when bars are present. If there is some delay in bars reaching the indexing conveyor, it stops.

As the cartons and bars travel through the loader,





The pick-and-place robot, left and above photos, picks up a set number of bars with vacuum cups and places the bars in the cartons. The robot synchronizes with the movement of the bar-indexing conveyor to maximize the time that the robot is in contact with the bars. Cartons slide down a chute, above right, that delivers them to the intermittent-motion loader.

the pick-and-place robot synchronizes with the movement of the bar-indexing conveyor to maximize the time that the robot contacts the bars, optimizing the bar-handling process. In this operation, the robot picks up a set of bars with vacuum cups and places the bars in the cartons.

The indexing conveyors continue indexing while the cartons stop during loading, although they can also be loaded while moving. The system can be set to run different numbers of bars and cartons. For example, in the photos shown here, it picks up eight bars at a time and places four bars in each of two cartons on each cycle, and it performs two cycles before the cartons are released. Thus, each carton contains eight bars. These numbers can be changed to meet the requirements of the products being run. Nutri-Nation runs cartons containing five, six, seven, nine, 12, 16 and 100 bars/carton on this machine.

The top loader incorporates ABB's recipe parameter program and is controlled by an Allen-Bradley PLC with an A-B PanelView operator panel from **Rockwell Automation**. The PLC maintains the recipes for all of the products in memory, and the operator can recall them at a touch.

"Propack has done an excellent job for us," says Schroeder. "We installed the machine, and Propack engineers came out to help with the startup and to train our people. We had a few problems at the start, but Propack solved them, and the system has worked very well since then. In terms of labor saving, I estimate that we use two less people now than when we were hand packing.

"With the ever-changing diet and nutrition market, it is important to partner with a manufacturer that can respond quickly to new trends and technology," he adds. "We take great pride in creating bars that are nutritionally sound, while also paying close attention to the taste experience. The end consumer can be drawn in by a product's packaging and marketing twist, but repeat purchases depend heavily on flavor and texture appeal. We know this is essential for the long-term market success of our customers' products."

More information is available:

Propack Processing & Packaging Systems Inc., 905/563-9400. **www.propack.on.ca**
ABB Robotics, 248/391-8763. **www.abb.com/robotics**
Rockwell Automation, 414/382-2000. **www.rockwellautomation.com**

A line worker places prepacked meats into trays. Although the packing of each component is highly automated, the assembly of each tray is done by hand. This enables quality checks throughout the packing process.

Sustainable innovation

Leveraging ideas from internal and external teams, Hormel Foods creates **PARTY-TRAY PACKAGING** that's more eco-friendly and improves product presentation.

Linda Casey, Senior Editor

Hormel Foods, Austin, MN, has completed a six-month redesign project, which resulted in an updated look of its Hormel Party Trays, more sustainable package manufacturing and more efficient case-packing of the trays.

Ongoing product evolution

Originally launched five years ago, Hormel's Party Tray product line includes a number of meats, cheese and cracker combination platters marketed to ease food preparation and presentation for special occasions. Since the trays were introduced, Hormel has expanded the product range to include individual-serve versions and large, supreme party trays, which add upscale items such as olives.

As part of Hormel's commitment to consumer safety, each Party Tray component is individually wrapped and coded.

In addition to developing new component combinations for its Party Trays, Hormel also has recently re-evaluated the round tray package used for many of its snack trays.

Driving innovation

"The project began with Hormel's marketing group research about what our consumers wanted to see," Hormel research and development scientist Chad Donicht recalls. "The charge from consumers was to come out with a fresher, cleaner and more sustainable package.

According to Holly M. Drennan, product manager for retail dry sausage and party trays at Hormel, consumers and retailers both indicated they wanted to see more of the meats, cheese and crackers in the party trays. Viewing of a tray's components was obscured by a large label and the lack of separation between the products.

"Our previous tray didn't really have any compartments, so the products would get mixed together," Donicht remarks. "This is one of the things we found that consumers didn't want—maybe they didn't like certain type of a pepperoni, or they liked hard salami better."

To develop this more sustainable package, Hormel evaluated packaging concepts from suppliers as well as its internal teams.

"Hormel can have multiple strategic suppliers in same category," says Daniel Miller, Hormel packaging research and development manager. "For example, we have four strategic suppliers for corrugated boxes. Many times what we do is leverage these companies to see which one actually has the best idea."

The previous package's large product label, left, didn't allow consumers to easily view the tray's contents. The new package, right, enables consumers to easily view the neatly presented meats, cheeses and crackers.

Materializing ideas

The packaging ideas that Hormel liked best didn't come from the packaging supplier that had been supplying the trays, so Hormel reevaluated which company would win that business.

"The company we were getting the trays from didn't have the best design at that time," Donicht adds. "So we changed suppliers to another company that came up with better designs."

The outside supplier, which Hormel declined to identify, was asked to join a cross-functional team comprising research and development, marketing, purchasing and operations for group brainstorming.

From ideas generated at this brainstorming session, the supplier used **Dassault Systèmes SolidWorks** software to develop 3D package renderings, which enabled Hormel to control upfront design and prototype costs.

After evaluating the 3D renderings, Hormel did commission about a dozen prototype trays for distribution testing. "Drop and vibration testing shows us how the locks are working, how the labels snap in, and if we are going to see any issues with the trays cracking," Donicht remarks.

Workers put the finishing touches on packed party trays, top, as they travel on an in-house manufactured conveyor. Because the package shape was changed from round to square, they now fit more tightly into each corrugated case, above.

Shaping improvements

The resulting package is a square, two-piece snap tray with a base made of 24 mil RPET and a lid made from 20 mil RPET. Previous packaging was a round container with a base made from 30 mil PP and a lid made of 18 mil PET.

The square shape offers sustainability benefits as early in the process as package manufacturing. "There's not as much scrap when they form the square tray [versus the previous round tray]," Donicht explains. "So there's a lot less regrind for them, which makes them much more efficient."

The tray supplier also incorporated a new inset label function into the lid. This feature allows the package graphics to be snapped under the lid, eliminating the need for overwrap to hold the label to the tray.

Packing without preservatives

Each tray contains individually packed and coded packs of crackers, meats and cheese.

Crackers and cheese arrive at Hormel's facility prepacked. Copacker Reichel Foods, Rochester, MN, packs the dry meats, such as sausages.

The wet meats, e.g., ham and turkey, are packed at Osceola Foods Inc., which is owned by Hormel.

The Osceola Foods plant uses high-pressure processing (HPP) to eliminate the need for chemical preservatives for its wet meats. HPP is a USDA–approved process that utilizes intense cold-water pressure to protect against harmful bacteria without affecting a food product's taste, texture, appearance or nutritional value.

"Hormel, a number of years ago, implemented a process we call high-pressure pasteurization," Miller explains. "We take the prepackaged meats as they come off of a **Multivac** vertical form/fill/sealers and place them into a carrier. They then go into a high-pressure pasteurization vessel that exerts around 86,000 lb/sq-in. of pressure. It's like being down at the bottom of the sea.

"It's part of the story of what makes Hormel's product taste a lot better than some of the other competitive product in the marketplace," he adds.

Tray assembly, case packing

The tray bases travel on in-house manufactured conveyors as line workers hand place the

Continued on page 42

The previous packaging's round shape didn't optimize cube utilization. These new packages enablesHormel to fit three more cases/pallet.

individually packed components. The lids with the in-laid product branding cards are snapped onto the base.

Tamper-evident tape is applied to two sides of each tray by a custom applicator, which was manufactured by a small supplier recommended by **xpedx.** An automatic labeler applies nutritional labels to every tray. Each tray is dated-coded before it is manually packed into a case. A **3M** taper top- and bottom-seals filled cases before they are manually palletized. A **Lantech** stretchwrapper secures the pallets before transit.

Savings by the pound

The updated packaging is expected to result in corrugated material savings of more than 174,000 lb/year and shrink-wrap savings of 100,000 lb/year. Each finished pallet contains three more filled cases, reducing 71 truckloads required to transport the same amount of product annually.

More information is available:

3M, 651/733-1110
www.3m.com/packaging
Dassault Systèmes SolidWorks Corp., 800/693-9000. **www.solidworks.com**
Lantech, 800/866-0322.
www.lantech.com
Multivac Inc., 816/891-0555.
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Wakeup **Shakeup**

Vuka introduces a line of four "intelligent energy" drinks, packaged in **VIBRANTLY HUED ALUMINUM BOTTLES** from Exal Corp.

Vuka means "Wake up" in Zulu, an appropriate name for a company founded by a couple from South Africa. Vuka LLC founders and co-CEOs Darian and Alexia Bregman designed their new line of enhanced drinks to deliver "intelligent energy." Alexia describes it as a beverage for "people who drink energy drinks, coffee, and other caffeinated beverages, but are also health-conscious ..."

The Vuka leaders recognized that bringing a new product to this discriminating market required distinctive packaging. "The aluminum bottle and closure we chose lets us emphasize that difference and present Vuka as a premium, unique product."

But the choice of aluminum bottles has a functional consideration too: The all-natural ingredients in Vuka drinks require pasteurization, so the packaging has to withstand high temperatures.

The packaging design process started with input from customers. Many of them don't like to drink the entire energy beverages at one sitting, so Vuka responded with a large, 16-ounce resealable bottle.

Customers also wanted Vuka's packaging to look different from other, more mainstream energy drinks. Accordingly, the bottles feature stylish visuals developed with designer, Monique VanAssche of MAD Studio. Darian Bregman was especially involved in developing the shape and structure of the bottle.

The bottles are manufactured by Exal Corp., using impact extrusion technology. The bottle features a 66mm body, a custom radius oval shoulder and an extended neck to accommodate the 38mm continuous thread "outserted" bottle finish. The shoulder and neck are formed by a progressive die necking system on Exal's fully automated production line.

The bottles are formed and decorated via a continuous process that begins with the impact extrusion and ends with fully palletized bottles. The bottles are decorated with a clear basecoat, followed by eight colors plus a gloss overvarnish. All told, the production line features more than 10 distinct operations and up to seven curing ovens.

The Vuka bottle was Exal's first large (66mm) bottle made with an injection molded plastic outsert sleeve designed to accommodate a continuous thread closure. As the last step in the making of the bottle, the outsert is interference-fitted to the neck using Exal's patented proprietary process.

The bottles are printed by Exal, using a clear basecoat followed by eight colors and a glossy overfinish.

The bottles are topped by a Silgan White Cap ROPP (roll-on, pilfer-proof) closure. Its threads are formed by the bottle's outsert neck threads as the closure is rolled on.

The manufacture of the closure at Silgan White Cap's Richmond, IN, plant begins with a flat aluminum sheet that Silgan prints with a lithographic printing press. Aluminum pucks are stamped from the sheet, and the closures are formed and the appropriate plastic liners added in a two-step operation. Silgan extrudes the liners itself.

Cold Spring Brewing Co. in Cold Spring , MN fills and caps the Vuka bottles.

"The response to the Vuka bottles we have received so far has been overwhelming," says Alexia. "People tell us they have never seen a bottle like it. That has been the ultimate validation that we took the right direction."

More information is available:

Exal Corp., 330/744-2267.
www.exal.com
Silgan White Cap, 800/515-1565.
www.silganwhitecap.com

marketplace

Standard classifications are: Machinery & Materials; Contract Packaging; Career Opportunities. Other more specific classifications may be requested. 2009 rates are $325.00 net per column inch (1 time frequency), $310.00 net per column inch (3 time frequency), $295.00 net per column inch (6 time frequency), $285.00 net per column inch (12 time frequency). Add $30.00 net per column inch for second color. Colors available are: Standard Red, Blue, Green, Yellow and Magenta. All rates are non-commissionable. Blind Boxes are available for a $25.00 fee. Deadlines: 5th of the month preceding issue. Please send all materials, insertion orders to:

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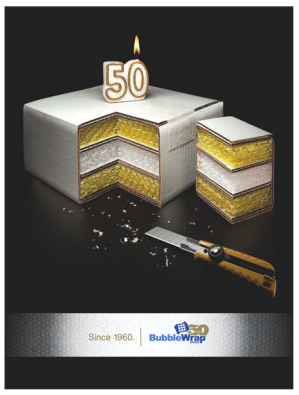

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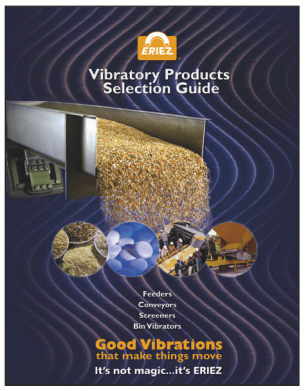

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newsmakers

MOVERS & SHAKERS

Surefil LLC hires Barb Schuring as project manager responsible for sales project management and customer service.

John Kowal
OMAC

OMAC elects John Kowal, market development manager for B&R Industrial Automation, to a 3-year term on its board of directors.

Finch Paper appoints Robert M. McDonald as vp manufacturing.

Multivac appoints Matt Malott as director of key accounts.

The Intl Authentication Assn. appoints Jim Rittenburg, vp, healthcare and life sciences at Athentix Inc.®, as a new chair.

Jim Rittenburg
The International Authentication Assn.

Unilux names Matthew Runo as senior engineer.

Accutech Films Inc. names Fred Wampnar as CEO.

Fred Wampnar
Accutech Films Inc.

Atlantic Zeiser appoints Marcus Geigle as public relations and communications marketing manager.

Tna promotes Patrick Avelange to group sales manager based in Sydney, Australia; Bachar Ghadri to general manager for Middle East operations based in Dubai, UAE, and Suresh Chandran to after market sales manager based in Sydney.

Todd Hain
Avery Dennison

Avery Dennison Graphics and Reflective Products Division North America names Todd Hain as marketing communications manager,

R&B Plastics Machinery names Al Hodge as president.

Cortegra appoints John Moyer as quality systems manager.

TAPPI names MeadWestvaco's Mark Watkins as fellow for 2010.

Key Technology hires Dr. Michael Nichols as senior director of research and development.

Dr. Michael Nichols
Key Technology

Nordson Corp. promotes George Porter to vp, North American adhesives sales and service; John Schnarr to director, strategic marketing; David Titone to director, business development and sales operations and Alan Ramspeck to manager, product management.

Ken Beckerman
Flexcon Container.

Flexcon Container promotes Ken Beckerman to president of its plastic container and pallet division.

The Society of Plastics Engineers' Thermoforming Board of Directors names Ken Griep, vp of Portage, WI-based Portage Casting and Mold, Inc., as its new chairman.

The Wornick Co. names Paul Sturkey as development chief.

GROWING & GOING

Coating Excellence Intl opens a 120,000 sq-ft manufacturing plant in Hebron, KY.

Danafilms doubles its coextrusion capacity and facility in Franklin, KY.

BUYING & SELLING

Pregis Corp. acquires IntelliPack Inc., Tulsa, OK.,

The Visual Pak Companies' American Blending & Filling division acquires a major production facility in Waukegan, IL.

CELEBRATING

Rockwell Automation named one of world's most ethical companies for third consecutive year by Ethisphere.

Markem-Imaje's Keene, NH manufacturing site receives ISO 14001 environmental certification for North America.

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Illegal frozen-seafood labeling

Consumers may be paying up to $23 per pound for ice when purchasing frozen seafood products. This according to a national investigation that revealed some packers are including the weight of ice glazing in the labeled net weight for the seafood. **www.packagingdigest.com/icefish**

Tylenol recall not caused by pallets?

The National Wooden Pallet and Container Association has issued a statement regarding allegations that wooden pallets were the primary cause of the recent recalls of Tylenol and other products, due to contamination by 2,4,6 tribromoanisole (TBA). In a press release, the association argues that other factors were more likely culprits of the contamination.
www.packagingdigest.com/tbapallets

Foodservice packaging industry optimistic

The Foodservice Packaging Institute's newest survey shows that optimism in the foodservice packaging industry is up this year compared to 2009. The institute's surveys gauge the state of the industry among top food service companies and their suppliers.
www.packagingdigest.com/foodservice

PepsiCo commits to raising recycling rates

PepsiCo announced its intent to promote higher rates of beverage container recycling in the U.S.2009 as one of a series of goals and commitments it published on nutrition, environmental sustainability and the well-being of employees.
www.packagingdigest.com/recyclepepsi

FPA concludes record-breaking meeting

The Flexible Packaging Association says its 60th Annual Meeting was a success by all measures. With the number of FPA member attendees the highest in more than a decade and content that provided significant take-home value, the membership was fully engaged.
www.packagingdigest.com/fpa60th

CVS's new GreenBagTag helps wildlife fund

CVS/pharmacy announced its support of World Wildlife Fund in conjunction with the GreenBagTag program launched last fall. Starting on April 1, for one year, CVS/pharmacy will donate 5 cents to World Wildlife Fund for every GreenBagTag sold to help protect the future of nature around the world.
www.packagingdigest.com/cvsgreen

Talk back!

Here's what readers of packagingdigest.com are saying:

The Preserve Project sounds good, in general, but the notion of mailing empty PP to be recycled strikes me as counterproductive. Surely it takes more energy, and consequently generates more pollution, than any savings or avoidance created by shipping a small volume of PP waste to a recycler ...
Richard on "Expanded program tackles infrequently recycled PP packaging"

This is nonsense. The beverage industry is trying to protect its profits, at the cost of the American people's health ...
Jack Davis on "NY coalition opposes Gov. Paterson's proposed sugar-sweetened beverage tax"

When the so-called banks can borrow at 0 percent from the Fed, then lend the money back to the government by buying Treasury Bonds for 3-4 percent (interest), why should they let small businesses into the act?
Derek Roberts on "Tight credit slowly chokes equipment purchases."

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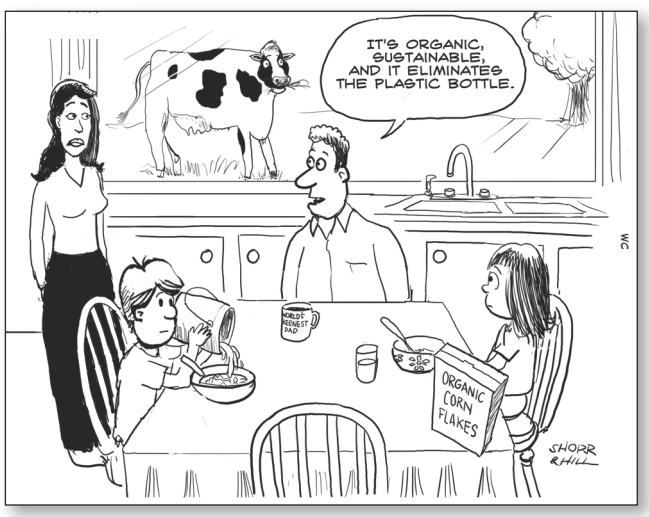

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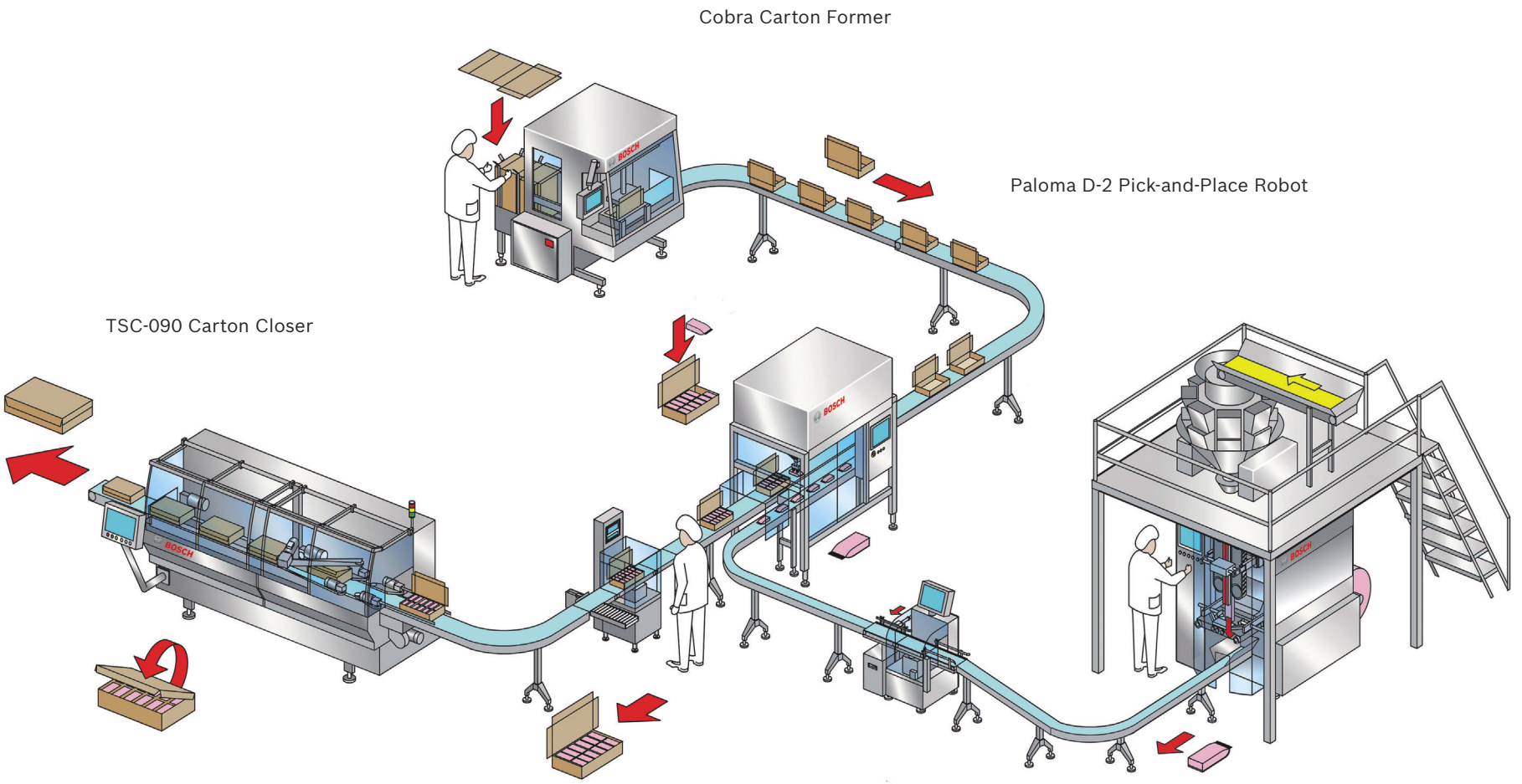

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