The Packaging Perspective

Pack Expo Las Vegas Gears Up for In-Person Trade Show

Matthew Jaster, Senior Editor

The state of Nevada recently reinstated its mask mandate for public indoor settings; face coverings are not required outdoors, and there are no capacity or large gathering restrictions.

Pack Expo Las Vegas and Healthcare Packaging Expo (Sept. 27–29, Las Vegas Convention Center) will follow the current local regulations and continue to update exhibitors and attendees as things develop to ensure a coordinated effort and successful event for all, according to show producer PMMI, The Association for Packaging and Processing Technologies.

"In the planning of Pack Expo Las Vegas and Healthcare Packaging Expo, we recognize that information and guidelines will change constantly and have committed to updating our approach in line with CDC and local regulations, along with industry best practices," says Laura Thompson, vice president, trade shows, PMMI. "Many events have already safely taken place, and we have taken best practices from those events along with current government guidelines to implement the PACK Ready health and safety plan for a successful in-person event."

Pack Expo Las Vegas and Healthcare Packaging Expo is the only show this year covering the entire packaging and processing industry spread across four expansive convention center halls. More than 1,500 exhibitors will showcase the latest new materials, technologies and solutions to address the packaging and processing needs of over 20,000 attendees from 40-plus vertical markets. With multiple free educational platforms and countless networking opportunities, the event will provide endless prospects for exchanging ideas and professional growth.

Industry partners continue to support the event with 28 association partners already signed on to support and exhibit at the show, including the Association for Contract Packagers and Manufacturers (CPA), Institute of Packaging Professionals (IoPP), The Organization for Machine Automation and Control (OMAC), Flexible Packaging Association, Reusable Packaging Association and more.

The Packaging & Processing Women's Leadership Network (PPWLN) breakfast at Pack Expo Las Vegas will bring together a panel of experts to discuss how to thrive in a fast-changing

world. First will be Tracey Noonan, co-founder and CEO of Wicked Good Cupcakes, as the keynote speaker.

Noonan and her daughter turned a small home-based baking business into a multimillion-dollar corporation through creativity, perseverance and an investment from Shark Tank's Kevin O'Leary. Recently acquired by Hickory Farms, Noonan will reflect on her experience of scaling an e-commerce business, managing a growing workforce and her insights into how the food and beverage industry is evolving.

Noonan will then join Yolanda Malone, vice president of global RD Foods at PepsiCo, and AJ Jorgenson, vice president of strategic engagement at The Manufacturing Institute, for a candid conversation about the new world of work and what it means to the future of manufacturing.

The breakfast will take place September 28th from 7:15–9:00am in Room N-247.

Lenze Americas is sponsoring lounges for exhibitors and PMMI members at Pack Expo Las Vegas and co-located Healthcare Packaging Expo.

With over 1,500 exhibitors, no other event in 2021 will bring together a more comprehensive gathering of packaging and processing suppliers offering new products, technologies and solutions. It's where executives and plant managers, engineers, brand managers and packaging designers come to see machinery in action, connect with suppliers, network and gain the latest perspective on industries in over 40 vertical markets.

"Pack Expo will reunite the packaging and processing industry in 2021 and these lounges are a welcome retreat for members and exhibitors after spending hours on the bustling show floor," says Jim Pittas, president and CEO, PMMI. "We're grateful to Lenze for providing this resource again this year."

The lounges will provide seating, coffee and a chance to take a break away from the busy show floor.

"Lenze recognizes how important it is for members and exhibitors to have a space to recharge between networking with attendees in their booths, and we are proud that we are able to sponsor these lounges again this year," says Susan Duval, senior marketing communications manager, Lenze Americas.

Lenze will sponsor two Exhibitor Lounges, located in rooms N-114 and S-222, and two PMMI Member Lounges, located in rooms N-101 and S-221. The lounges will be open on Sept. 27 and 28 from 8 a.m. until 5 p.m. and on Sept. 29 from 8 a.m. until 3 p.m.

Another highlight this year is an interactive exhibit that takes attendees on a journey through the evolution of packaging and processing and see what the future holds.

PACK to the Future celebrates the role of packaging and processing through history and the impact it is poised to have on our future.

Presented in the North Hall (N-11030), the curated exhibit includes nearly 30 pieces of historical equipment, materials and photographs spanning 250 years, journeying through the evolution of packaging and processing and highlighting how the industry developed alongside civilization. The exhibit will also pay tribute to PMMI members' response to COVID-19.

Booth Previews: Pack Expo 2021

The following is a snapshot of some of the must see exhibitors at the Las Vegas show in 2021:

B&R Industrial Automation Booth C-4709

B&R Industrial Automation will present its latest packaging solutions at the industry's premier event, PACK EXPO. B&R specializes in standards-based, scalable and modular control systems integrating logic, motion, robotics, human-machine interface (HMI), safety, I/O and data acquisition in a unified software development environment.

With ACOPOS 6D, B&R heralds a new era of manufacturing. Magnetic levitating shuttles move individual products freely through the machine. Gone are the days when conventional transport systems imposed rigidly defined timing on the production process. ACOPOS 6D is ideal for small-batch production with frequent changeover between products of different designs and dimensions.

ACOPOS 6D is based on the principle of magnetic levitation: Shuttles with integrated permanent magnets float over the surface of electromagnetic motor segments. The modular motor segments are 240 x 240 millimeters in size and can be arranged freely in any shape. A variety of shuttle sizes carry payloads of 0.6 to 14 kilograms and reach speeds of up to 2 meters per second. They can move freely in two-dimensional space, rotate and tilt along three axes and offer precise control over the height of levitation. Altogether, that gives them six degrees of motion control freedom.

www.br-automation.com

Mitsubishi Electric Americas Booth SL-6661

From filling and labeling to bagging and palletizing, our automation products and solutions span the needs of the consumer packaging industry. End users are challenged to adjust to rapidly changing consumer demands, and OEMs are challenged to incorporate the latest technologies to improve the effectiveness of their machines.

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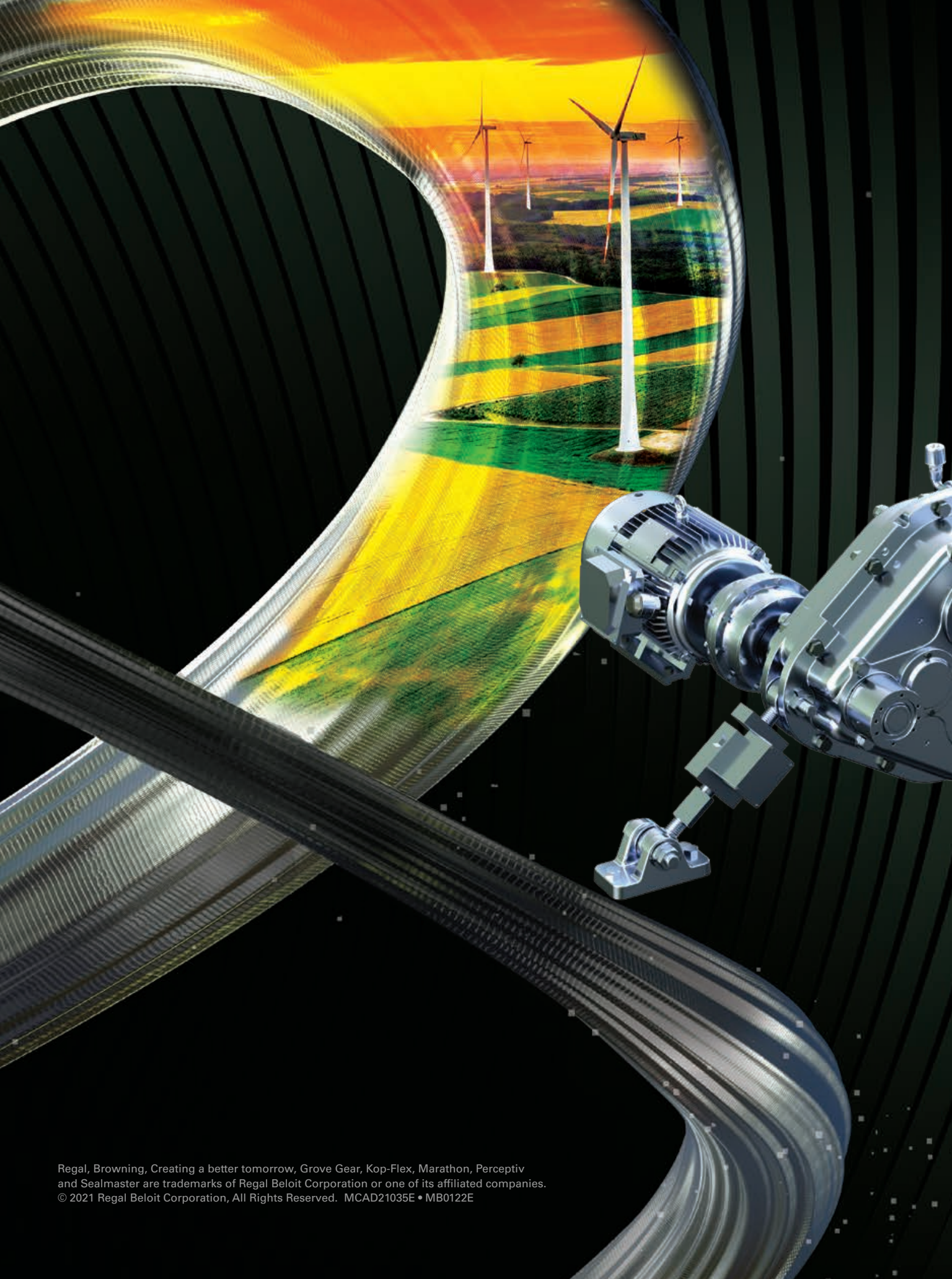

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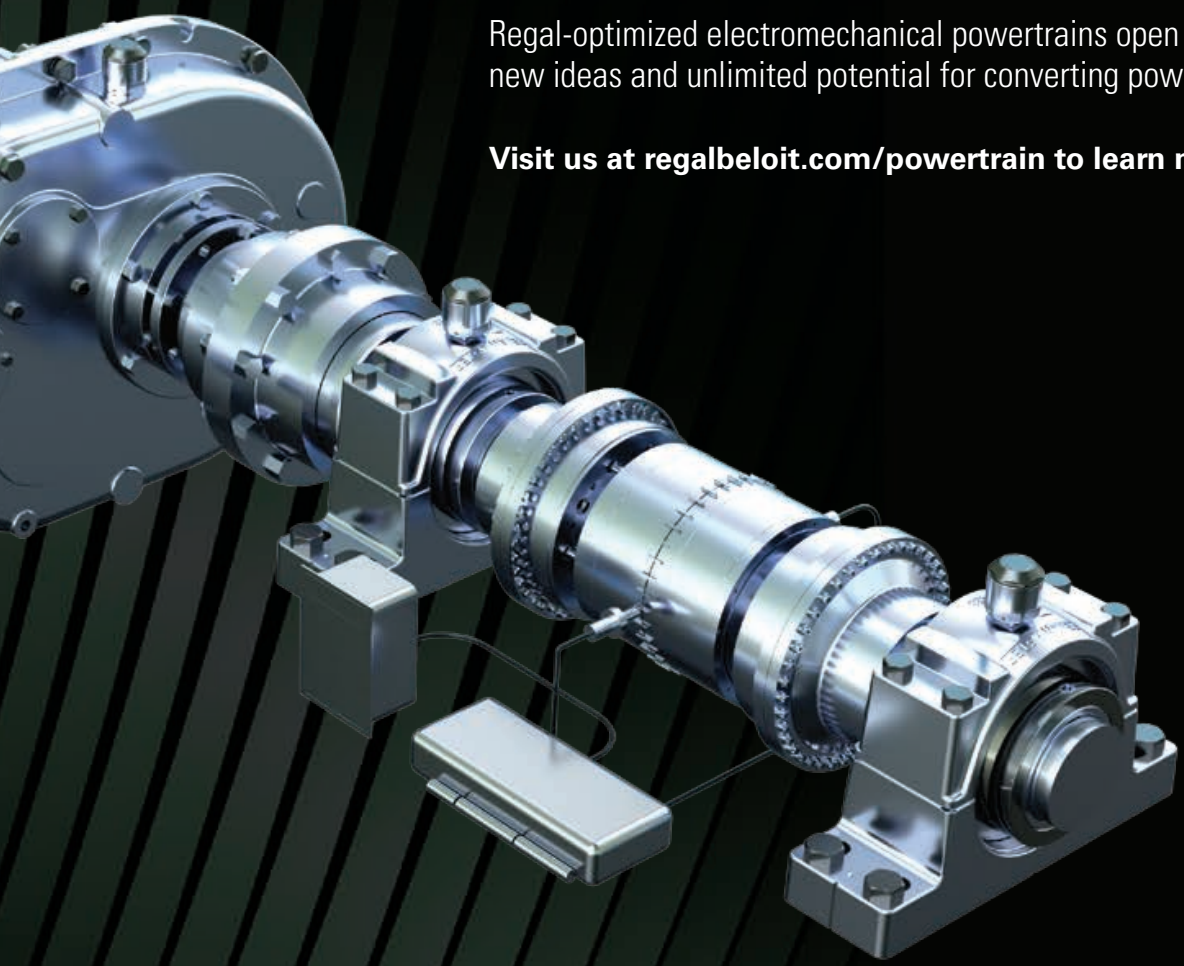

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designed to improve the performance and ultimately lower the total cost of deploying smart packaging machines.

Developments include updates to the MELSERVO-J5 Series like the "quick tuning" function that allows users to quickly and reliably tune their servo mechanism in approximately 0.3 seconds. The servo amplifier sets the speed loop gain and suppresses machine resonance through the servo on command. No tuning experience is required because gain values are automatically generated, reducing machine setup time and effort.

MITSUBISHI ELECTRIC SERVO SYSTEM
MELSERVO-J5

MELSERVO-J5's new and improved features unlock benefits across various industries. Industry leading communication cycle time combined with a 3.5kHz speed frequency response rate ensures precise, responsive movement and short settling time. Compatibility with CC-Link IE TSN facilitates IoT infrastructure across the manufacturing enterprise and enables time synchronization across all connected devices at one gigabyte per second (1 Gbps). The MELSERVO-J5 Series is also able to meet any axis requirements, from single axis to a 256 multi-axis system, due to its scalable synchronous axes—while all the motion modules are programmed in a single software environment.

The FR-E800 Series features a built-in PLC, and will include safety functionality meeting IEC 61508 standards and support various networks, including Ethernet/IP, MODBUS/TCP, and the soon-to-be-released CC-Link IE TSN. The FR-E800 Series is designed for engineering, technology, and product managers in industries such as packaging, material handling, food and beverage, and water and pumping, as well as those who are adopting PM motors to improve their energy efficiency.

The FR-E800 is built upon Mitsubishi Electric's proven variable speed control technology through years of reliable operation across various applications. It incorporates advanced capabilities in a compact footprint allowing for bookshelf style mounting. Additional features include extended programming functions, advanced fault detection features, and auto-tuning of PM motors for applications where energy efficiency is extremely important. The auto-tuning function includes configurable parameters to reach optimum performance, higher torque, faster acceleration, and lower noise level for quiet operation. This results in efficient control of motors and equipment to meet or exceed energy efficiency regulations.

For those OEMs that use induction motors in their equipment, the FR-E800 can control both induction and PM motors, helping to consolidate inventory and spare part management. The drive series is also dual-rated for light duty and normal duty, which may help achieve desired performance in smaller frame sizes.

us.mitsubishielectric.com

Emerson Booth #SL-6307

Branson DCX-F Offers Performance & Flexibility in a Compact Power Supply

Data access is the number one factor influencing IIoT and smarter factories. Because of this, OEMs building and supplying packaging machines are selecting components and subsystems based on their ability to fill this need. One example of this kind of technology is the Branson DCX Series of ultrasonic welding automation power supplies from Emerson. Along with patented power supply circuitry that provides significant benefits in performance and consistency, the DCX-F system supports real-time data transfer via EtherNet/IP and Profibus fieldbus protocols, two of the most widely used automation protocols.

In addition, DCX supports remote control and diagnostics via a standard HTML-based communication interface, so users can perform remote product setup, custom I/O configurations and system diagnostics. The DCX also supports the demand for higher packaging throughput through multiple power levels, tiered control levels (four control levels with up to five weld modes), a special DCX-HD high-dynamic option that provides greater control in high-speed packaging

applications, as well as Balun technology, which expands the weld area and can also help increase throughput. In addition, the DCX provides enhances flexibility via multiple weld modes in a compact, automation-friendly form factor. These form factor options allow for integration across horizontal, vertical and rackmount installation environments.

AVENTICS Flow Sensor Monitors and Measures Air Consumption

All too often, packaging lines operate without any way to monitor and measure their air consumption. When machines use more compressed air than needed and leaks go undiagnosed, manufacturing facilities waste energy and prematurely wear equipment. The Emerson AVENTICS Series AF2 flow sensor monitors air consumption in pneumatic systems, enabling actionable insight around air consumption and leakage. The leakage rate can be monitored by looking at the used air volume, so leaks can be diagnosed early

and addressed before they become major issues. By giving end users actionable insights on machine data such as flow, pressure and temperature, the AF2 helps to optimize energy consumption, prevent machine downtime and reduce costs. The AF2 is a highly flexible flow sensor that can be directly interpreted by many controllers, and offers multiple communications options, including an IO-Link connection, Ethernet connectivity, OPC-UA server, MQTT communication and on-board webserver. The sensor can be fitted on new installations and its seamless IoT integration makes it perfect for retrofitting existing machines.

Transmitter Provides Accurate and Reliable Measurements

Emerson will also showcase the world's first Non-Contacting Radar Level Transmitter designed specifically for food and beverage applications with IO-Link connectivity.

Emerson has developed the Rosemount 1408H Level Transmitter, which provides accurate and reliable continuous level measurement. The radar features a hygienic compact design, Fast Sweep Technology and hybrid communications, helping manufacturers maximize their production capabilities, reduce product losses and ensure food safety.

Industrial PC Boasts Increased Performance Capabilities

PACSystems RXi2-BP industrial PC delivers rugged, mid-to-high-range performance computing, powered by AMD Ryzen processors for increased performance and faster storage, improved graphics and enhanced security features—all in a surprisingly compact footprint. Emerson's IPC includes

a patented thermal design, enabling 100 percent CPU performance across extreme temperature ranges without throttling. Performance benefits of RXi2-BP are enhanced when paired with PACEdge and Movicon software, providing HMI, historian and analytics applications right at the machine or edge.

www.emerson.com

Siemens Digital Industries Booth #SL-6356

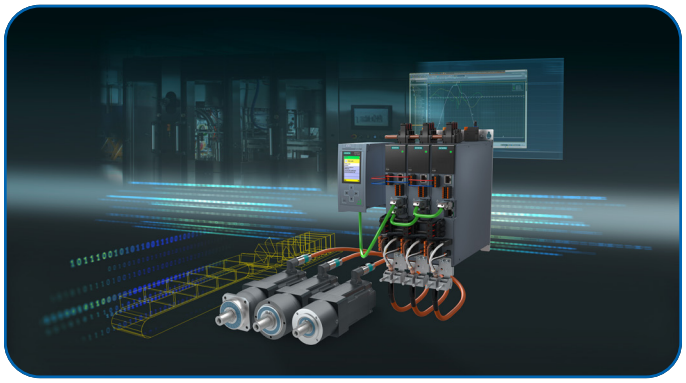
The demand for filling and packaging lines is growing worldwide, particularly in emerging and developing countries. The trend toward individualized packaging requires dynamic, flexible plants with high throughput rates. As a specialist for the packaging industry, Siemens offers future-oriented modular solutions as well as complex motion control. Here are some highlights:

Siemens Extends Range of Servo Drive System

Siemens has added new servomotors to its proven Sinamics S210 single-cable servo drive system, thereby expanding its range of applications. Specifically, for use in the pharmaceutical and food industries, the Simotics S-1FS2, a motor version with a stainless-steel housing, the highest degree of

protection IP67/IP69, and high-resolution 22-bit absolute multiturn encoders.

The servomotor thus meets all hygienic conditions and can be used for mixing and stirring, air conditioning and ventilating, dosing and filling, as well as conveying, packaging and storing a wide variety of end products in the food and beverage sector and in the pharmaceutical industry.



The Simotics S-1FK2 servo planetary gearmotors also complement the Sinamics S210 drive system. They are used when high cycle rates need to be achieved with a lightweight and low-inertia gear design, or when inertia matching is required to move heavy loads precisely. The motors are ready mounted and as a unit available in a wide range of gear ratios and sizes, allowing them to be optimally adapted to different applications. Thermal dimensioning is done via the digital twin in the TIA (Totally Integrated Automation) Selection Tool.

With the Simotics S-1FT2, Siemens has a servomotor that offers a wide range of different options for the Sinamics S210 servo drive system. For example, encoders with a resolution of up to 26 bits improve system accuracy, and the high IP67 protection rating and various motor coatings make the solution suitable for use in harsher environments. In addition, new machine options, such as higher rated speeds, are available for extended use.

The Sinamics S210 servo drive system consists of a servo converter and servomotor. All motors of the servo system are connected via a single cable that combines power wires, encoder signal and brake in one line. The range of applications includes highly dynamic servo solutions such as those found in handling systems, packaging machines and machine building applications. To meet the high demands on motion control functionality in these applications, for example dynamic positioning, gear synchronization or cams with multiple axes, the system works perfectly with the Simatic S7-1500 controller via Profinet IRT.

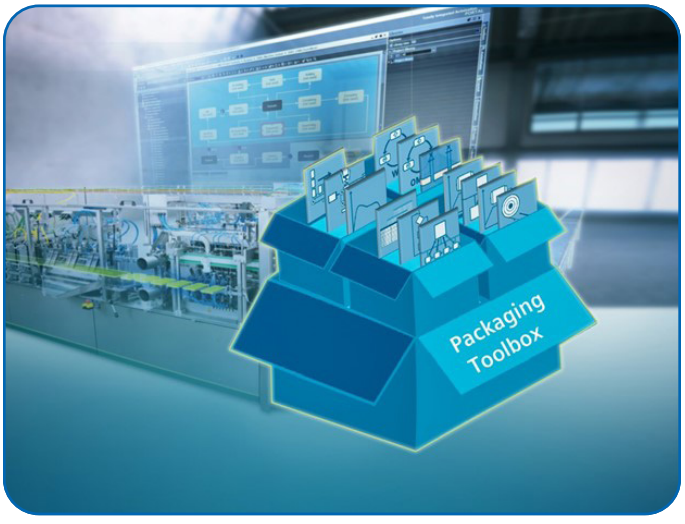
Packaging Toolbox

The Siemens' Packaging Toolbox is now available in its entirety for the Simatic S7-1500 controller in the TIA Portal engineering framework. It offers users packaging specific libraries which can be integrated into existing or new machine applications as well as program blocks. The Toolbox supports international standards such as OMAC, PackML and Weihenstephan Standards. By adding or modifying function blocks it can be adapted to suit individual requirements, while at the same time saving the user time during engineering and commissioning through tested functions and software solutions.

The Siemens' Packaging Toolbox is now available in its entirety for the Simatic S7-1500 controller and supports international standards such as OMAC, PackML and Weihenstephan Standards.

The toolbox comprises basic functions, technology functions and international standards. Typical Basic functionalities that the toolbox provides are axis control, TCP/IP communication, acyclic communication and alarm handling. The Intelligent Belt technology function enables sequentially arriving products to be picked up and made available in groups at an unloading position. The Intelligent Infeed application is used to pick up products arriving in a continuous but irregular flow and make them available to the downstream station with defined and equal gaps between them. The Form, Fill and Seal library contains functionalities for the overall coordination of foil feeders, dosing units, and cross sealers in horizontal and vertical applications.

www.usa.siemens.com/packaging



Belden Booth #SL-6520

Belden is a leading manufacturer of signal transmission and security solutions that are built outperform and outlast in the most demanding conditions. Offering a comprehensive line of industrial cabling, connectivity, and networking devices, Belden's products ensure seamless data communications at all times and in all industrial environments.

Belden Inc. opened its first Customer Innovation Centers (CIC) in Stuttgart, Germany earlier this year. The center provides an ecosystem for Belden customers to co-innovate with sales and product engineers to develop, test, document, and deploy proven solutions that drive efficiency, security and innovation.

The Belden CIC model was developed to address key business goals and outcomes that encompass various areas of customers' operations. These include safety, automation, quality, and productivity, all tested to simulate challenges

and stressors a network may face. A team of Belden technologists and application experts work together to accelerate the design and implementation of future-ready networks. Teams consist of Digital Automation Consultants who study customers' existing networks to recommend opportunities for enhanced digitization and data flow management, Solutions Consultants who work with customers as architects of the network, and Service Engineers who provide implementation and post-sales support. To date, the Belden Stuttgart CIC team has worked with leading companies in the industrial environment providing best-in-class consulting to transform ideas into solutions and technical support, empowering them to feel secure and maintain focus on their business objectives. The Belden CIC, by joining hands with third-party software and application partners, is taking a step further in providing a complete solution to its customers and enabling their digital transformation journey.

Belden has enlisted a number of partners to grow this existing roster in the areas of security, edge computing, data management and analytics.

www.belden.com

Bosch Rexroth C-5214

Bosch Rexroth will showcase a new world of automation with its ctrlX AUTOMATION platform, making automation as easy as using a smartphone. Machine builders and end users can virtually eliminate the boundaries between machine controls, the IT world and the Internet of Things with the flexibility to add new automation functions and updates via apps to create complete Industry 4.0 automation solutions. The heart of the ctrlX AUTOMATION platform is the ctrlX CORE, the most consistent, open and flexible control platform in the industry. With a Linux real-time operating system, open standards, app programming technology and web-based engineering, ctrlX AUTOMATION reduces components and engineering costs by 30% to 50%. The new platform is ready for standardized and manufacturer-neutral interfaces. In addition to EtherCAT, the system also supports PROFINET and IO-Link. The ctrlX CORE also supports more than 30 interfaces to IT systems such as OPC UA and MQTT, ensuring seamless communication and connectivity — from field level up to the cloud. With ctrlX WORKS, the Bosch Rexroth software toolbox, users can also easily assign ctrlX AUTOMATION apps or their own apps to the control. The ctrlX AUTOMATION platform also includes ctrlX DRIVE, a new generation of servo drives that utilizes cutting-edge power technology and integrated functionality that previously required extra space, enabling users to achieve space savings of up to 50%. ctrlX DRIVE can support as many as 20 axes per meter width, making it the most compact modular drive system on the market. On September 27 from 3:00 to 3:30 pm, Bosch Rexroth will present "Easy Machine Development and Customization with an Open Automation Ecosystem and App Store" at the Innovation Stage 2 (Booth C2058).

Imagine a new world of automation where pre-engineered solutions and ready-to-use apps speed up time to market and reduce or entirely eliminate development effort. Learn how an open automation ecosystem fosters innovation and helps businesses to perform automation tasks more flexibly and individually than ever before. Bosch Rexroth will discuss how a smartphone approach to industrial automation can make automation easy and accessible for machine designers and support end users over the entire machine life cycle. **PTE**

www.boschrexroth.com

PACK EXPO
LAS VEGAS
September 27–29, 2021
Las Vegas Convention Center
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Monitoring Coefficient of Friction

Optimize Manufacturing Line Efficiency and Productivity With Condition Sensors That Trigger Automatic Cleaning and Send Alerts for Needed Maintenance

Ted Van der Hoeven, Business Leader – System Plast, Regal Beloit

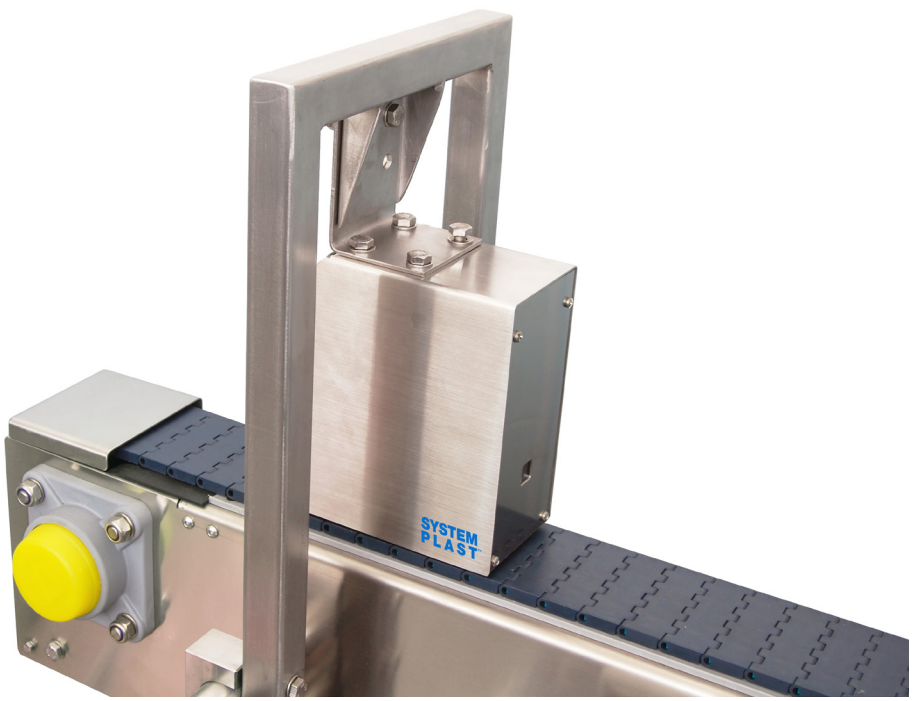
Properly handling the flow of containers along a manufacturing line and avoiding unplanned downtime — especially a dry-running line in bottling or canning operations — depends on controlling friction.

Here's why it's critical: Spillage of beverage or food products occurs as part of normal processes. In wet-running lines, water applied as a conveyor lubricant helps to wash away much of the spillage. However, in dry-running lines, buildup of grime from product spillage increases friction on belts and chains along the container conveyance system. The additional friction can make equipment less efficient, slow down container handling, and cause premature equipment failure.

In beverage plants, which typically have fewer resources available to monitor and maintain conveyors, continuous and automatic condition monitoring can ensure that production line efficiency stays at desired high levels.

Therefore, it's essential to monitor the coefficient of friction (COF) of belts and chains while they're running in order to maintain optimal flow.* Variations in COF reliably indicate changing conditions or pollution of the conveyor. Understanding real-time friction changes and trends also can enable manufacturers to maintain line efficiency and an optimum cleaning regime.*

Devices that automatically monitor COF can be installed in any conveyor where stable friction is required. In dry-running lines, the COF can more easily be affected by the cleanliness of the conveyors. COF monitoring is especially useful at in-liners, feeders or the points where the containers change their speed quickly. In addition, COF condition monitoring devices are ideal to keep the back-line pressure under control along mass conveyors. (*Bearings News*, August 2020).



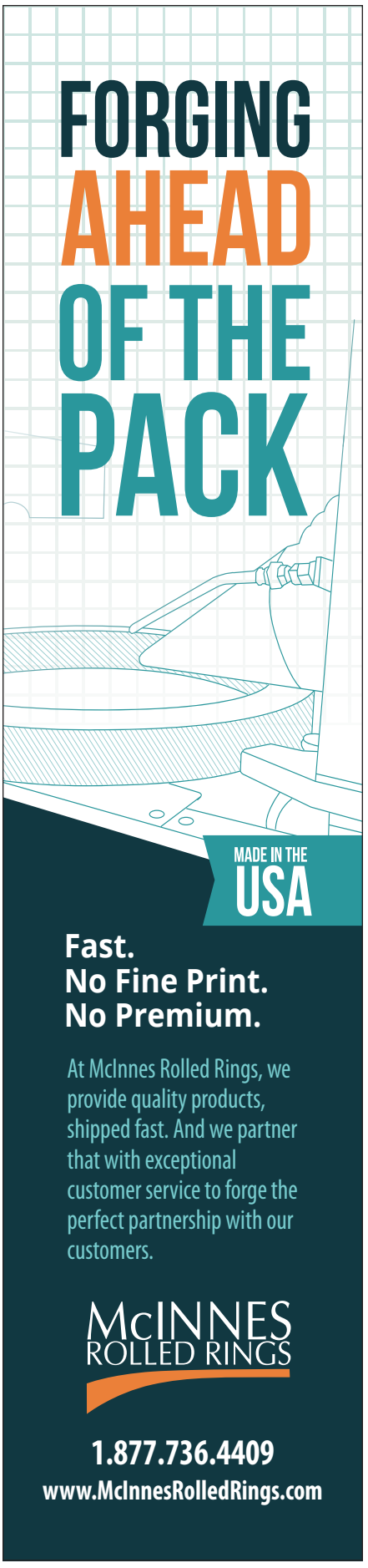
How COF Monitoring Works

COF devices monitor the condition of bottling or canning lines or other manufacturing processes by continuously sensing and measuring changes in pressure between the containers and the conveyor belts or chains. No operator intervention is required to utilize COF devices, which:

- Can be mounted along a conveyor and integrated into the production line control system or used as a stand-alone or portable device for spot measurements
- Used with all container types (PET, glass and cans)
- Independently and continuously measure changes in friction on belts and chains
- Calculate average COF values, standard deviation from preset ranges and trends
- Trigger a signal through Ethernet or Modbus connections once a pre-set limit is passed
- Alert operators to take corrective action, ranging from automatic cleaning to in-person troubleshooting as well as repair or replacement of conveyor components

Benefits for Bottlers and Other Manufacturers

Many manufacturing operations can benefit from COF monitoring, but the technology is well-suited for beverage or liquid food producers handling 40,000 to 50,000 bottles, cans or other containers per hour.

The business case for investment in COF devices can be made by evaluating labor cost savings, as fewer employees are needed to walk along conveyors to manually monitor conditions. COF devices can initiate automatic cleaning processes after detecting COF values outside of operational presets. Other corrective actions can be scheduled before manufacturing line efficiency is affected. For example, COF measurements can identify chain wear in isolated or hard-to-reach areas of conveyor systems before equipment failure occurs and causes unplanned downtime. **PTE**

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