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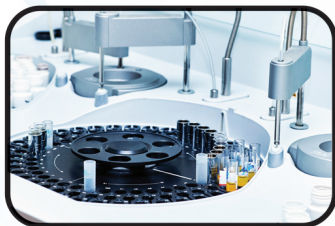


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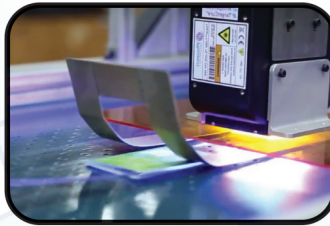
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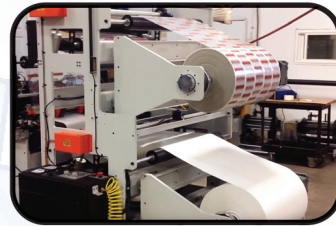
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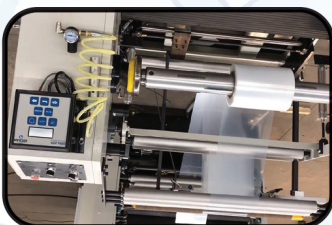
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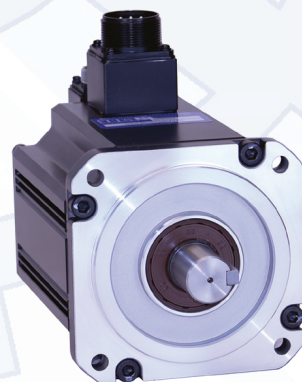
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## EDITOR'S NOTE

### Earth Day Turns 52

It's been 52 years since a junior U.S. senator from my home state of Wisconsin mobilized 20 million people across the U.S. to participate in 'teach-ins,' rallies and protests demanding actions to address air and water pollution.

Growing environmental consciousness, and outrage surrounding a massive oil spill in Santa Barbara, Calif. motivated Wisconsin Senator Gaylord Nelson to collaborate with California Congressman Pete McCloskey and a young activist, Denis Hayes, to organize college students and community groups to advocate for change.

Over 10% of the U.S. population participated in the original Earth Day on April 22, 1970, and within just 9 months Congress passed transformative health, safety and environmental legislation, and created the U.S. Environmental Protection Agency.

Fast forward five decades, and the momentum and impact of Earth Day continues to build globally according to EarthDay.org. This year, over one billion people around the world are expected to mobilize to clean up plastic waste and advocate for a Global Plastics Treaty.

Consumers are now outraged by plastic pollution in global waterways, and businesses in the consumer-packaged goods and packaging industry are doing their part to turn the tide on

single use plastic waste. Inside this issue, you will find inspiring features by industry thought leaders explaining sustainable solutions, and innovative examples of collaboration between retailers, CPG brands, OEMs, and materials manufacturers.

Stay tuned for our May issue featuring more sustainable packaging solutions, and send me a note if you have a story you would like to share with our readers. Topics for 2022 are outlined in our editorial calendar:

[www.packagingtechtoday.com/packaging-media-kit/](http://www.packagingtechtoday.com/packaging-media-kit/)

Thanks for reading!

**Vicki McDonald-Kastory**  
Editor, *Packaging Technology Today*  
[vickik@rdgmedia.net](mailto:vickik@rdgmedia.net)

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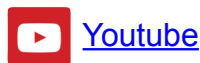
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**Packaging Automation Center - Employing Cobots for Picking, Packing & Palletizing:** <https://www.packagingtechtoday.com/infocenter/packaging-automation-center-employing-cobots-for-picking-packing-and-palletizing/>



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[www.PackagingTechToday.com](http://www.PackagingTechToday.com)

### PRESIDENT/PUBLISHER

Randy Green . [randy@rdgmedia.net](mailto:randy@rdgmedia.net)  
586-227-9344

### EDITOR

Vick McDonald-Kastory . [vickik@rdgmedia.net](mailto:vickik@rdgmedia.net)

### ACCOUNTING MANAGER

Kristen Green . [kristin@rdgmedia.net](mailto:kristin@rdgmedia.net)  
586-242-8397

### PACKAGING/IMS AUCTIONS

Angi Hiesterman . [angi@rdgmedia.net](mailto:angi@rdgmedia.net)  
515-351-7973

### OPERATIONS/CUSTOMER SERVICE

Jody Kirchoff

### ART DIRECTOR

Jake Needham

### Web Design

Josh Scanlan

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Norwegian meat producer Nortura deployed collaborative automation to optimize its palletizing operations. On average, the system stacks 1,700 boxes per day. Image Courtesy of Universal Robots

# A CHECKLIST FOR COBOT-POWERED PALLETIZING

## COBOTS BOOST PRODUCTIVITY, ADDRESS LABOR SHORTAGES AND PROTECT WORKERS

By Joe Campbell, Strategic Marketing & Applications Development at Universal Robots A/S

**M**anual palletizing requires workers to bend, lift and twist for hours on end. Over time, this unergonomic task can cause repetitive strain injuries and musculoskeletal disorders, endangering worker health and driving up labor costs. With North American manufacturers and logistics facilities already facing prolonged labor shortages, the case for freeing workers from manual palletizing tasks through the use of collaborative robots ('cobots') is compelling. Moreover, these collaborative automation solutions are proven to boost productivity and throughput, improve quality, and are available 24/7.

### Overcoming tradition

Traditional industrial palletizing systems have been around for decades, but they are inflexible and difficult to reconfigure, making them

a poor fit for high mix/low volume and seasonal manufacturing. Traditional systems also require safety fencing, have a large footprint, are time consuming to operate and require outsourced expertise for programming and maintenance.

By contrast, cobot-powered palletizers provide faster cycle times, faster return on investment (ROI), lower total cost of ownership (TCO), greater flexibility and come with a small footprint. Additionally, after a risk assessment, cobots can be deployed in close proximity to humans without the need for safety fencing. Thanks to different flavors of intuitive palletizing control software, cobots are also easy to deploy, regardless of your company's level of prior robotics experience. This reduces downtime, speeds ROI and eliminates the intimidating programming costs associated with traditional palletizing solutions.

## Stacking profits with collaborative automation

The business case for cobots is compelling, especially when compared to traditional industrial robot-based palletizing systems. The TCO for cobots is much lower than the TCO for traditional robot palletizers, and cobot based systems require a smaller capital investment. Additionally, cobots and their end-of-arm tooling and effectors are easy to deploy and program. This reduces downtime, deployment, and maintenance costs significantly, and in many cases, completely eliminates the programming and engineering costs associated with traditional automation.

Cobots offer an effective way to tackle labor shortages. And, since they are much more flexible than traditional automation, cobots can be easily deployed and redeployed on a wide range of applications, bringing extra value to your palletizing operations. Being able to adapt production to specific customers and to seasonal products gives cobot-powered palletizing solutions a significant edge over traditional robot palletizing setups. Return on investment is typically within a year –and sooner than that in many cases.

### Application kits

To ensure an effective deployment, your cobot arm will need to be fitted with end-effectors specially designed for palletizing applications. Look out for off-the-shelf palletizing application kits that are certified to work with your cobot and that provide all the hardware and software you need to get palletizing quickly.

Software is key. Look for software that scores high on usability and is compatible with your existing cobot programming interface. Features such palletizing pattern generators greatly simplify your palletizing automation deployment.

Application kits are a big deal for companies of all sizes, but particularly for smaller companies that would find it difficult and time-consuming to source and integrate all these different elements into a cohesive palletizing system in-house.

### Five principles of palletizing

**Payload:** The two most important factors to keep in mind regarding payload are the weight of the cases and products being moved and (depending on the application and the throughput of your conveyor) whether your palletizing application is set up to handle multiple boxes at the same time. Remember to factor in the weight of the gripper you plan to use too as it will add to the overall payload of the system.



**Off-the-shelf collaborative palletizing solutions such as the CoBo-Stack system shown here, provide all the hardware and software you need to palletize quickly.** Image Courtesy of Universal Robots



**Darex deployed a UR5 cobot from Universal Robots to handle packaging and palletizing tasks in its Oregon facility. The deployment resulted in a 30% optimization of Darex's packaging & palletizing processes.** Image Courtesy of Universal Robots

**Gripper:** If your palletizing application pushes your cobot to the limit in terms of payload, look for safe, light grippers. If your facility already has clean compressed air, you could consider deploying a pneumatic gripper. Some grippers require an external power supply too, which should be factored into your plans. When it comes to gripper selection, the type of cardboard your product is packed into also makes a difference. Wrinkled and lightweight cardboard is beyond the capabilities of some grippers, so be sure to check that the gripper you select can easily

handle the required cardboard type.

**Footprint:** In a well-designed cobot palletizing application, the item taking up the most space is not the automation: it's the pallet. With space at a premium in most production facilities, footprint is a key consideration. With the majority of palletizing applications incorporating dual-pallet setups --so that the cobot can continue palletizing on a second pallet, while it waits for its first completed pallet to be collected— as a general rule, you should aim for a footprint that's as little over two pallets in size as possible.

**Stack patterns:** Most facilities want to stack their pallets to the maximum height allowed in freight trucks and containers. It's possible

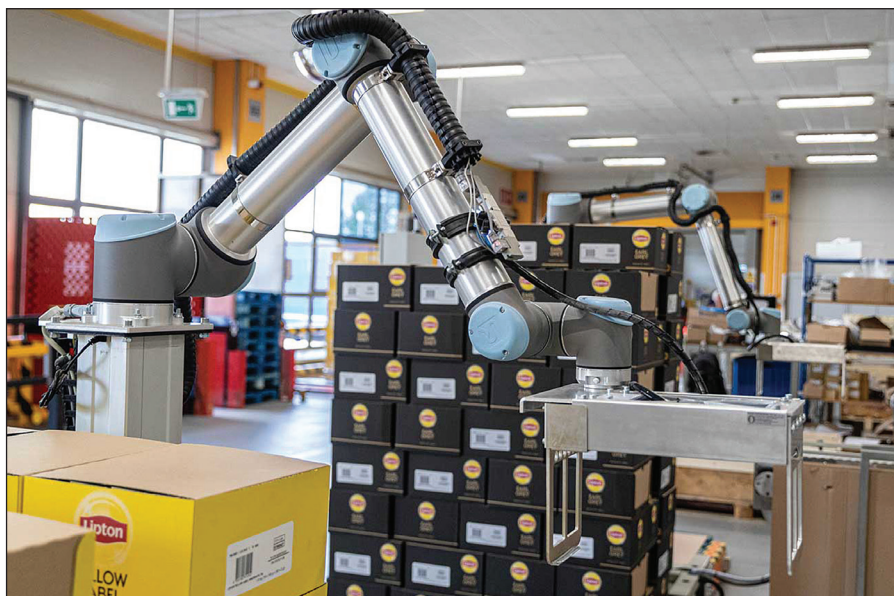
to deploy collaborative palletizing solutions without writing a single line of code by using palletizing software that provides automatic

stack pattern (and path planning) features designed to take care of this issue for you.

**Safety:** Like all industrial automation, cobot-powered palletizing applications will require a risk assessment. Remember that cobots are speed and force limited though. So, depending on the layout of your facility and the payload of the application, guarding may not be required at all.



**The company RNB Cosméticos has integrated six Universal Robots UR10 robot arms into its packing and packaging plant to perform end-of-line palletizing tasks. The collaborative cells offer the company a high level of versatility to comply with its six-packages-per-minute production cycles, which require flexible solutions for adapting to over 350 different items. The cobots collaborate with the workers in the same workspace, freeing up staff from uncomfortable, repetitive and non-ergonomic tasks that involved carrying 7 kg packages, risking injuries and fatigue.** Image Courtesy of Universal Robots



**Unilever's plant in Katowice, Poland, specializes in packing Lipton tea delivered to the factory in 25-kilogram sacks. Cartons with the ready-to-sell product packed by employees to boxes are placed on pallets by six UR10 collaborative robots. The use of cobots shortened the palletizing time, optimized work ergonomics and relieved employees from the most strenuous tasks.**

Image Courtesy of Universal Robots

### Choosing a configuration

Fixed pedestal configurations (sometimes known as fixed column configurations), in which the base of your cobot is fixed in place on a pedestal, is the low-cost way to configure a palletizing application. Despite its limitations, fixed pedestal configurations are well-suited to low-volume, low-throughput palletizing applications.

In vertical 7th axis palletizing setups, the base of your cobot can move up and down, extending its reach and enabling it to palletize at greater stack heights. Adding a vertical axis can add to the complexity of your palletizing project, so be sure to look out for systems that provide full hardware and software integration with your cobot.

Horizontal 7th axis configurations enable your cobot to move horizontally, which greatly expands its work envelope. This type of solution is typically deployed in larger facilities with the in-house resources to handle custom palletizing configurations. ■

### About the Author

Joe Campbell is the head of strategic marketing and applications development for Universal Robots North America, where he is leveraging his 35+ years' experience in the robotics and factory automation industry.

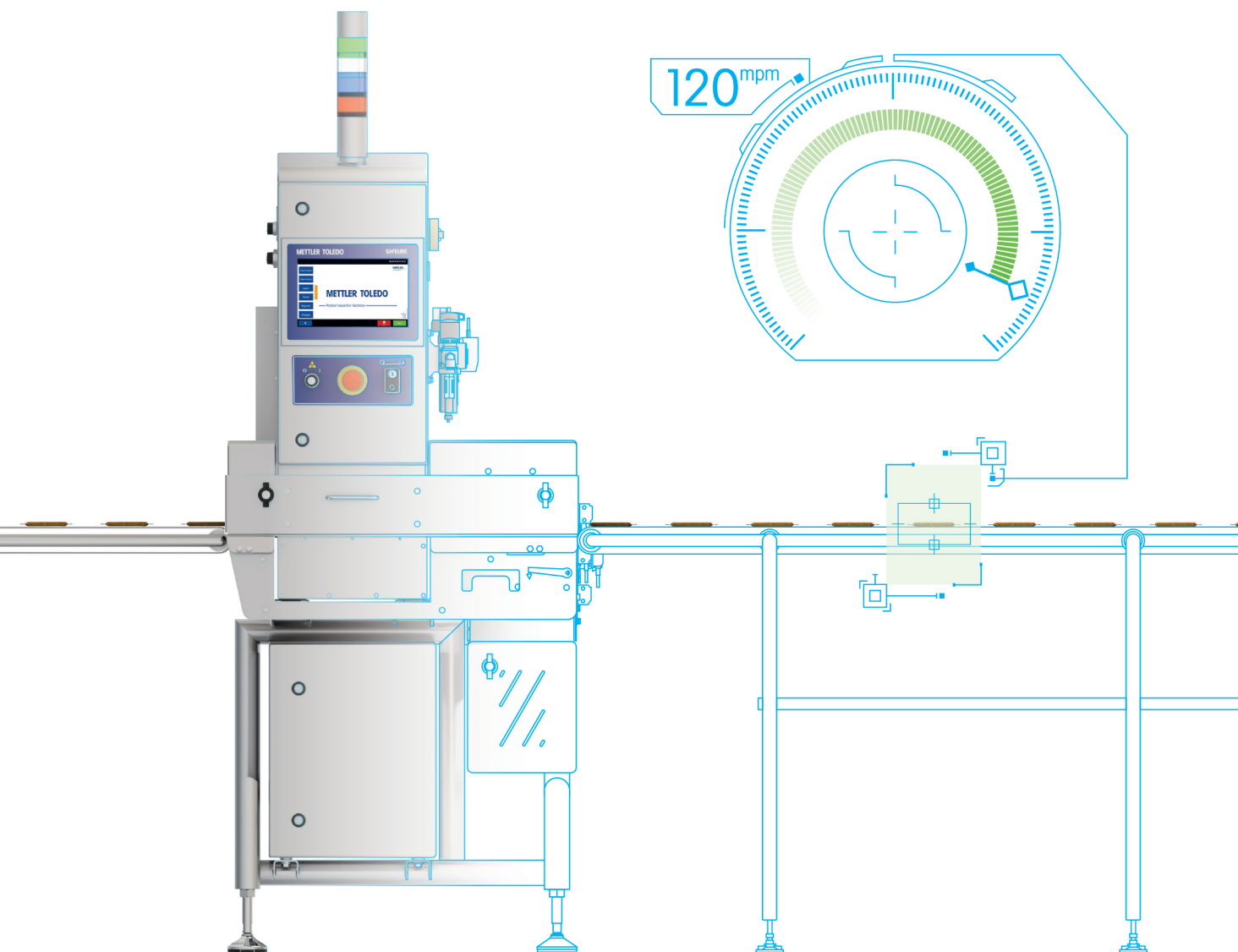
Prior to joining Universal, Joe was vice president sales & marketing for Swiss based gantry robot and track manufacturer Gudel. Previous assignments include executive roles in sales, marketing, operations and customer service with industry leaders including ABB, KUKA, AMT and Adept. Joe has also consulted to the industry on strategy, marketing, M&A and product development.



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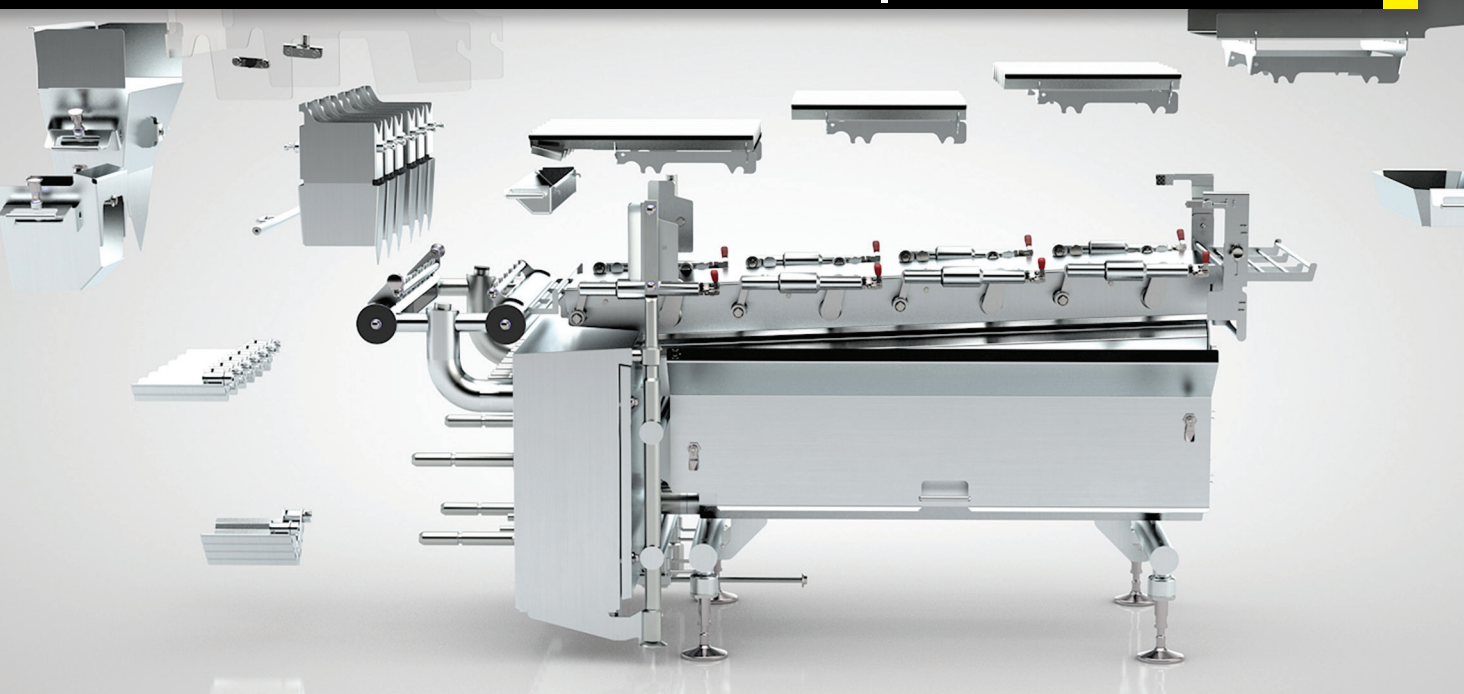
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Cremer's WD Series is designed for precise counting and dispensing of individual food products in a variety of applications where cleanliness is paramount such as poultry, meat, seafood, cheese, confectionary and bread products. Image Courtesy of Cremer

# ACCURACY & EFFICIENCY WHERE IT COUNTS

## THREE REASONS TO CONSIDER REPLACING WEIGHING SYSTEMS WITH PRECISION OPTICAL COUNTING MACHINES

By René Stuijt Business Manager, Industrial for Cremer Speciaal machines B.V.

**I**n packing consumer products, accuracy, quality assurance and customer satisfaction are critical. When handled properly, product is apportioned precisely and packaged correctly, avoiding costly and reputation-damaging errors.

However, a prevalent practice in high-volume manufacturing and packaging operations is packing by weight. Unfortunately for companies utilizing this longstanding technique, they may also be weighing down their profit margins and brand reputations.

An increasingly attractive alternative, precision optical counting, guarantees 100 percent accuracy – an exacting portion control that lends itself to satisfied consumers and an upward trending ROI through significantly decreased product wastage. Counting makes improving profit margins, point-of-purchase marketing and variety pack apportionment as easy as one, two, three.

### Keeping count means keeping profits

Global standards for Unique Device Identification (UDI) of medical devices and equipment have simmered on the back burner for years since Japan first introduced requirements in 1999. The United States passed legislation requiring coding in 2007.

For companies that sell large quantities of product, fast and accurate sorting, quantity apportionment and packing methods are critical for manufacturing efficiency and quality control. From an end-of-line standpoint, one of the top decisions a company must make is choosing whether to pack a product according to weight or by product count. This decision, dependent on which will be most accurate for the product at hand, can dramatically impact customer satisfaction and bottom-line revenue.



**Cremer's HQ Series is a line of compact counting and packaging machines designed for unmixed, single type or single flavor products.** Image Courtesy of Cremer

While some production lines utilize weighers to pack pieces by individual weight, there are common problems that can arise using this method. Commonly, inaccurate quantities can result from product not being exactly the same weight. Even products with exceedingly minor weight discrepancies can add up to overages, and in turn, unnecessary product waste.

The resulting miscalculation causes a troublesome profitability issue, depending on the nature of the miscount. Undercounting shortchanges the customer leading to dissatisfaction, negatively affecting a company's reputation and decreasing sales by tarnishing brand loyalty. Over counting gives product away for nothing. The former impacts sales, the latter sell-ability, since you can't sell what you're handing out as a freebie.

For products with even slightly varying weights, then, packaging apportionment on a per-piece basis is often the most efficient, cost-effective method, as it is far more precise than conventional weighing systems in these circumstances. Optical counting – as opposed to weight-centric quality control – guarantees that the net contents in terms of count is 100% accurate for both wholesale and retail packages, preventing product loss and avoiding wastage via over-filling.

Let's examine a real-world example. An anonymous customer is running powder dishwashing pacs on a pouch filler with an average speed of 1,800 pacs per minute, or 108,000 per hour. That's 1,296,000 pacs per 12-hour shift – amounting to 25,920,000 per month.

Now consider this: before incorporating a precision optical counting system, that customer had an estimated overfill rate approaching 5%. Meaning for every 20 it was packaging and selling, it was giving one away. Unless the company was running a "Buy 20, Get 1 Free" promo, this is a far from acceptable outcome.

The math is simple – and shocking. At an estimated overfill rate of 5%, that equals more than a million (1,296,000, to be exact) overfilled pouches per month. With a cost per pouch of 5 cents, product loss

comes to an astounding \$64,800 per month – and that's if the manufacturing facility is only running one 12-hour shift. That cost doubles to \$129,600 under 24/7 production conditions, which are increasingly common in food and consumer goods sectors.

Compare that to a counting machine, which is guaranteed to be 100% accurate. Here, calculating monthly product losses becomes much simpler and much more acceptable: Zero products wasted, zero dollars lost.

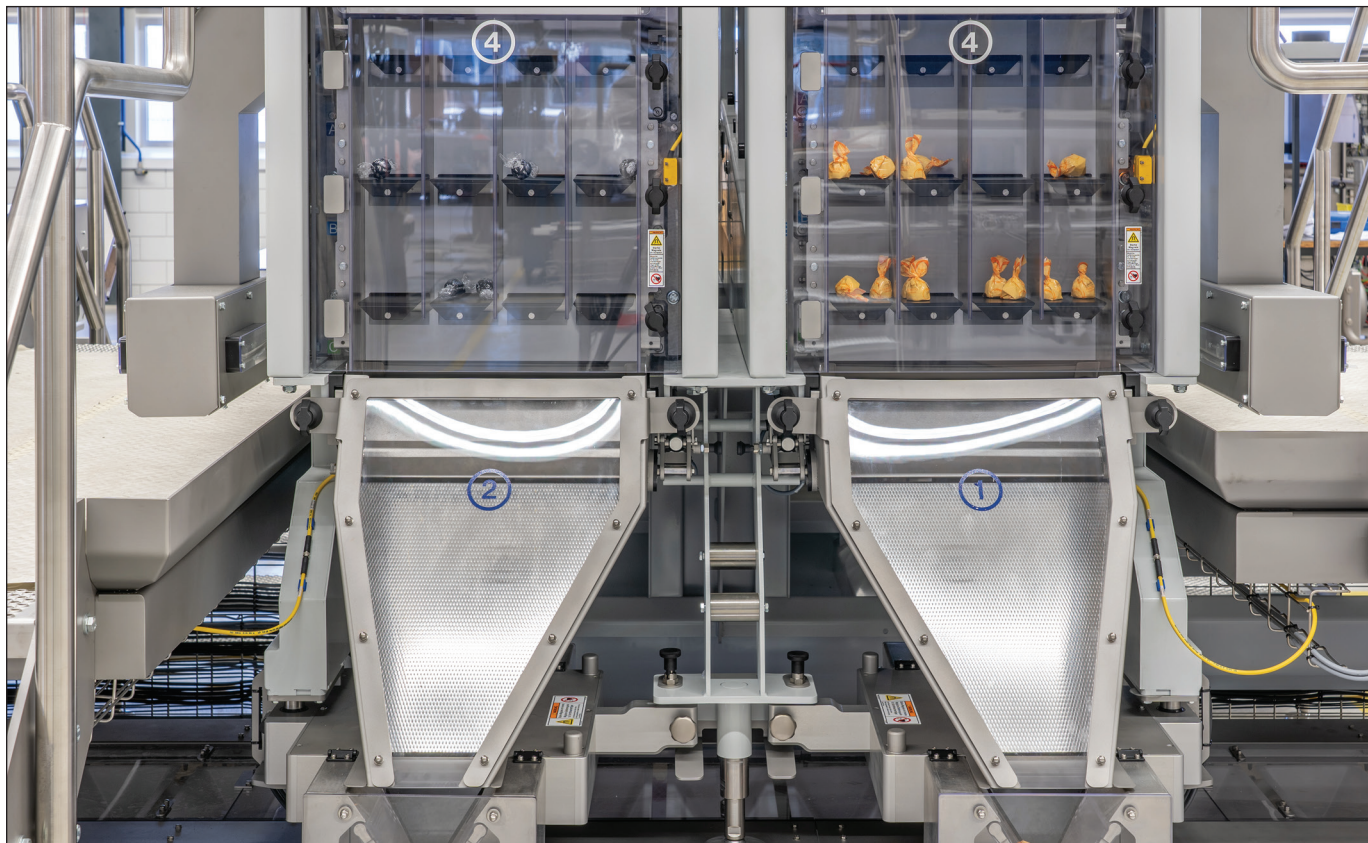
As for undercounts, the counting brings a clear advantage: no more complaints from customers who purchased a 20-count package with 19 items. Since each official complaint represents exponentially more disappointed customers, the salvaged brand reputation and customer loyalty translates directly to bolstered profitability.

### **Counting provides point-of-purchase clarity**

Counting products not only contributes to significant ROI by eliminating wasted product and protecting post-purchase brand reputation, it also helps customers envision exactly what the package contains before making a purchasing decision. This information can be a differentiator at the point of purchase.

With certain products it is easier for consumers to grasp "how many" than "how much." For example, let's say someone is planning a party, and at the poultry section to pick up a fan-favorite food: chicken wings. They know approximately how many people will attend the event and have a fairly good idea how many wings the average guest will eat. Our party planner sees three brands to choose from. Two of the bags are labeled "10 lbs," the other "50 pieces."

Now, unless our party planner knows how much the average chicken wing weighs, which of these packages gives her the best idea of how many wings to buy? The point is that, in this scenario and others like it, the consumer thought process plays out in numbers – not weight. Insight on the combined weight of the package's contents



**Multi-counter machine systems provide hyper-customized and fully integrated configurations, opening the door for a broad variety of product assortments.** Image Courtesy of Cremer

is much less useful than knowing exactly how many products are in the package. This is especially relevant when a package is on the larger side – the bigger the package, the more ambiguous total weight becomes.

In addition, product counts give customers more useful information on how frequently to purchase that product, providing easier-to-track insight as to when they may be “running low.” For example, it would be more beneficial to know how many laundry tablets come in a package rather than their total weight. This allows consumers to better calculate the duration it will take to empty the package, and when they’ll need to repurchase.

### **Precision in apportioning variety packs**

Counting systems also offer distinct benefits for manufacturers of food product assortments seeking ways to gain increased control over inventory, and ensure precision in their variety packs.

For instance, apportioning and packaging wrapped food assortments like mixed chocolates, candies and coffee pods can be a complex task. However, customizable counting systems can guarantee mix composition in variety packs is 100 percent accurate and consistent for necessary quality control – an assurance simply not made possible by weighers.

For a manufacturer’s mix or variety line, a dedicated counter would be used for each flavor/type. The desired count for each is dispensed into a bucket conveyor under the counter. When the preset quantity of each flavor is reached, the bucket conveyor dispenses the total amount of product into an integrated packaging machine – typically

a cartoner and/or bagger. The counter system is fully customizable per assorted product ranges; for example, four flavors would utilize four counters, and likewise for six, eight or more.

Additionally, depending on required line speed, more than one counter can be dedicated per flavor/type. For instance, if a chocolate assortment requires more milk chocolate than other flavors, the system would dedicate two counters to milk chocolate, one for dark chocolate and one for caramel. ■

### **About the Author**

René Stuijt is Business Manager, Industrial for Cremer Speciaalmaschinen B.V., a global supplier of counting machines and packaging solutions for the pharmaceutical, food, consumer goods and agricultural industries. Cremer machinery provides premium speed and precision, ensuring companies can count and package their products in a fast and profitable way. Learn more at [www.cremer.com](http://www.cremer.com)



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Image courtesy of Cama Group

# TIPS TO AUTOMATE SECONDARY PACKAGING

## LABOR SHORTAGES, SPACE CONSTRAINTS AND INCREASING SKUS ARE DRIVING UP DEMAND FOR AUTOMATION OF CASE TRAY PACKING

By Billy Goodman, Managing Director for Cama North America

**H**aving worked in the secondary packaging industry most of my life, I've seen tremendous change and progress, but also many of the same ongoing challenges. The current quandary we are facing with both labor shortages and minimal space amplifies the need to automate with compact and flexible machinery.

Today, a record number of consumer packaged goods (CPG) manufacturers — small and large — are looking to automate their packaging lines. According to a 2020 Automation White Paper published by PMMI, 60% of leading CPGs and 46% of small and medium enterprises (SMEs) identified secondary packaging as their next planned automation project.

### Can you afford not to automate?

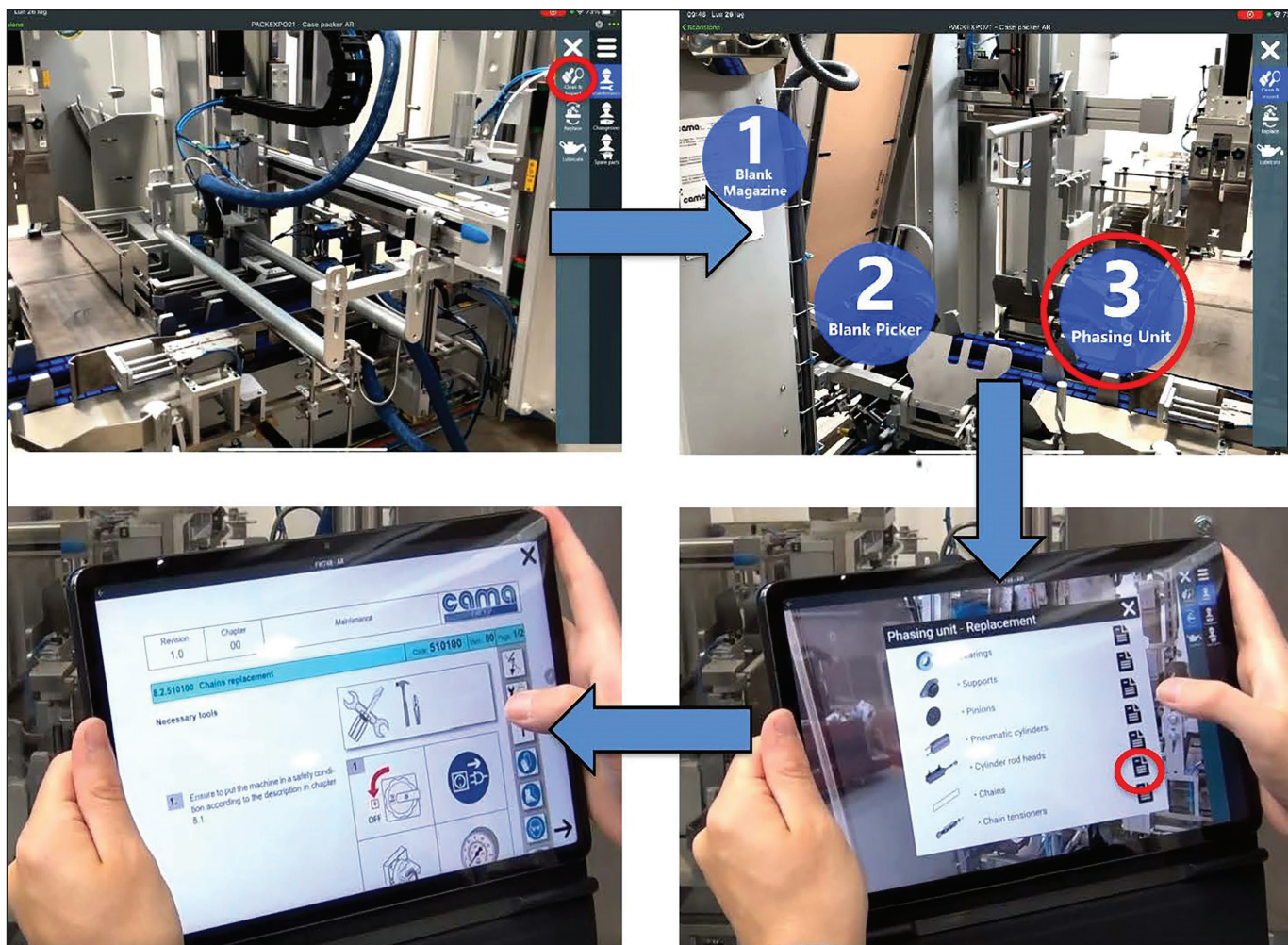
Changing demographics, such as more baby boomers retiring and a lack of skilled labor entering the work force, are forcing many companies to automate. Unfortunately, this is not a short-term issue.

According to PMMI, on average, leading CPGs' manufacturing lines are 64% automated, with SMEs not far behind with 56% automation on their lines. At leading CPGs, 21% of tasks are semi-automated and 15% remain manual. While at SME's, 20% of processes are semi-automated and 24% of tasks remain manual.

As CPGs look to automate their packaging lines, they're often met with more questions than answers, at least initially. Perhaps the question they should be asking is "Can they afford not to automate?"

Most manufacturers recognize that automation will help improve both their operations and growth strategy. But, like everything else, expanding automation is easier said than done. Key among their concerns when looking to automate are:

- Justifying the costs and return on investment (ROI)
- Understanding which areas to automate
- Fitting machinery within limited floorspace
- Dealing with labor shortages and finding labor skilled enough to operate and maintain the new equipment



**With Cama Group's Augmented Reality (AR) Machine Assistant, customers can easily manage maintenance and spare parts, train operators, and simplify changeovers between various SKUs.** Photo courtesy of Cama Group.

Improving packaging line efficiency and production with tray packing, cartoning, case packing, and robotic loading systems can deliver ROI within six months to two years of installing new equipment. Typically, businesses realize savings through reduced labor and sustainability costs. Automation not only saves on labor costs (including recruiting and retaining employees), but it frees existing workers for promotions to other meaningful roles. In addition, the efficiency of automation often enhances sustainability, reducing wasted product or material.

### Industry 4.0 – do you need it?

Perhaps you've made the decision to automate and are now overwhelmed by the choices and options available. Certainly, secondary packaging equipment has come a long way in the last several years. Do you really need state-of-the-art features such as auto changeover and Industry 4.0? This is where having a good partner as your secondary packaging equipment supplier will help you navigate through the options and payback.

Let's look at Industry 4.0, which is a combination of cyber-physical systems, the Internet of Things (IoT) and the Internet of Systems working together to enable smart factories. The ability to gather and analyze more data helps factories to improve production and efficiency. It is truly an example of the old saying "work smarter, not harder."

We know many food and non-food packaging plants, in addition to other businesses, are beginning to implement Industry 4.0 to help prepare their businesses for the future and allow smart machines to improve their efficiency. With Industry 4.0, manufacturers can optimize their

operations quickly and efficiently. Connected machines are better able to collect and analyze data in order to assist with maintenance, performance and other issues.

Industry 4.0 includes such features as:

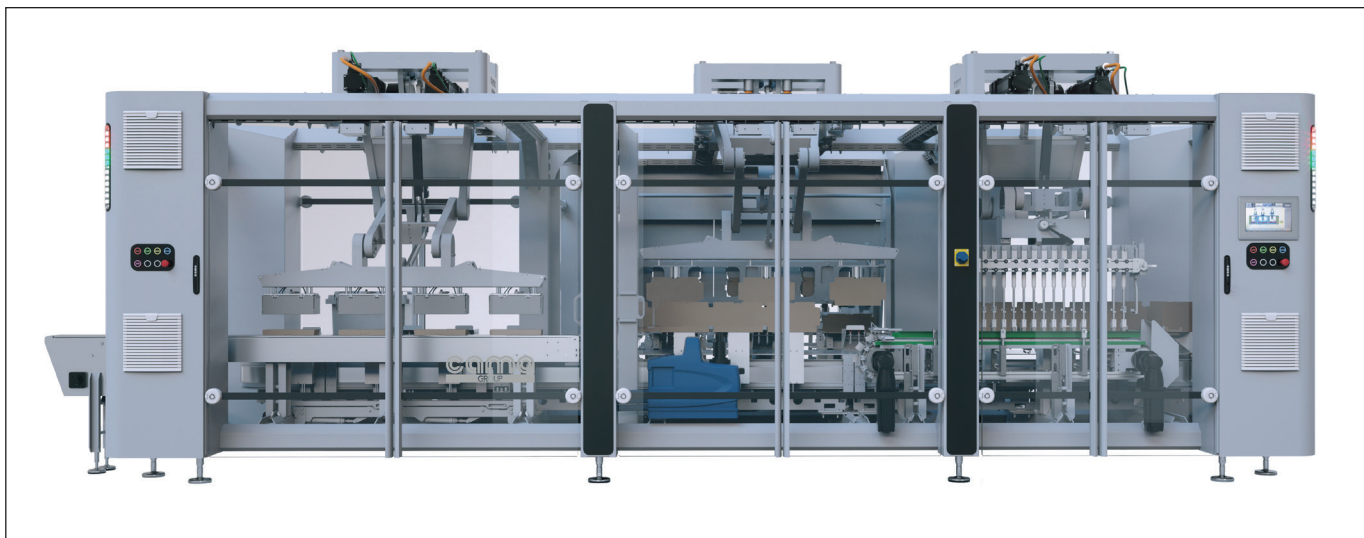
- Autonomous Robots
- Simulation/Virtual Engineering
- Big Data/Analytics
- System Integration
- Internet of Things (IoT)
- Cyber Security
- Cloud Computing
- Additive Manufacturing/3D Printing

Many of these capabilities are available to integrate cartoners, case packers, sleeving systems, and robotic loading systems, and additional technology is in the works. And an Augmented Reality (AR) Machine Assistant makes it easier to manage maintenance and spare parts, train operators, and simplify changeovers between various SKUs.

With an AR assistant, companies benefit from virtual experiences to train operators on a new case packer or tray loader before it arrives on site, which greatly reduces training time and offers a "jump start." It's also a more productive way to train new operators or to perform on-the-fly troubleshooting.

The benefits of using AR for virtual training include:

- Safety - In a virtual environment operators become familiar with the equipment without taking any risks
- Effectiveness - Because it is intuitive and enables workers to success-



**Cama Group's IF318 Robotic Case Packer is a Monoblock system that includes case forming, packing, and sealing in a compact footprint.** Photo courtesy of Cama Group.

fully complete tasks with which they may have little experience, operators learn more effectively

- On Demand Availability - Training sessions can start before a machine is installed in the plant and can be recorded and viewed multiple times

Additionally, AR can assist with changeover. For instance, if a company runs a particular SKU seasonally, such as a holiday product, this could be a unique machine set up that only occurs for one or two months per year. With high employee turnover rates, there may not be an experienced operator available who knows how to set up this package format. The ability to use AR to train new operators solves this problem.

## Space concerns and Monoblock systems

Another consideration that is a big challenge for many plants is adequately using available floor space. In many cases, there is just not enough space available to install the equipment they desire. In such cases, it is necessary to find equipment that offers a footprint compact enough to work within the minimal floor space and ceiling limitations.

One potential solution to save space with tray forming, cartoning, or case packing operations is to consider a Monoblock system. This includes all phases of the operation – case, carton, or tray forming, loading, and sealing – in one integrated machine. When we can perform multiple functions in one machine, it not only saves space and costs, but also allows for greater control over the full process. In addition, Monoblock systems typically don't need separate controls for each phase, which saves on costs and parts as well.

With case packing equipment, machine lengths can vary depending on whether they're designed to run standard RSC cases, display-ready, or wrap-around cases. Whatever your case packing line needs, be sure to look for equipment that offers flexibility, trouble-free operation, and high productivity.

## Seek a long-term partner

Finally, look for suppliers who will truly be a long-term partner. Capital equipment is expensive – if you find a supplier that offers added value, your investment will go much further. What do we mean by added value? This could include reduced need for newly developed technology, spare parts, virtual training and maintenance, and even

services to help manufacturers save on materials and improve sustainability.

For instance, a packaging consulting department helps companies by studying the best packaging solution in relation to their product's characteristics, packaging materials, and end user's requirements. For example, consultants often offer suggestions for a slight redesign of a tray or case that ends up improving the strength of the tray or case and companies can realize significant savings in the long-term. ■

## About the Author

**Billy Goodman, Managing Director for Cama North America, Buffalo Grove, Ill.** has more than 25 years of experience in the secondary packaging industry.



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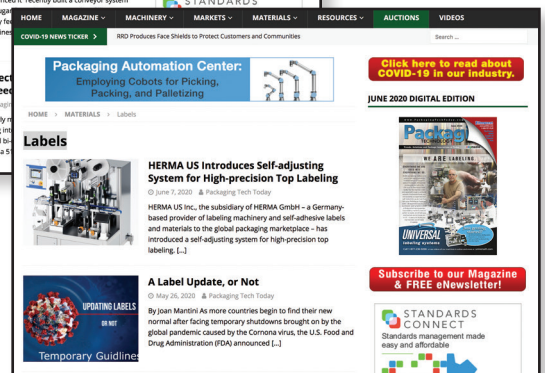
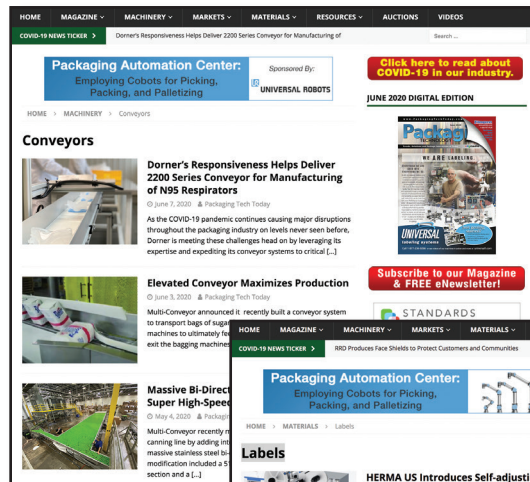
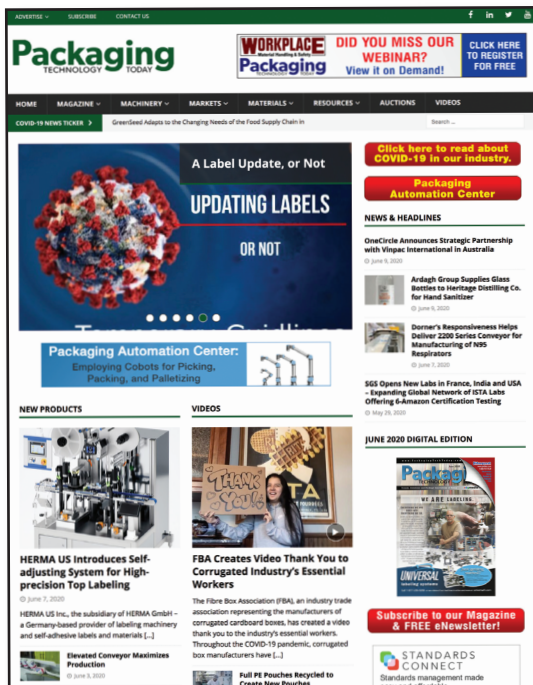
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# FOUR WAYS TO FOSTER CUSTOMER LOYALTY

## FOUR KEY CONSIDERATIONS FOR ENRICHING BRAND EXPERIENCE AND MEETING CONSUMER DEMAND

By Joe Schewe, director of design and engineering at RRD

**T**he pandemic rapidly transformed consumer habits, creating major shifts in priorities for consumer packaged goods (CPG) manufacturers. Just as these businesses pivoted to address the abrupt rise in e-commerce orders, supply chain strains, and more recently, a re-focusing on sustainability, so did their packaging needs.

It's important for brand owners to use packaging as a tool in creating unique connections that foster customer loyalty. Simultaneously, these decision-makers must balance this imperative with the other demands on packaging: e-commerce optimization, operational flexibility, high-performance amid a strained supply chain, and sustainability-enhancing measures.

Smart folding carton design – and close collaboration with the right partner – can help brands address all of these challenges, while keeping four key considerations in mind.

### 1. Identify packaging needs: Scrutinize everything

It may seem obvious, but frequently, brand decision-makers can forget that packaging should serve as an extension of the product itself. Instead, selections are often made around the dimensions, formats and materials that are most convenient. It's critical for companies to design packaging around the product and the desired brand experience.

In the case of a multi-faceted product like diagnostic and testing kits, there are several factors. For example, all items must be perfectly preserved when they make it to the user. Product protection measures like molded inserts and packing material, as well as the inclusion of items such as instructions, must be considered and designed to lay the components out in a way that makes sense to the user while maintaining protection along the shipping journey. Additionally, inclusion of multiple components—especially delicate ones—and sub-

sequent packing material may necessitate a higher gauge material to ensure durability and adequate protection of the contents. If a brand is trying to downgrade or use lightweight material in the name of sustainability and e-commerce optimization, it's important to reconcile these factors.

## 2. Make a great impression: Enhance the brand experience

The intelligence behind robotics has come a long way in recent years to the point today where they are extremely easy to operate. Many robotic packaging OEMs are going to great lengths to engineer and design their systems to be intuitive and easy to operate.

With the growing popularity of e-commerce and subscription box services, brands are leaning more than ever into packaging to make a great first impression with consumers. The unboxing experience of a new product - which was once thought of as a passing trend - has now become an integral part of modern consumerism. When the pandemic called for in-person gatherings to cease as much as possible and forced many businesses to remain operational through e-commerce only, companies of all categories and sizes considered the ways that packaging could deliver a positive brand experience to their customers' doorsteps.

When translating brand experience into a folding carton design, CPGs must work with their packaging supplier to understand how the package and in-box materials can function as a seamless extension of the brand. To achieve this, manufacturers must determine marketing goals and establish an overall brand theme to create the desired opening experience with graphic treatment and way-finding textural qualities. When done correctly, CPGs can achieve a custom solution that not only further emphasizes brand consistency but resonates with customers and ultimately establishes brand loyalty.

## 3. Streamline production: Address manufacturing complexities

Even before the pandemic, the proliferation of SKUs was evolving, and lockdowns only contributed to that growth. While the demand for more product variation is great, in essence, ultimately a larger inventory can create a complex supply chain. Moreover, designing folding cartons for an expanding inventory can prove to be an arduous and costly task if not done correctly.

Keeping this in mind, it is critical for CPGs to ensure that material availability intersects with both brand and product needs to help ease pack out and distribution com-



**With the growing popularity of e-Commerce and subscription box services, brands are leaning more than ever into packaging to make a great first impression with consumers.** Image courtesy of RRD

plexities. Decisions must be made around how the intended package will be assembled and loaded as well as the degree in which the packaging will need to arrive to the customer. For regulated products, it is important to note whether there are any requirements for the product or facility such as cGMP, ISO or any other certifications. With additional context, CPGs can help preemptively combat inefficiencies when packaging multiple SKUs because the folding carton has been configured to address specific needs.

## 4. Staying on trend: Answer the call for sustainable packaging

Sustainability remains a point of interest for consumers as they progressively express a preference for sustainably packaged products. In fact, 60% of consumers said they go out of their way to recycle and purchase products in environmentally friendly packaging, according to a July 2020 McKinsey report. State and federal governments in the United States and Canada are also introducing legislation which puts the cost of waste

and recycling on manufacturers that sell packaged goods, increasing charges for those that use less sustainable materials. As this shift continues, CPG companies must proactively seek more sustainable alternatives for their packaging.

Brands in consumer goods, beauty and many other industries have already adapted their packaging and overall approach to sustainability with some brands having reevaluated their sustainability goals around the use of plastics in both their packaging and products. For example, major personal care brands have transitioned razor blade packaging from blister packaging and plastic clamshells to paperboard hang tag cartons, in addition to producing 50% of its products from non-virgin petroleum plastic.

For a more sustainable packaging design, CPGs must consider their goals and product requirements. This, in turn, will help determine what kinds of materials they can utilize to achieve the desired outcome, whether it be recyclability, simply cutting down materials or a complete redesign. However, no packaging is sustainable if it fails to protect the product inside. For the best result, brands must work closely with their packaging partners to ensure measures to enhance the sustainability of packaging don't backfire by failing on performance.

## Find the solution that works for your brand

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## About the Author

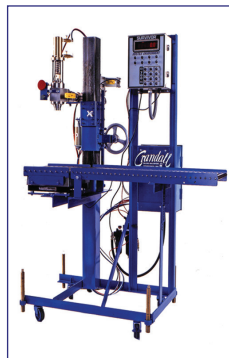
Joe Schewe is the director of design and engineering at RRD.



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Companies of all sizes are taking sizable strides toward reducing their environmental footprint through more eco-friendly packaging materials. Image courtesy of Adobe Stock Images

# SUSTAINABILITY, ONE PACKAGE AT A TIME

## ECO-FRIENDLY PACKAGING MATERIALS ARE AN EXAMPLE OF PEER PRESSURE AT ITS BEST

By Patrick Carroll, President of IMA Dairy & Food USA

One of the food industry's dominant legacy packaging materials, polystyrene, is on its way out. And that's a very good thing for the health of both our planet and ourselves.

Polystyrene has been used in a variety of plastic packaging applications, including a prominent role in the dairy sector's fastest-growing segment: yogurts. Portion packs – think of the single-serve butter packs you might get on an airplane – also have been traditionally comprised of polystyrenes.

But this is changing and, as is so often the case, a major U.S. state is leading the broader national charge. California – the nation's most populous state, whose residents comprise over 10% of the country's population – was at the forefront of an effort now emerging as a national trend.

### California phases out polystyrene

Back in 2016, the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) began listing styrene as a cancer-causing agent. The decision had roots in a 2014 determination of the US National Research Council, which described styrene as "reasonably anticipated to be a human carcinogen."

To affect change sooner rather than later, California folded its anti-styrene stance into an existing consumer safety referendum, with the goal of removing styrene from supermarket shelves. And given the state's sheer enormity and influence, as goes California usually so goes the nation.

### A push for recyclable packaging

In the dairy sector and beyond, this food-contact polystyrene



**For dairy brand owners, it's been a conundrum to get away from polystyrene in an eco-friendly, sustainability-conscious fashion, without breaking the bank.**

Image courtesy of IMA Dairy & Food USA

phase out is occurring in conjunction with one of the most sweeping cross-sector trends in decades: the push for more sustainable packaging materials.

As climates warm and populations explode, recent years have understandably seen an unprecedented push to drastically reduce plastics or, alternatively, utilize plastics variants that are more recyclable.

The result has been peer pressure at its best. From my vantage point as a packaging equipment supplier to some of the country's biggest yogurt and portion pack providers, it's been encouraging to see companies big and small take sizable strides toward reducing their environmental footprint through more eco-friendly packaging materials.

In part, this has been driven by broad consumer demand for sustainable products, as well as technologies to comprehensively communicate such initiatives through websites, on-product labeling and smartphone-scannable QR codes. In today's consumer landscape, anyone not in on green risks being out in the cold.

### **A sustainability sticking point**

For brand owners looking to go greener and get ahead of the polystyrene phaseout, a primary contender has been polypropylene (PP). But sustainability is rarely as simple as a one-for-one materials swap.

While far safer and more recyclable than polystyrene, polypropylene is typically seen as less moldable and manageable from a machining perspective. Often, switching from polystyrene to PP requires sweeping and costly new infrastructure investments. This is because PP requires more heat – and therefore longer, more robust form-fill-seal equipment – to properly form into a sufficiently sturdy cup or portion package.

Lofty goals are great, but spending seven or eight figures on entirely new machinery fleets simply isn't economically viable.

### **PET gains a firm foothold**

Enter polyethylene terephthalate, a mouthful mercifully shortened to PET. Safe, sturdy, lightweight and completely recyclable, PET has gained a firm foothold in America's beverage industry. Crucially, it also can be produced using existing polystyrene equipment, with just a few headache-free modifications.

From a sustainability standpoint, it's hard to say enough good things about PET. Heck, even Encyclopedia Britannica is in on the act:

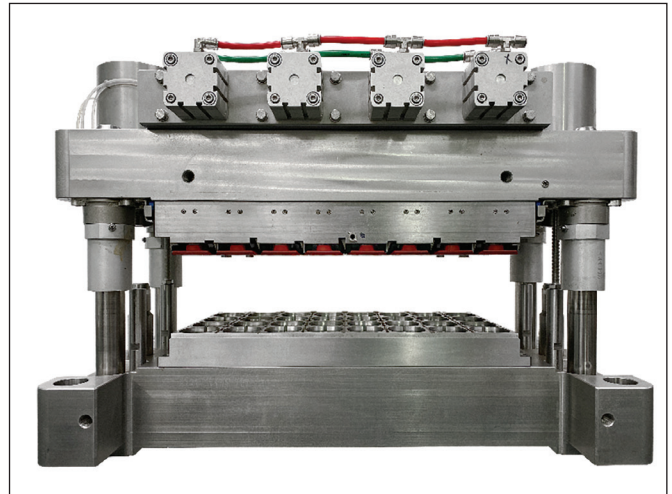
*"PET is the most widely recycled plastic ... When collected in a suitably pure state, PET can be recycled into its original uses, and methods have been devised for breaking the polymer down into its chemical precursors for resynthesizing..."*

That's a very smart way of saying PET is awesome.

But while the beverage sector is fully behind PET, its adoption in food sectors – even "soft-serve" foods like yogurts and portion packs – has been far less prolific. Here, one of its strengths has become a weakness: PET's inherent toughness and hardness has made it historically challenging to cut into single-serve units.

Let's take a moment to realize how frustrating the previous sentence is. What it means is that PET is recyclable, formable, fillable, sealable. And then, just when you're ready to break a batch into single-serve units ... nothing. It's like running a marathon, then realizing the finish line is on an offshore island.

This inability to complete the production process by cutting



**A patented punch process provides high-quality cutting and pre-cutting of PET, and can also be used for polypropylene and polylactic acid (PLA) constructs. This solves for the notoriously cumbersome process of breaking multipacks into individual units.** Image courtesy of IMA Dairy & Food USA

PET-packaged items into single units has become a longstanding obstacle to its wide-scope incorporation. So while we might see PET in a full quart of yogurt, individual cups – which comprise the lion's share of yogurt sales – have been difficult.

### **A Cut Above**

Luckily, the sustainability movement has been punctuated by technological progress – and the push-pull between PET and portioning is no different.



**For yogurt and portion pack brands, cutting tools open the door (and limit the excuses) for next-level package sustainability.** Image courtesy of IMA Dairy & Food USA

Introduced late last year, a set of sophisticated cutting tools is now available ideally suited for food brands utilizing sustainable mono-material packages, including PET. While designed for use with my company's portfolio of form-fill-seal (FFS) machinery, the cutting tools are equipment-agnostic, meaning they can be retrofitted onto a broad array of FFS machinery.

Importantly for ease of adoption, the new cutting technique employs independent sleeves that allow cup design changes without the need to manufacture an entirely new thermoforming mold. To bolster return on investment (ROI) and reduce total cost of ownership, the tools also can be easily dismantled for hassle-free maintenance, which can significantly extend the mold's lifespan while maintaining peak performance.

For example, outfitting a formed cup with a PET lid and label creates a completely recyclable package for premium sustainability. In addition, the use of transparent mono-materials makes the product visible to consumers, enhancing on-shelf aesthetics.

It is this sort of "practical sustainability" that can and must lead to a heightened eco-consciousness that meets the needs of our planet while being easily adopted by brand owners and highly appreciated by consumers. ■

#### About the Author

Patrick Carroll is President of IMA Dairy & Food USA, which serves the dairy and food industries with equipment spanning nearly all areas of packaging applications. IMA machinery includes form-fill-seal and fill-seal units for cups and portion packs, filling systems for pouches and stick packs, and wrappers. [www.imadairyfood.com](http://www.imadairyfood.com).



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## FLEXIBLE PACKAGING ENABLES SUSTAINABILITY

### RECYCLABLE MONO-MATERIAL IS CHANGING THE TIDE IN THE INDUSTRY, MAKING FLEXIBLE PACKAGING A SUSTAINABLE RESOURCE

By Ken Brunnbauer, Marketing Manager, Glenroy, Inc.

**I**f you're familiar with flexible packaging — spouted pouches, stick packs, sachets, zipper pouches — you'll know that it's traditionally challenging to recycle. The main reason relates to flexible packaging's multilayer plastic structures and the difficulty separating the various materials used in each layer at recycling facilities.

Because of this traditional approach to flexible packaging, it had been commonly thought of as "hard to recycle". However, with the rise of consumer awareness and the commitment by brand owners to meet sustainability goals by 2025 or 2030, the tide is changing within the flexible packaging industry. It's time to start viewing flexible packaging as a sustainability enabler and as a resource, not waste.

According to the article *Creating a Circular Economy for Plastics* by Nicola Ledsham,

**"Society needs to stop thinking of plastic as 'waste,' but as a renewable resource that needs to be disposed of correctly."**

It had been commonly thought of as "hard to recycle." However, with the rise of consumer awareness and the commitment by brand owners to meet sustainability goals by 2025 or 2030, the tide is changing within the flexible packaging industry. It's time to start viewing flexible packaging as a sustainability enabler and as a resource, not waste.

#### The value of flexible packaging

The beauty, and value, of flexible packaging has always been its ability to protect the product that is inside. By minimizing oxygen and moisture contact with the product inside, flexible packaging has the ability to extend shelf life and preserve freshness to enhance the consumer experience.

These attributes alone help to reduce food spoilage and decrease the amount of food waste in our landfills. In addition, its lighter weight when compared to glass and rigid plastic, enables it to reduce the gross weight during shipping which reduces greenhouse gas emissions and fossil fuel use. And the production of flexible packaging is much less energy intensive than other forms of packaging, and it uses less water too.

## Mono-material flexible packaging

Wait, you said “sustainability enabler” earlier? But it’s made of plastic. Yes, that is accurate. However, the way that flexible packaging is being constructed now vs. the past is vastly different. Enter, the rise of mono-material flexible packaging.

Mono-material flexible packaging is still a multi-layer structure, with the barrier protection of traditional flexible packaging, but instead of using different materials for each of the layers, it uses only one material type for each layer. In the United States, polyethylene is the material type gaining the most momentum.

By constructing flexible packaging film and pouches with a single material type (polyethylene) it is proving to be a pathway for flexible packaging to be recycled, or repurposed. This is providing the driver (or enabler) for brands to add mono-material flexible packaging formats to their portfolio that provide the product protection they need and help enable them to reach their stated sustainability goals (including plastic reduction and recyclable materials) in the coming years.

## Cultivating a circular economy

The recycling and repurposing programs for flexible packaging are accelerating the realization of a true circular economy. The circularity part of “circular economy” is one where the amount of plastic produced in the first place is reduced by continually reusing materials already in use, in a continuous loop.

Awareness and education on these programs are actions that mono-material flexible packaging producers are striving to achieve every day. Programs like the Sustainable Packaging Coalition’s How2Recycle program provides clear labeling for consumers, so they know how to properly recycle the mono-material flexible packaging they use.

One of the recipients of the mono-material flexible packaging collected in the store drop-off bins is Trex. Since 1996 Trex has grown to be the world’s largest manufacturer of wood alternative products. Through their NexTrex program they have expanded their reach by working directly with communities and companies to specifically identify mono-material flexible packaging that gets sent directly to Trex for recycling and repurposing flexible packaging into their catalog of products, further enabling the circular economy.

## Consumer education and awareness

Expanding consumer education and awareness will be key elements in the advancement of mono-material flexible packaging and its



**The store drop-off component of the How2Recycle program allows consumers the ability to drop their empty, clean, and dry mono-material flexible packaging into the bins outside retailers throughout the U.S. Those empty packages are then sent out to be made into composite lumber, decking, or even recycled into another plastic bag.** Image Courtesy of Glenroy, Inc.

ability to drive the circular economy. Organizations like the Flexible Packaging Association, Sustainable Packaging Coalition, Association of Plastic Recyclers, and others work with all stakeholders that have a vested interest within the flexible packaging industry (from converters to brand owners to consumers to recyclers to government).

They are continually working with each stakeholder on educational programs and activities to increase the collective knowledge and understanding of the holistic sustainable benefits of mono-material flexible packaging, and to stay engaged with law makers to ensure that the legislation being proposed is consistent and easy to follow.

As we move closer to 2025 and 2030, which are the targets for many brands to achieve their stated sustainability goals, the acceleration of recyclable mono-material flexible packaging, the benefits it offers to brands, consumers, and the environment will only continue to increase.

As consumers become more aware and educated on the recyclability of mono-material flexible packaging, its role as a resource in the circular economy, and the holistic positive environmental benefits it possesses (from reduced plastic production in the first place to decreased plastic waste in the environment), we can only be excited about the future; a future where we address the global waste challenge one pouch at a time. ■

## About the Author

**Ken Brunnbauer is the Marketing Manager at Glenroy, Inc. Learn more by downloading the Extended Producer Responsibility (EPR) Basics from the [Flexible Packaging Association](#).**



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### **Multi-Conveyor Boosts Production with Hot-Glass Jar Inversion Conveyor and Missing Cap Rejector**

Multi-Conveyor recently built a system to replace a manual hot-fill-jar-inversion process while providing optimum cooling time after the capper for a canning line with multiple product and jar sizes at a renowned family-owned business in northern Wisconsin that produces jams, salsas, pie fillings and other products.

The new equipment added line space providing the flexibility to allow the filling line to continue running longer than before. In fact, the customer reported production increased 20% to 40% per day, and easier changeovers. Last year the business handled about 350 cases (4,200 jars) per day, and now it is averaging about 500 cases (6,000 jars).

Single-lane filled glass jars exit an existing capper in upright orientation, then side transfer at the Multi-Conveyor infeed conveyor. The product conveys to a non-powered jar inverter and travels approximately 30-seconds upside-down, prior to entering a second non-powered jar inverter. The jars then side transfer to an existing conveyor in an upright position.

The conveyor length was critical for cooling of the up to 200°F product, both before and after a 90-degree side-flexing curve, and prior to the final inversion. Jars then proceed to an existing labeler and staging system where the product is manually removed and case packed.

Multi-Conveyor added dual belt drive assemblies prior to the first inverter, ensuring accurate inversion of larger, heavier jars. A missing and cocked-cap reject prior to the first invert included sensors, logic and reject to complete the system. Learn more about product orientation, inversion conveyance at [www.multi-conveyor.com](http://www.multi-conveyor.com). [www.multi-conveyor.com](http://www.multi-conveyor.com).

# Meet Your Deadline: Grow Your Productivity



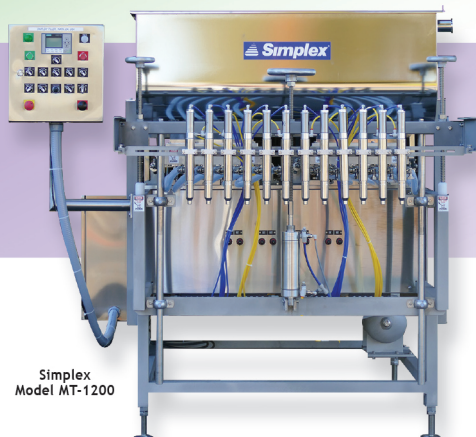
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