



Start Here for Advanced Packaging and Processing Technologies

Pack Expo 2024 Highlights Innovation, Sustainability and Automation

Matthew Jaster, Senior Editor

With over 2,500 exhibitors occupying 1.3 million net square feet, Pack Expo promises solutions catering to over 40 vertical markets. Expectations also forecast a convergence of more than 45,000 attendees from global consumer packaged goods and life sciences companies.

“We’re thrilled to be back in Chicago, offering an event to spotlight numerous solutions for an expanding market, complete with its distinct challenges,” expresses Jim Pittas, president and CEO of PMMI. “Every aspect showcased at our event is grounded in thorough research and listening to our members, ensuring we remain attuned to the evolving needs of our industry both now and in the future.”

The pavilions are a “show within a show,” offering focused solutions in specific industry areas. These pavilions streamline the attendee experience, allowing them to explore a wide array of offerings and easily compare solutions in close proximity on the show floor.

The Processing Zone returns to Pack Expo International with the widest variety of food and beverage processing equipment. In today’s manufacturing environment, processing and packaging are integrated systems, making it critical to bring both technologies under one roof. Search for front-of-the-line solutions such as homogenizing, heat treating, forming/sizing, and coating. Attendees will discover solutions to increase efficiency, achieve total system integration, and ensure safety.

The Containers and Materials Pavilion is the prime destination for companies looking for innovative containers and materials to meet sustainability goals, refresh a brand, or launch new products.

It also houses award-nominated packaging solutions in The Showcase of Packaging Innovations, sponsored by WestRock.

The PACKage Printing Pavilion features digital printing and converting, labeling, coding, and marking technologies.

The Healthcare Packaging Pavilion, a top destination for life sciences companies, is a zone housing innovation in biologicals, medical devices, nutraceuticals, and pharmaceuticals.

The Reusable Packaging Pavilion, sponsored by the Reusable Packaging Association, showcases reusable packaging solutions to help reduce waste, cut costs, and gain supply chain efficiency.

The Confectionery Pavilion, sponsored by the National Confectioners Association (NCA), highlights candy trends and technologies and also houses The Candy Bar Lounge, hosted by NCA and sponsored by Syntegon Packaging Technology, LLC, for casual networking and idea-sharing.

Association Partner Pavilion presents leading organizations dedicated to advancing the packaging and processing industry, offering significant resources, insights, and expertise in one central location.

The Workforce Pavilion is Pack Expo International's one-stop shop for resources to strengthen your current workforce and grow the existing workforce.

Sustainability Central

Making its Pack Expo International debut, Sustainability Central will explore packaging sustainability and what it means to brands. This show floor destination will include expert speakers and a look at actionable, sustainable solutions in manufacturing, materials, recovery, logistics, analytics, and design.

With over 20 educational sessions at Sustainability Central, attendees can gain critical insights on various vital topics from experts at Amazon, Conagra, Clorox, Dow, Nestle, the Consumer Brands Association, Conagra, and other major industry players.

Additionally, Sustainability Central will feature displays from Virginia Tech, the University of Florida, Clemson University, PMMI Business

Intelligence, and AMERIPEN among others, sharing their latest planet-friendly innovations, research, and best practices.

"We've intentionally partnered with companies, exhibitors, and vendors to integrate sustainability into every component of Pack Expo International, including educational programming, show features, and how we do business as the largest packaging and processing event this year," says Laura Thompson, PMMI's vice president of Trade Shows.

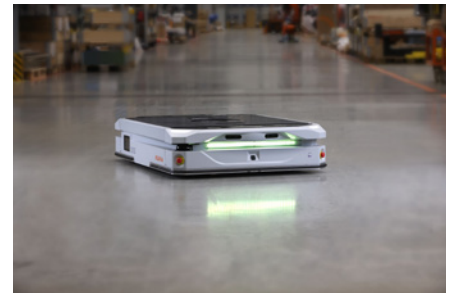
In addition to the new and expanded education and show navigation resources, attendees can expect the return of familiar features and initiatives to support their eco-conscious efforts:

- Sustainability focused educational sessions also will take place at the Innovation Stage, Processing Innovation Stage, and Industry Speaks.
- The Reusable Packaging Pavilion will feature Reusable Packaging Association member companies demonstrating sustainable packaging solutions to help reduce waste, cut costs, and gain supply chain efficiency. Attendees can explore reusable transport packaging products and services and see innovative reuse solutions.
- Sponsored by WestRock, The Showcase of Packaging Innovations, located within the Containers and Materials Pavilion, will display award-winning packaging from around the world.

Booth Preview: KUKA

Booth #N-5414

Highlighting speed, versatility and flexibility for the packaging and processing industry, KUKA Robotics will feature four innovative robotics cells. The live cell demonstrations will include autonomous mobile robot (AMR) solutions for intralogistics, robotic palletizing/depalletizing, a robotic bottle capping operation and a food handling system.



System integrator Stac Material Handling will use a KMP 1500P AMR and KR Cybertech, a compact palletizing cell simulating a palletizing process for cardboard boxes in the food industry. The KMP 1500P is KUKA's latest generation of AMRs for Logistics 4.0 and features intelligence, safety and easy commissioning to navigate complex, dynamic environments with the SLAM (Simultaneous Localization and Mapping) navigation method. The AMR platform automatically identifies loads with QR code readers, and 3D cameras detect obstacles in three-dimensional space.

Automation solution provider Technica International will use a KR Iontec in the booth to demonstrate depalletizing open-top cardboard can trays. The cell's KR 70 R2100 Iontec has a maximum reach of 2,101 mm and a rated payload of 70 kg that can subsequently be adjusted even after mounting. KR Iontec provides users with the highest output with a low total cost of ownership and high life cycle efficiency.

KUKA's Iontec family of robots is an extremely versatile six-axis medium payload robot that can be floor, wall, ceiling or angle mounted, and its optimized design is well-suited to compact cells with a small footprint. Boasting a best-in-class work envelope and equipped with a waterproof and dustproof in-line wrist and protected motors, Iontec is suitable for virtually any application. The HO variant uses food-compatible H1 oil in all axes to eliminate the potential for contamination in the food processing and manufacturing sectors. Refrigerated and freezer packing applications can also be accomplished with KUKA's Quantech PA Arctic, which

does not require a cover or heater while working in temperatures down to -30°F.

KUKA's high-performance SCARA robot family is featured in a bottle capping cell. The ultra-compact KR 6 R500 Z200-2 SCARA will cap small spray bottles with a cycle time of less than 0.36 seconds. With a maximum payload of 6 kg and a 500 mm reach, the four-axis KR 6 R500 Z200-2 has a serial mechanism with rotational joints in the first two axes, and the remaining axes are combined to allow rotation and linear movement in the Z-axis. The KR SCARA industrial robots are available in a variety of payloads, reaches and Z-axis strokes and are also available in an HO variant for safe food and beverage applications.

To demonstrate how KUKA automation provides food-processing companies with increased production control while avoiding failures and reducing costs, KUKA will highlight a primary food

handling solution using a KR DELTA HMhygienic robot. The KR DELTA hygienic robot provides outstanding performance and value for pick-and-place applications in the food, packaging, electronics and pharmaceutical industries. The KR DELTA combines precise grip, corrosion resistance and minimal maintenance requirements to excel in sensitive high-speed production applications. This ceiling-mounted robot offers a reach of 1,200 mm, a maximum payload capacity of 3 kg and cycle times as low as 0.5 seconds.

The robot is made entirely from corrosion-resistant stainless-steel that protects against dust and moisture. The design accepts alkaline or acidic high-pressure cleaning and disinfection up to 100 kPa for simplified upkeep and shorter downtimes. Food-sector certified for material safety, the entire robot carries IP 67 high-protection certification, with IP 69K for axis 4 that is also ISO 3 rated for cleanroom applications.

The KR DELTA is equipped with KUKA's new KR C5 micro robot controller that reduces full load power consumption by 35 percent.

kuka.com

Industry Spotlight: Warehouse Software

According to Interact Analysis, the warehouse software market is facing a rapid growth trajectory. In 2023, the market was valued at \$7.2 billion, and this is expected to soar to \$16.6 billion by 2030.

Overall, the standalone WMS remains the largest software category. The markets for other warehouse automation-related software, such as robotic picking software, multi-fleet orchestration platforms and warehouse control systems (WCS), are expected to grow rapidly and at a higher growth rate than the total warehouse software market. The automation-related software segment will expand at a compound annual



growth rate (CAGR) of approximately 19.5 percent between 2023 and 2030, compared with 12.7 percent for the warehouse software market as a whole. The boundaries between different types of warehouse software vendors have become blurred as vendors expand their software product offering. Many traditional WMS vendors have started to offer WES and WCS solutions, for example.

The deployment of a WES is a strategic choice leading to increased operational warehouse efficiency. Not only does the system provide visibility into warehouse asset operations but it also has the capability to dynamically release orders and assign tasks based on the real-time operation status of assets. As a result, bottlenecks can be avoided, and efficiency is increased. The WES data can also be used to predict future warehouse automation and capacity efficiency, while providing feedback to warehouse managers.

However, the biggest question surrounding the WES market isn't the benefits of the solution, but rather who will be providing it. Historically, automation vendors have been the main provider of WES solutions, given the amount of data they have on throughput rates and system constraints. However, we're seeing strong growth in standalone WES solutions (independent of the WCS and the WMS) and Embedded WES solutions (where the WES is embedded into the WMS).

The next few years will be highly dynamic, as different groups of companies compete to provide orchestration and execution capabilities. This report provides a wealth of information to help companies stay ahead of the curve in the race to own the execution layer.

Irene Zhang, senior analyst at Interact Analysis comments on the warehouse software growth trajectory, "The exponential growth of the warehouse automation-related software segment we have observed is the result of a few key drivers.

"First of all, the growth of warehouse automation has created the

need for software that can be used to control and execute solutions. There is also a need to optimize the overall throughput due to the growth of modular and standardized automation sub-systems which require orchestration and execution of various modules. Finally, the growth of the mobile robot market has driven demand for fleet management systems. As well as this, the availability of the Robotics as a Service (RaaS) model has also

contributed to the widespread adoption of mobile robots."

interactanalysis.com

Booth Preview: Beckhoff Automation

Booth #N-6136

Beckhoff's new EL8601-8411 EtherCAT Terminal offers incredible interface flexibility in a compact, 12-mm-wide design. With up to 12 signal interfaces (8 x DI, 2 x DO, 1 x AI, 1 x AO) and nine signal types in one ter-

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minal, the multi-interface is ideal for numerous applications. These use cases include systems that require only a few complex signals or to enable highly flexible signal configuration on custom machines without adding single-purpose hardware.



The EL8601-8411 offers a large number of configurable combinations to create a compact solution for applications where only a few complex signals are required. For example, it can serve as an ideal complement to microcontrollers, such as the CX7000 Embedded PC, which offer a direct backplane connection to the Beckhoff I/O system.

In addition to the digital inputs and outputs, one analog input and one analog output can be configured as a current or voltage signal. The digital inputs with configurable filter times can also be used for 24 V HTL encoders with A/B track, including latch and gate function, or as an up/down counter with a counting frequency of up to 100 kHz. Two of the digital outputs can be used as a PWM signal that can be modulated in both pulse width and frequency in a range of 20 Hz to 25 kHz.

As such, the EL8601-8411 can operate in an extremely flexible manner. It can provide digital/analog, counter/PWM/analog, or encoder/PWM/analog configuration options for wide-ranging industrial automation applications.

beckhoff.com

Student-Focused Initiatives

Recognizing the acute need to attract and retain a skilled work-

force, Pack Expo International, produced by PMMI, The Association for Packaging and Processing Technologies, prioritizes educational outreach to students. The event will feature a variety of activities aimed at introducing high school and college students to opportunities within the industry:

Girl Scout Event: New to the show, local Chicago Girl Scout Troops will receive credit for their Sustainable Packaging Patch. Scouts will meet in the Student Lounge on Sunday, Nov. 3, at 11:00 a.m. for a hands-on project focusing on sustainability. Lunch will be provided followed by a panel and show floor tour from industry professionals.

Silent Auction: Foundation Fundraiser: New to the show, the Silent Auction will take place Sunday through Wednesday. Notable items up for bid include accommodations at premier Chicago-area hotels, including the Langham, Sheraton Grand Riverwalk, LondonHouse, Loews, and the InterContinental Magnificent Mile. In addition, premium wine and spirits, gift cards, and more are available. All bidding will occur virtually, and items will be displayed on the Grand Concourse, Level 2.5. Proceeds will benefit the PMMI Foundation.

Pack Challenge: Returning for its second year, the Pack Challenge, sponsored by PepsiCo, invites six high school teams to participate in a machine-building competition. Competitors will demonstrate their skills by constructing full-scale material-handling machines capable of denesting and orientating paper coffee cups. Participating schools are Argo Community High School, Crete Monee High School, Elk Grove High School, Legacy Academy/Becker High School Coalition, Rich Township High School, and Waterford Union High School. This event will take place in the West Hall Lobby at Booth W-16005.

Future Innovators Robotics Showcase: In this event, sponsored by Schneider Electric, attendees will be able to witness cutting-edge robotics from high school teams across the country. These students will showcase their design, engineering, and troubleshooting prowess in the West Hall at Booth W-21052.

Amazing Packaging Race: Sponsored by Emerson, this dynamic competition involves college and university students from across North America who will navigate the expo floor, engaging in tasks set by participating exhibitors. This event highlights student creativity and fosters teamwork and practical industry engagement.

Students PACK the EXPO: On Nov. 5, PMMI will host local area students from Indiana, Illinois, and Wisconsin for a comprehensive expo experience. Activities will include a scavenger hunt, student tours, and a lunch-and-learn session to deepen their understanding of the industry.

Student Tours: PMMI staff will conduct tours of the show floor daily at 10:00 a.m. and 2:00 p.m. Tours start at the PMMI U/PMMI Foundation Booth at W-20022 (West Hall). Interested students should meet at the PMMI U Booth 10 minutes prior to the starting time. No pre-registration is required.

Booth Preview: Emerson Discrete Automation Group

Booth #N-5345

Emerson is a global technology, software and engineering company that takes an innovative Floor to Cloud approach to packaging. As the future of automation, a Floor to Cloud approach empowers smarter packaging lines and more efficient processes that make it possible for manufacturers to continuously improve plant productivity, sustainability and safety—and achieve their most ambitious goals.



By leveraging our industry-leading expertise and portfolio of ASCO, AVENTICS, Branson, Movicon, PACEdge and PACSystems solutions, manufacturers can unlock trapped data, connect islands of automation and gain unprecedented visibility and control to solve critical challenges. By transforming packaging applications from Floor to Cloud, companies can improve overall equipment effectiveness (OEE), increase energy efficiency while reducing waste, and create safer operations and digital record keeping.

Emerson's team of experts works closely with companies of all sizes to identify key opportunities and implement distinct solutions based on their specific goals and needs. By taking a Floor to Cloud approach, manufacturers can optimize their existing machines, processes and labor power, no matter where they are in their digital transformation journey.

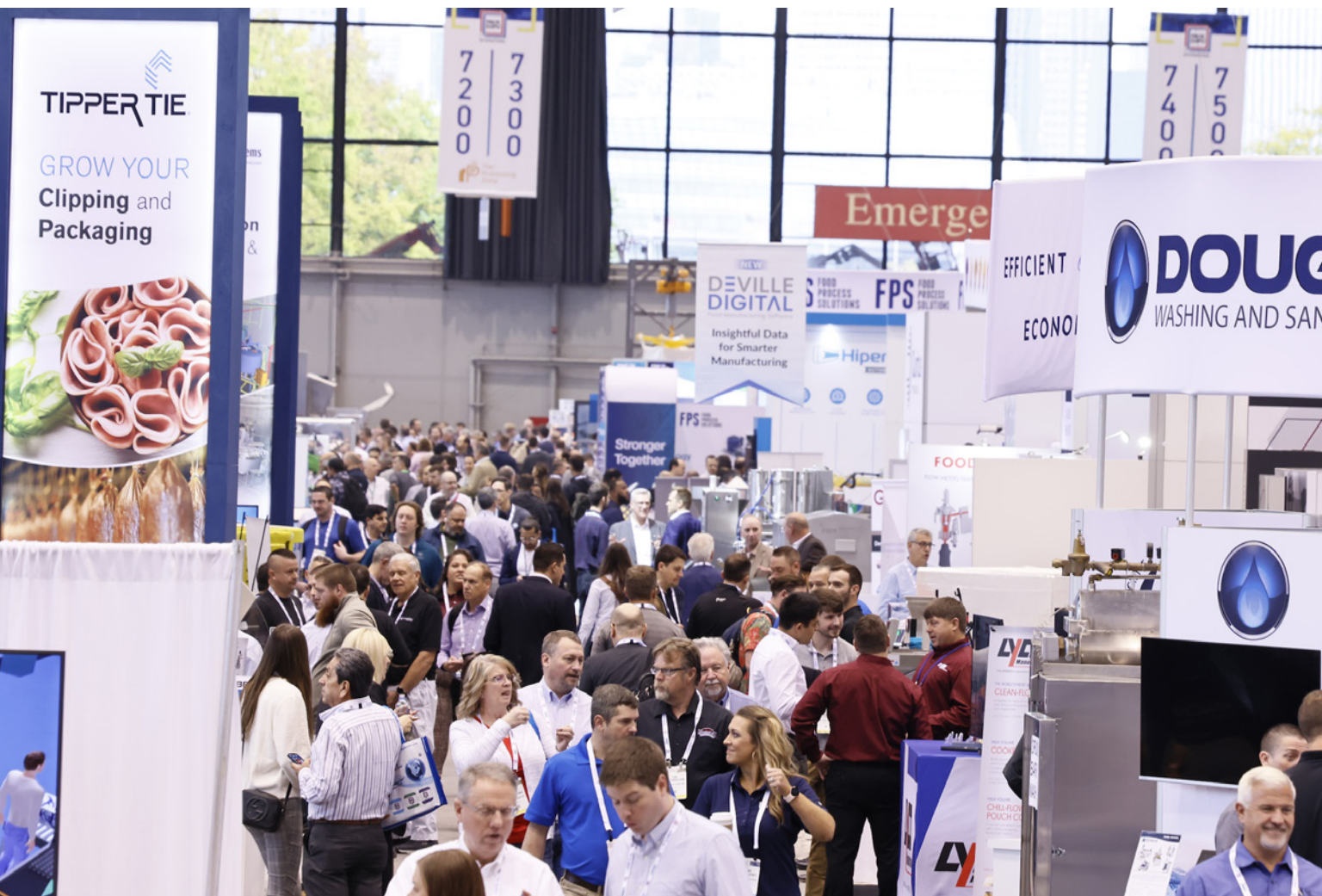
Recent news: Emerson announced the release of the Rosemount 802 Wireless Multi-Discrete Input or Output Transmitter, which has eight discrete input/output (I/O) channels, each one configurable as an input or an output. WirelessHART capability allows the transmitter to connect to a wireless gateway, which can in turn link to a host—such as a control system or asset management system—via a wired connection. This allows the host to monitor and control assets remotely over a WirelessHART network.

The new Rosemount 802 transmitter and its predecessor, the

Rosemount 702 Wireless Discrete Dual Input or Output Transmitter, are the only WirelessHART-enabled remote I/O transmitters available today, supporting Emerson's vision of a "Boundless Automation Intelligent Field" with flexible configuration and ease of deployment via wireless connectivity.

The wireless capabilities of the new Rosemount 802 dramatically reduce the costs associated with monitoring and controlling field-installed assets, such as motors, valves, and pumps, which traditionally require time-consuming field visits from technicians or a hardwired connection. The new Rosemount 802 minimizes these costs and improves safety by removing the field technician from hazardous areas while maintaining the discrete input and output control levels enabled by the host system.

The new Rosemount 802 functions in a similar manner to Rosemount 702 transmitters, but with eight I/O channels instead of two, each one



configurable as a discrete input or output. For installations where multiple assets are in one area and each must be monitored and/or controlled, the 802 transmitter is a more cost-effective solution than the Rosemount 702.

Power options include 10–30-volt direct current external line power or an Emerson SmartPower module. The latter option requires no wiring, provides up to eight years of maintenance-free operation, and can be quickly and easily replaced in the field.

emerson.com

Industry Spotlight: Machine-Integrated Robots

The machine-integrated robot market is expected to grow by 9.2 percent year-on-year in 2024 despite the sluggish growth outlook for the overall industrial automation market, according to new research by Interact Analysis. The market intelligence firm defines a machine-integrated robot as a robot that is controlled by a machine control platform, such as a PLC or Industrial PC. This concept is primarily implemented by eliminating dedicated robot controllers, but there is also the option of retaining robot controllers and programming the robots directly using machine controllers through software platforms.

Beyond 2024, the overall outlook for the industrial automation and manufacturing sectors will improve. Machine-integrated robot unit shipments are expected to grow by 14.7 percent in 2025 and have a predicted compound annual growth rate (CAGR) of 14.6 percent between 2023 and 2029. Although the overall industrial robot market is much larger, the machine-integrated robot segment is emerging, and its growth prospects look promising. Lack of skilled labor has been identified as one of the most important drivers behind this growth.

Due to the shortages of robot programmers and engineers in the Americas and Europe, these regions currently present the

greatest opportunity for the machine-integrated robot market. Unifying the control systems of robots and machines is becoming increasingly attractive to machine builders as a means of addressing the shortage of more specialized programmers and engineers. By 2029, it is expected that over 14,000 units will be shipped by the Americas, more than double the number shipped by the region in 2023. Growth of the machine-integrated robot market will be much slower in the APAC region. As well as labor shortages, price sensitivity also plays a large role in the different growth rates between the United States and Europe, and APAC. The price of machine-integrated robots is currently significantly higher than buying mid to low-end robots and robot controllers in APAC, making the former a less popular choice.

Interact Analysis' new report also provides analysis of the components used within machine-integrated robots, including motors, servo drives, precision gearboxes, encoders in robot arms, teach pendants, robot end effectors and machine vision systems. Revenues for key components used in this type of robot are expected to reach nearly \$500 million in 2029.

Samantha Mou, research analyst at Interact Analysis says, "The market for machine-integrated robots is certainly an interesting one and shows promising growth potential, especially in the Western world.

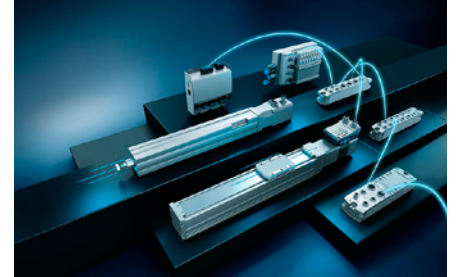
"The delta robot is currently the main type of machine-integrated robot, accounting for 34 percent of total units shipped globally in 2023. The food and beverage and pharma and personal care industries are the largest consumers of these robots, and they are often deployed for packaging processes. There are currently very few collaborative robots used as machine-integrated robots in the market, but we expect the use cases to grow over the next five years as vendors begin to promote them."

interactanalysis.com

Booth Preview: Festo

Booth #N-5927

Festo's exhibition floor is filled with cutting-edge solutions, machinery, and equipment designed to revolutionize packaging processes. Discover the latest trends, network with industry professionals, and gain valuable insights into the future of packaging at Pack Expo.



Considering motion control or remote I/O for your food & packaging operations? It's easy to power up efficiency and connectivity with Festo's extensive portfolio of motion control and remote I/O. Festo's linear and rotary mechanical systems, servo drives and motors, control solutions, and I/O systems can be integrated into your existing automation chain with minimal risk.

Festo's intelligent gripping systems adapt to the unique requirements of your packaging line. From delicate items to heavy loads, these versatile grippers effortlessly handle a wide range of products, providing a reliable and flexible solution for your packaging needs.

Didactic specializes in providing innovative learning solutions for technical education and industrial training. They offer a wide range of training systems, simulators, and educational resources designed to develop practical skills and competencies in various fields, such as automation, mechatronics, robotics, and fluid power.

Fabco-Air is a manufacturer known for high-quality pneumatic components, including the industry-standard Original Pancake cylinder. They offer a wide range of actuators, valves,

and custom-engineered solutions for various industrial applications.

festo.com

Booth Preview: Bosch Rexroth

Booth #S-1548

It's time to streamline how automation works. With more than 225 years of engineering expertise, Bosch Rexroth does more to engineer and deliver the most complete, harmonized, and easy-to-use factory automation solutions today's manufacturers want. With a factory automation portfolio that offers the broadest selection, these comprehensive solutions go beyond advanced components to include digital engineering tools and customized support that enables customers to solve the most intricate engineering challenges. Product highlights include drives, motion control, software, controls, motors, encoders, conveyor components and more.



High throughput rates combined with constantly changing package designs can become a productivity nightmare if the wrong material transport systems trap packaging lines into limited configurations. Bosch Rexroth conveyors and transport systems like ACTIVE Mover and VarioFlow plus are modular systems engineered with maximum flexibility and feature:

- Efficient motors plus modular designs that prevent over-dimensioning and energy loss
- Robust components and innovative technology to ensure high reliability at low maintenance costs.

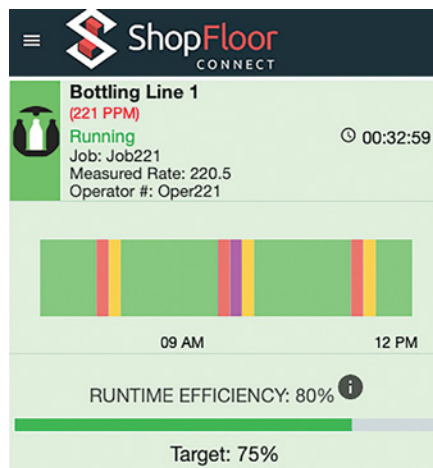
- Linear motor-driven transport systems for ultra-precise endpoints and accelerations up to 4g.
- Consistent modular design combined with our MTpro tool that speeds up planning and allows easy upgrades.

boschrexroth.com

Booth Preview: Wintriss Controls Group

Booth #LU-8431

Wintriss Controls Group has announced it will be demonstrating advanced features in its *ShopFloorConnect OEE* and *Data Collection* software at Pack Expo 2024. The latest functionality in *ShopFloorConnect* gives packaging and processing professionals efficient and easy-to-use software for increased productivity and reduced machine downtime, including when remote monitoring is required. The software can significantly increase manufacturing capacity and profitability by identifying and quantifying excessive production losses and bottlenecks.



Advanced *ShopFloorConnect OEE* and *Data Collection* software collects downtime and production efficiency data from every machine in a variety of industries including packaging, food, beverage, discrete manufacturing, metal forming and metal fabrication. Data are displayed real-time, and indispensable manufacturing reports are

produced, including detailed OEE reports in a variety of formats. At Pack Expo, Wintriss will highlight the *ShopFloorConnect Maintenance Tracker* which enables users to track important machine preventative maintenance (PM) items by run-hours, calendar days or machine cycles, issue targeted alerts when an item requires PM, and track the maintenance work history for all machines.



Wintriss will also demonstrate its new, compact SFC ShopFloor Tracker hardware device, an economical way for its *ShopFloorConnect* software to automatically collect production data from virtually any machine. The SFC Tracker is a wireless machine monitor that can be installed on any machine or production line to track machine parameters such as run time, idle time, production counts, production rate, uptime efficiency, and more without requiring any operator input. The most outstanding trait of the SFC Tracker is its versatility, featuring four inputs that can be configured to accept input from a variety of digital or analog signals.

wintriss.com/
PTE

