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SPECIAL SECTION
INDUSTRIAL IoT



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Achieving the **PROMISE OF AI**

Artificial Intelligence may be the next big industrial disruption. But without a clear sense of its business value, implementation projects are doomed to fail.

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AI Snowblower

Snowbo—an autonomous, AI-powered snow blower—uses weather forecasts to determine when to clear drive and walkways, providing safe and snow-free environments with no human interaction required.

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Breakthrough Sealing Technology

JPB Système's SMART WASHER is a disruptive sealing technology designed to improve efficiencies within maintenance operations by enabling touchless and wireless measurement of bolt axial load.

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Mobile Arm Meets Demands

The Mobile Arm Robot System (MARS) from ITRI is an autonomous service robot platform that offers mobility, sensing, manipulation, and human-machine interactions to meet a wide range of demands.

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3D Face Scanner

Revolutionary multi-camera 3D face scanning solution, Bellus3D ARC, captures commercial grade, full 3D face scan with the click of a single button in less than three seconds.

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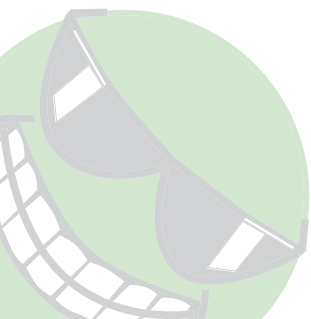
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PRODUCT SPOTLIGHTS



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Slice's 10495 EDC Folding Knife is a compact powerhouse, weighted for stability and ready for anything.



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The Brinter 1 pulls an array of 3D printing technologies into a single device for endless bio applications.



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The Ditch Witch HX30G vacuum excavator features a low-profile design and maintains power and productivity without breaking the bank.

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Drive Engineering Efficiency with Automatic Dashboard Generator

Reducing the time-consuming process of dashboard creation down to a simple mouse click, the TwinCAT Analytics One-Click Dashboard generates an entire HTML5-enabled analytics dashboard based on the PLC code that is then loaded into a selected Analytics Runtime container. When the process completes, users receive a network address that they can use to access the dashboard in a web browser—a huge time-saver in engineering processes.

Beckhoff Automation LLC

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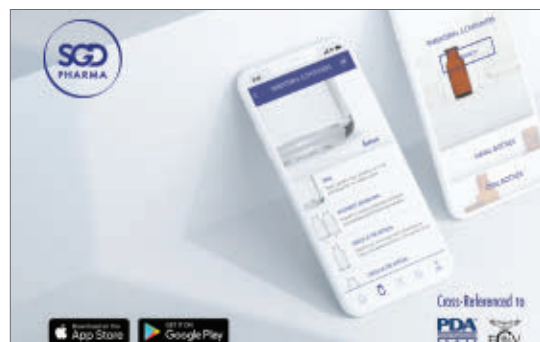


Mobile Configuration for Field Devices

The bundle of Softing's mobilLink interface with the Field Xpert SMT70 or SMT77 Tablet PC from Endress+Hauser offers users a simple and safe system solution for configuring and parameterizing field devices for the most important process automation protocols—HART, PROFIBUS PA, and FOUNDATION Fieldbus.

Softing Industrial Automation GmbH

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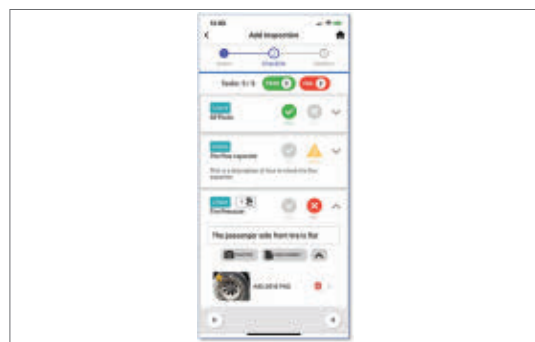


App Identifies Non-Compliances

The SGD Pharma App optimizes exchanges with quality controllers by making it easier to identify non-compliances that could be present in molded glass bottles intended for pharmaceutical use.

SGD Pharma

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Inspection App for Fleet Managers

The Vehicle and Equipment Inspection tool, the latest feature to the telematics app, allows operators in the field to perform inspections from anywhere and submit them immediately.

Temeda

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Edge Programmable Industrial Controller

groov EPIC integrates IT and OT by combining I/O, real-time control, local and remote HMI, and industrial/IT data exchange in a compact, industrial package.

Opto 22

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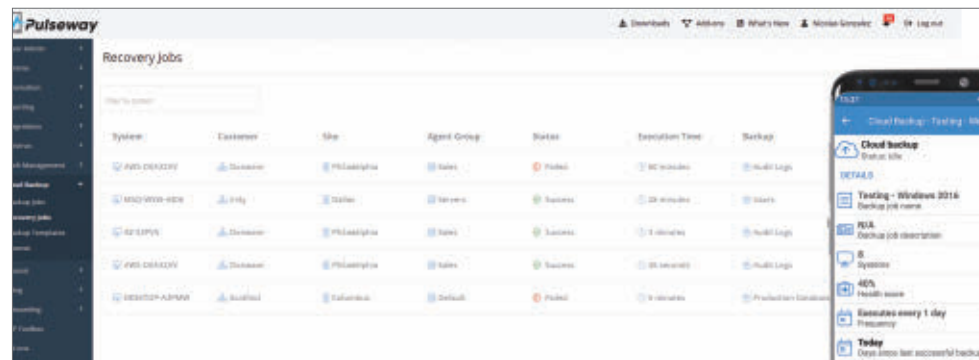


AR Solution for Improved Worker Communications

Librestream's Onsite AR Enterprise platform has been integrated with Samsung's Galaxy Tab Active Pro to deliver a solution that improves the safety, efficiency, and productivity of industrial workers. By combining these two platforms, teams can stay well-connected and workers can gain fast assistance in rough locations.

Librestream Technologies Inc.

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Integrated Cloud Backup Solution

Pulseway's Cloud Backup software delivers a clean and easy-to-use interface that will let you check backup statuses, calculate backup health score, schedule backup jobs, and recover data—for physical and virtual servers, workstations, and documents—to help organizations ensure their data is always protected.

Pulseway

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Tool Station Backpack



The Tradesman Pro Tool Station Backpack is the perfect combination of storage, accessibility, and durability. This design features storage for any trade's essential hand tools, plus a fold-out workstation to keep tools and parts easy to locate on any jobsite. Available with a removable worklight or without, this backpack gives tradespeople the ability to carry the necessities throughout the day.

Klein Tools

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Servo-Driven PCNC Mills

Servo-driven versions of Tormach's best-selling mills—the 1100MX and 770MX milling machines—provide maximum speeds up to 10,000 rpm, an added encoder to the spindle for rigid tapping, a BT-30 spindle, and servos for the X, Y, and Z axes.

Tormach Inc.

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Flexible, Modular Lighting System

For architects and lighting designers, VCC VentoFlex modular lighting system opens up countless ways to make an impact. Featuring a flexible PC board, VentoFlex delivers seamless backlighting, even in challenging interior spaces.

Visual Communications Company, LLC

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E-Learning Platform

Short for "Digital Readiness, Ideation, Velocity, and Engagement," DRIVE includes a wide range of web-based courses whose industry-specific and customizable content provide a valuable tool set for upskilling employees at every stage of a company's digital transformation.

The Voith Group

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Maxbolt Load Indicating Fasteners feature an integrated load-monitoring device so technicians know when proper load is achieved. During operation, technicians will know if load ever falls out of spec on any bolt, addressing the need immediately instead of waiting for critical equipment failure.

Valley Forge & Bolt Mfg. Co.

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Multitasking Machining Center

With a rigid construction, smart features, and a 96-tool capacity, the MX-100 Multitasking Turning Center offers high productivity milling and turning for a wide array of part manufacture.

Methods Machine Tools, Inc.

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Waldmann Lighting Co.

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Stretch Wrapper Buying

If you have questions about selecting the right wrapper for your application, this guide covers everything from what questions to ask, what to look for when comparing models, and understanding the cost drivers of stretch wrapping.

Lantech

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Full Product Catalog 2020

This catalog covers Nivelco's entire range of sensors, switches, transmitters, and measurement products.

Nivelco Process Control Co.

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Arc Flash Solution Guide

This guide offers 138 pages of practical solutions to arc flash hazards and walks you through the steps of conducting arc flash assessments.

Graphic Products

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Welding Data Book

This 426-page digital book is your guide to all things filler metals and includes how to select the correct filler metal, best practices, and technical and chemical analysis.

ESAB

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Linear Motion Catalog

The catalog and design guide illustrates a wide range of products engineered for use as building blocks in sophisticated linear motion assemblies depending on the customers' application needs.

Haydon Kerk Motion Solutions

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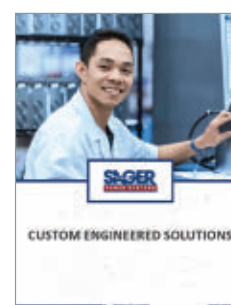


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Sager Electronics

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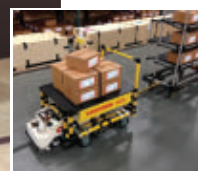
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Making Sure Product Quality Stays at the Top

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■ ETQ RELIANCE

Looking for a fully integrated, automated, enterprise QMS system that is flexible and scalable? ETQ Reliance might be just what you need to get the job done.

By Laura Davis

Here in the editorial world, the closest we have to a quality management system (QMS) is our own eyes—well, and spellcheck. But for the most part, we must rely heavily on our own eyesight for error detections. And let me tell you, it's a paranoia that we have developed an unhealthy relationship with.

However, when it comes to the manufacturing world, workers don't need to have this paranoia and nor should they when it comes to product quality and consistency. Most companies already have a quality management system in place, whether manual or automated. But it's important to invest in an efficient and effective enterprise QMS solution that fits unique needs in today's increasingly demanding world.

NED spoke with Morgan Palmer, Chief Technology Officer at ETQ, to find out not only how beneficial and important a QMS system is, but also why its latest product, ETQ Reliance, offers a great benefit to companies of all sizes. And it's not just using your eyesight to detect errors.

■ NED: WHAT RISKS ARE COMPANIES TAKING WITHOUT HAVING A QMS SYSTEM IN PLACE?

■ **MORGAN PALMER (MP):** Without a QMS to help manage quality efficiently and effectively, companies are at greater risk of ushering a faulty product through the supply chain and into consumers' hands. At best, this could mean consumers have a disappointing experience; at worst, it could lead to critical, and even fatal, health or safety issues. While consequential recalls can cost anywhere between millions to billions of dollars—severely impacting the company's bottom line—this does not even touch the devastation that can result from tarnished brand trust, reputation, and loyalty, each of which influence long-term revenue.

■ NED: WHAT EXACTLY IS ETQ RELIANCE AND WHAT IS ITS MAIN PURPOSE?

■ **MP:** ETQ Reliance is an SaaS-based enterprise QMS solution that automates quality, compliance, and EHS processes—no matter how common or complex. Inherently flexible, the solution can adapt quickly to different types of processes, meet unique business needs, and remain agile in the face of changing business environments.

ETQ reliance also makes it easy for businesses to deploy the solution throughout an entire supply chain. Internal and external users can simply configure personal dashboards, workflows, forms, sections, fields, and reports to their needs, all without difficult programming.

ETQ Reliance currently empowers more than 500 companies (e.g., United Airlines, Subway and L'Oréal) to not only uphold quality standards, but seamlessly improve and achieve operational excellence over time.

■ NED: WHAT INDUSTRY IS IT MEANT FOR? WHAT PROCESSES DOES IT CONSOLIDATE?

■ **MP:** ETQ Reliance can be used across virtually any industry. We serve brands in markets including aerospace and defense, aviation and transportation, biotechnology, consumer goods, electronics, general manufacturing, energy and utilities, food and beverage, life sciences and pharmaceuticals, medical devices, metals and mining, and technology.

The solution is designed to consolidate, harmonize, and automate all quality management processes. For example, it optimizes quality management in processes such as supply chain management, nonconformance handling, corrective action, enterprise risk management, new product introduction and compliant handling, health and safety control, and environmental impact reduction.

■ NED: WHAT KINDS OF ERRORS/INCONSISTENCIES IN PRODUCTS DOES THE SYSTEM CATCH?

■ **MP:** The system is designed to catch any error that might lead to a defective product or service. Depending on the point of deployment during the product lifecycle, ETQ Reliance can identify anything from a flaw in the design to a machine malfunction.

The earlier a problem is identified, the more affordable a correction will be. If the system identifies an error in the design phase, for example, it can be adjusted before any materials are used for production. When a defect is caught in final testing, the manufacturer needs to start over, scrapping the impacted items and wasting resources. If an error is caught in the field, and a recall must be issued, the costs of returning and replacing the product, as mentioned previously, are massive.

It's important to remember, though, that while an error might not occur in initial phases, anything could happen at any point during the production process, and thus quality should be monitored from end-to-end.

■ NED: WHAT UNIQUE FEATURES DOES ETQ RELIANCE OFFER THAT SIMILAR PRODUCTS DO NOT OFFER?

■ **MP:** ETQ Reliance stands out as a QMS solution due to various factors. Most notably, the software can be integrated with the industry's only advanced analytics solution, ETQ Insights. The information-driven system provides quality professionals with a packaged solution dedicated to collecting and analyzing data specific to quality.

ETQ Reliance also differentiates itself through its flexible, SaaS-based system, automation functionalities, and supply chain quality management features. It can also integrate with other systems that enable workflow across an entire organization (e.g., ERP systems to incorporate production data, CRM solutions to filter in customer feedback, and PLM for product design information).



ETQ Reliance is an SaaS-based enterprise QMS solution that automates quality, compliance, and EHS processes. (photo: ETQ, LLC)

■ NED: CAN COMPANIES OF ANY SIZE BENEFIT FROM THIS TYPE OF SYSTEM? IS THIS A SYSTEM THAT ALL EMPLOYEE LEVELS HAVE ACCESS TO?

■ **MP:** Quality maturity can vary by company and oftentimes by industry. However, quality does not discriminate by size, so any organization, from Fortune 500 companies to fast-growing startups, can reap the benefits of QMS solutions. ETQ Reliance is trusted by businesses of all sizes, like GE and Velcro, or Maple Leaf Farms and Midwest Sealing Products.

Because of our focus on usability, employees at all levels and across functions can easily access and use the ETQ Reliance platform. There are two main types of users: the core users and the casual users. Core users are typically smaller numbers of people—those advanced quality professionals in the system every day. For example, inspectors, quality engineers, and managers would be considered core users.

Casual users, on the other hand, are the rest of the employees in the organization impacted by quality (so, everyone else). Companies should make sure that everyone has access to QMS solutions and encourage them to provide feedback about quality when necessary. Having a system that makes it easy to bring in those casual users is critical to building a culture of quality. And, ETQ Academy simplifies onboarding for every employee, allowing them each to quickly understand how to use the platform.

Additionally, having a QMS solution on web browsers and mobile devices for all stakeholders (employees, customers, and suppliers) is critical for enabling wider organization usage. Quality shouldn't be confined within the four walls of one business; instead it should be enabled for the whole entire ecosystem.

For more, visit: NewEquipment.com/21120045

Changing the Game in Air Leak Detection

Expedite air leak inspections and make crucial maintenance decisions with the latest advancements in sonic imaging technology.

By Javier Irazola, Fluke Corporation

That hissing sound you may—or may not—be able to hear in your plant could represent thousands of dollars from leaks in compressed air, gas, and vacuum systems evaporating into thin air.

It's estimated that each year most plants waste as much as 30% of their compressed air production in unrepaired leaks. The result goes beyond wasted air pressure and energy and can lead to product quality issues (due to underperforming pneumatic tools) and unplanned downtime.

PLAYING WHACK-A-MOLE

Addressing compressed air leaks in a production facility is a bit like playing a game of whack-a-mole. Part of the reason air leaks are a big issue is because they are hard to find. Even when found and fixed, new leaks keep popping up—a fact of life due to wear and tear on equipment over time. But because it can be so difficult to find air leaks, most facilities just accept them as a cost of doing business.

The most common places to find air leaks are couplings, hoses, fittings, pipe joints, quick disconnects, condensate traps, and valves. That's a lot to inspect and much of it is likely hard to reach. While maintenance staff do their best to fix the leaks they find during normal maintenance routes, most facilities don't have the resources to dedicate specifically to this task. Technicians may make more of an effort to identify where a leak is located if a pneumatic tool isn't working properly, but even then, it isn't a trivial task.

FINDING LEAKS THE OLD-FASHIONED WAY

The most common leak detection methods involve listening for a hissing sound and then confirming with messy solutions of soap and water. But these outdated methods are time consuming and typically only effective at finding the most obvious culprits.

The hiss and soap method: Most plants are extremely noisy and require workers to wear ear protection, so listening for leaks must be done during downtime—between shifts, on weekends or during scheduled maintenance. When technicians suspect a leak, they'd spray soapy water on the suspected area to see if bubbles appeared. While the method worked for some leaks it was also time consuming, tedious, and far from comprehensive.

The ultrasonic acoustic detection method: This method used a portable ultrasonic acoustic detector that captured leaks in frequencies beyond what the human ear can hear. This required operators to wear earphones, use their experience and “educated ear” to determine what sounded like a leak and swap between accessories for short and long distances. They started with a parabolic dish or cone-shaped accessory to detect a potential leak from a distance. Once a sound that may be a leak was detected, the technician switched to a wand shaped device and moved to within a few inches of the suspected area to pinpoint the exact location of the leak. This closeup inspection could rarely be done while machines were running.

HEAR NO LEAKS? SEE THEM INSTEAD

Today, a new leak detection technology called sonic imaging has radically altered the leak detection process. Technicians can now instantly see air leaks.

- FLUKE CORPORATION
- FLUKE I1900 SONIC INDUSTRIAL IMAGER



The Fluke sonic industrial imager takes the effective practice of ultrasonic leak detection to a new level of efficiency and accuracy. (photo: Fluke Corporation)

This innovative technology uses an array of tiny, super sensitive microphones to detect sounds both in the human hearing range and the ultrasonic range.

Users simply scan the area of interest and the imager applies proprietary algorithms to the identified sounds—most users can get up to speed in about 10 minutes, regardless of how little experience they have with leak detection. The result is an instant, visual map of the leak. The map is layered over a visible light image of the area so users can quickly pinpoint the location of the leak and tag it or repair it on the spot. After repairing the leak, the user can use the sonic imager to instantly verify the repair. Scans can be saved as images or video to be used as a reference for future discussions with colleagues or supervisors.

This sonic imager can visually scan large areas from more than 10 m (33 ft) in heavy noise conditions. This allows technicians to work very quickly and from a safe distance while equipment is running. It also makes it easier to find leaks in hard-to-reach areas, like behind equipment or in overhead pipes, and to distinguish between multiple leaks in the same area. The captured images eliminate the need to climb a ladder to tag the leak, because the location of the leak is clearly identified on the image.

SEE SAVINGS IN ENERGY AND DOLLARS

Early results from production facilities that have started using the sonic imager validate the energy savings. One customer with a total installed capacity of air compressors equaling 330 hp has seen nearly a 26% recovery in compressed air capacity and close to \$49,000 in annual electrical energy savings. Before using the sonic imager to inspect for air leaks, the plant ran four compressors close to full capacity. After a one-day inspection, the customer found and repaired more than 130 leaks. Now the facility can handle most of its compressed air needs with just three compressors.

THE FUTURE OF AIR LEAK DETECTION IS CLEAR

Leaks will occur, but today there is a new, more comprehensive method for finding them. The simplicity of the sonic industrial imager means anyone can use it within 10 minutes. No more soapy water or hearing accessories necessary. Sonic industrial imagers are the practical and profitable method for facilities today, allowing air leak detection to easily be added to regular preventive maintenance routines.

For more, visit: NewEquipment.com/21120047

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Achieving the Promise of AI

Enterprises that adopt Artificial Intelligence also assume numerous business and technical challenges. A layered, technical architecture defines how data can be absorbed and leveraged.

By Anthony DeLima

A rapidly growing number of businesses are adopting Artificial Intelligence (AI) to reduce their operational cost, improve customer experience, and/or generate new sources of revenue. According to Gartner's 2019 CIO Survey, the number of enterprises implementing AI solutions has grown 270% in the past four years and tripled in the past year.

This significant rate of growth is due to the high potential for AI to create significant business value. It is estimated that AI augmentation alone will create \$2.9 trillion of business value and 6.2 billion hours of worker productivity globally by 2021.

However, successfully adopting AI brings about a host of business and technical challenges including but not limited to:

BUSINESS CHALLENGES

- Defining an AI strategy that can deliver a demonstrable positive business outcome, which use cases will yield the highest level of return on the investment;
- Ensuring explainable AI, the ability to provide transparency on AI-driven decision-making;
- Addressing ethical issues related to AI including how critical decisions are made based on insights provided by complex algorithms;
- Adopting a new organizational culture that sees AI not as a threat but as a tool to augment human thinking and making better and faster decisions; and,
- Ensuring legal and compliance risks are being properly addressed.

BUSINESS CHALLENGES

- Coupling AI-driven solutions to core decision support and transactional systems and connecting advanced AI systems to traditional applications and technical infrastructure;
- Ingesting structured and unstructured, internally and externally generated data that is spread across multiple silos;
- Ensuring validity of data that will be exposed to AI-driven solutions.

HAVE THE RIGHT BUSINESS FOCUS

AI projects fail or succeed to the extent that specific use-cases are identified that have the potential to demonstrate meaningful business value. Defining the business value that AI and machine learning (ML) solutions can deliver around a specific use-case is paramount. Don't pursue the technology because it appears attractive.

While AI promises considerable economic benefits, gaining broad traction with business stakeholders is possible only if specific business outcomes can be identified upfront.

Innovation in deep learning that leverages artificial neural networks continue to advance. But, using the technology in areas such as facial recognition and conversational AI have become table stakes.

For example, in financial services, more sophisticated risk analysis, anti-money laundering, advanced claims management, credit-worthiness evaluation, and intelligent customer onboarding have become prime focus areas. In manufacturing, predictive supply-chain management, predictive maintenance, and Smart demand forecasting is where most of the investment is going.

Robotics and IoT in the plant also are table stakes now. And in retail, predictive inventory planning, recommendation engines, and hyper-personalized customer engagement have become critical competitive opportunities. All industries have specific use-cases where AI is transforming the business. But the best opportunities are those where AI can drive significant business disruption.

Aside from having the right business focus, upskilling the workforce to work with AI is equally critical to implementing modern AI-based solutions. The ability to democratize AI transformation across the enterprise by adopting tools and capabilities to enable business users to quickly test algorithms also will be crucial to gaining traction.

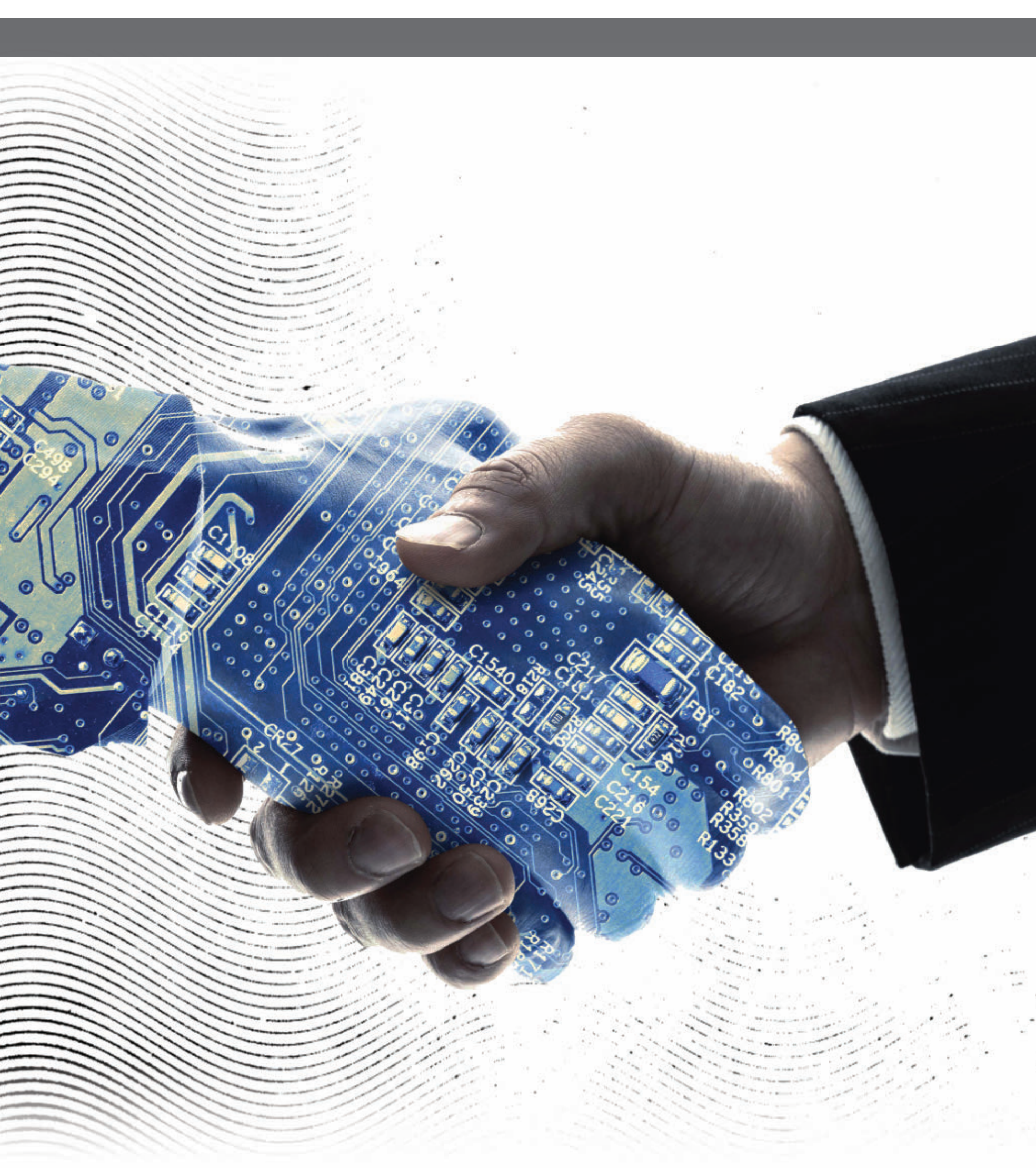
THE RIGHT FOUNDATION FOR AI

Aside from identifying the right business use-case to leverage AI, increasingly companies are faced with "having the right technical infrastructure to support modern AI applications." The integration of traditional software and data environments with modern ML and deep-learning applications is proving to be a formidable challenge.

A good place to start is the pursuit of a modern, enterprise-wide technical architecture. In the same way that a building architecture blueprint specifies how electrical, plumbing, telecommunications, passages, staircases, and other utility and structural elements are to be built, a layered technical architecture provides the foundation that defines how data can be ingested and leveraged across traditional and AI-based solutions. This architecture provides the blueprint and foundation upon which traditional and new AI-powered applications can be built.

INFORMATION HARVESTING

The *information harvesting layer* of a modern technology architecture is where data is efficiently scanned and cataloged. Market-leading services and solutions can be leveraged to connect with any data source inside or outside the enterprise. The services within this architecture layer automatically extract, unify, and organize information, leveraging



While AI promises considerable economic benefits, gaining broad traction with business stakeholders is possible only if specific business outcomes can be identified upfront.

semantic technologies that enable ingestion of this data into the knowledge fabric. This is one of the most challenging aspects of the architecture and requires the adoption of advanced and modern techniques, such as scalable machine learning and natural language processing (NLP).

KNOWLEDGE FABRIC

The *knowledge fabric layer* is where enterprise data is converted to knowledge. The most common and efficient way of representing an enterprise’s knowledge domain and artifacts, that is understood by both humans and machines, are enterprise knowledge graphs (EKG). EKG is a perfect way to relate your structured and unstructured information and discovering facts about your organization.

With a proper knowledge infrastructure, you can seamlessly combine highly scalable graph database technologies with complementary storage and search systems to deliver actionable insights. This empowers humans and teams to focus on data analysis, rather than data collection.

This layer also can feature a proprietary set of knowledge accelerators that include domain-specific ontologies across industry verticals and business methods.

ENTERPRISE AI

The preceding layers were preparing data to support AI algorithms without being concerned about data collection. This layer is where AI models and algorithms can be embedded into the very core of the architecture to create valuable insights with the potential to augment human thinking across disciplines and innovate operations, processes, products, and more.

The *Enterprise AI layer* takes advantage of highly scalable ML frameworks for both “training” and “deployment” phases. In the training phase, historical data is used to train and evaluate machine-learning models. The selected models will be deployed in the same layer, to be consumed by human or other applications in the enterprise. Multiple models can be deployed simultaneously to serve different enterprise use cases. One architecture serves all.

HUMAN AND MACHINE CONSUMPTION

Ultimately, derived knowledge has to be consumed by humans or machines in an intuitive manner. The *Human & Machine consumption layer* provides easy-to-use interfaces across the web, mobile, and API services to enable access data to the knowledge fabric layer.

WORKFLOW ORCHESTRATION AND SECURITY

All previously identified processes need to be managed, i.e. scheduling and monitoring, using a workflow orchestration tool. A workflow orchestration tool allows the enterprise to define the entire data pipeline. The data pipeline may include data harvesting in batch or real-time (streaming), training and evaluation tasks, monitoring model performances, applying AI models in batch and feeding the result back to the knowledge fabric. Alternatively, the data is fed into other enterprise applications.

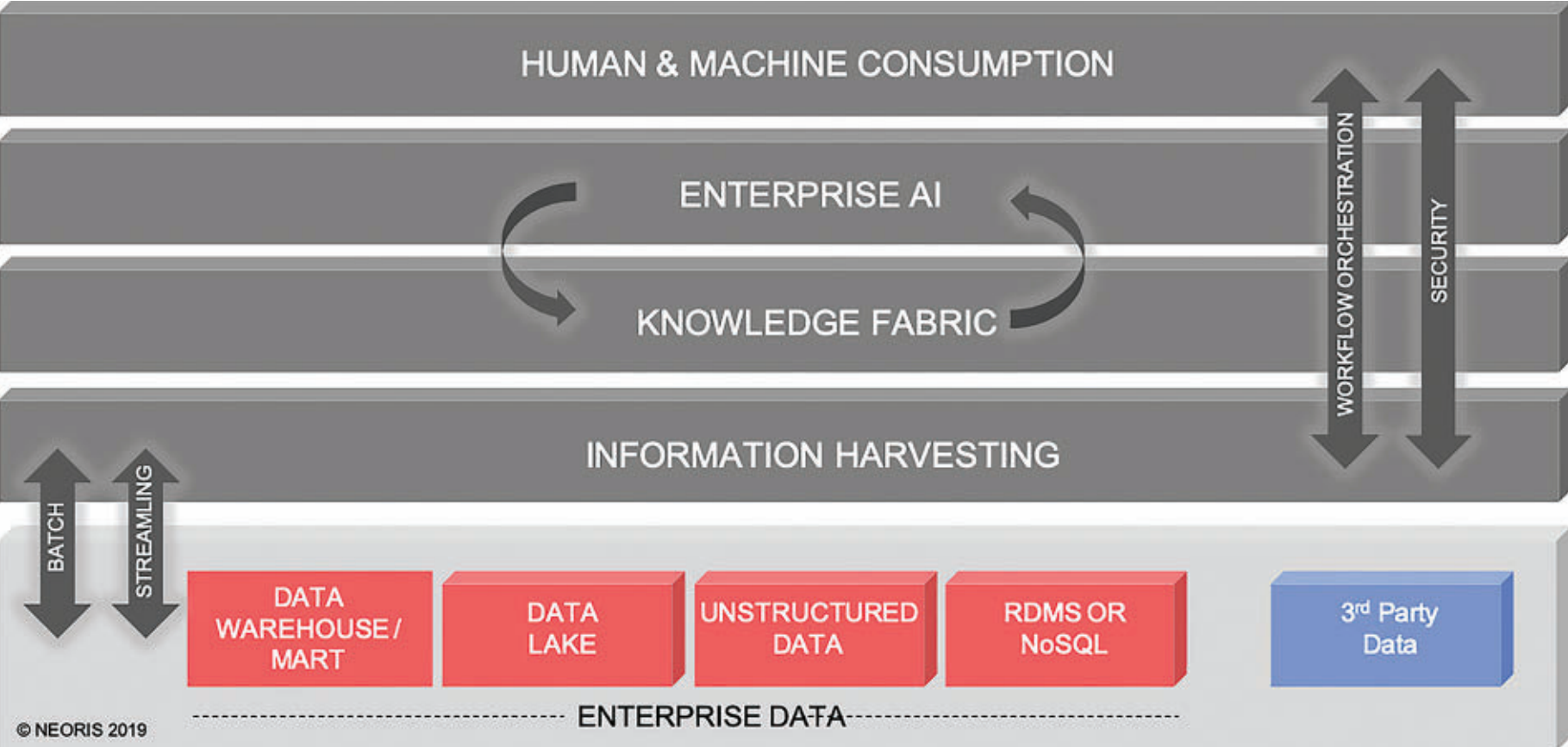
Needless to mention, security also is an important aspect of the architecture foundation. Controlling access to resources and the data pipeline is a major requirement.

TAKEAWAYS

AI solutions require high-quality data that is standardized and aggregated across the enterprise. The power of AI systems to work on complex problem solving on a 24-by-7 basis means that the enterprise technical architecture must deliver a continuous flow of data upon which “smart” decisions can be made. This means continuous harvesting of data in multiple formats both within and outside of an organization’s traditional boundaries. Not having access to the right data creates the risk that complex AI algorithms will use outdated or incorrect data.

Businesses that will successfully leverage the capabilities of AI, aside from ensuring the right focus around specific use-cases that can show positive results also must spend time defining the underlying technical architecture to enable these new generation of solutions. **NED**

ANTHONY DeLIMA is the head of Digital Transformation and Global CTO, and Sayyed Nezhadi is the chief technology architect, for NEORIS USA—a “digital accelerator” that provides tech consulting to businesses worldwide.





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Industrial IoT



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The eWON Flexy 205 is a versatile IIoT gateway and remote access router designed for machine builders. In addition to VPN remote access with eWON Talk2M remote connectivity services, it allows you to enable alarm notifications, machine data reading, historical logging to monitor and collect vital key performance indicators for analysis and predictive maintenance.

On top of these functionalities, it can be tailored to meet your specific connectivity needs by adding extension cards now or when a future need arises. You can make it as simple or full-featured as you need it to be. In addition, it is also possible to integrate data into your own systems or cloud platforms using the Talk2M application programming interface (API), HTTPs scripting or MQTT to name a few protocols that are supported.

HMS Industrial Networks

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THE NEW GENERATION OF COMPRESSED AIR SYSTEM CONTROL

Sigma Air Manager 4.0 (SAM 4.0) brings the Internet of Things to industrial plants with adaptive control, data storage, analysis, and predictive maintenance capabilities—all while ensuring a reliable, consistent supply of compressed air.

SAM 4.0 offers complete compressed air system management for industrial plants by tying compressors, blowers, or vacuum units together into a secure Sigma Network. With its unique 3Dadvanced Control, it continuously analyzes the relationship between various parameters (e.g. switching and control efficiency) and proactively calculates the optimum combination of units to run in order to achieve optimum efficiency.

Moreover, SAM 4.0 enables predictive maintenance with its built-in reminders and messaging capabilities. These features not only boost operational reliability but also significantly reduce energy costs.

Kaeser Compressors, Inc.

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MANAGE WIRELESS NETWORKS MORE EFFICIENTLY

Two IIoT solutions have been added to Plantweb Insight data analytics platform: Plantweb Insight Network Management and Plantweb Insight Power Module Management. Enabling industrial facilities to transform the way they manage their enterprise-level wireless network infrastructure, these applications provide a quick-to-implement, scalable IIoT solution that helps customers advance their digital transformation strategies and achieve greater operational efficiencies.

The Plantweb Insight Network Management application provides continuous, centralized monitoring of WirelessHART networks. This first-of-its-kind application provides a singular, consolidated view of the status of all wireless networks in a facility, with embedded expertise and guidance for advanced network management.

While the network management application provides a holistic look at wireless networks, the Plantweb Insight Power Module Management application drills down to the device level, allowing facilities to keep their wireless devices appropriately powered so they can continuously transmit key monitoring data. By aggregating power module statuses, users can evolve traditional maintenance planning and implement more efficient and cost-effective practices.

Emerson Automation Solutions

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SMART ENGINEERING DIRECTLY IN THE CLOUD

TwinCAT Cloud Engineering software for IoT and Industry 4.0 applications offers feature-filled addition to the TwinCAT 3 platform. Users can instantiate and use existing TwinCAT engineering and runtime products directly in the cloud. The solution is easy to access from the Beckhoff website with a web browser and requires no additional software. In addition, TwinCAT Cloud Engineering enables registered users to work with the TwinCAT development environment even from previously unsupported devices, such as tablets.

PC-based control offers a central, open, and comprehensive machine control platform ideal for delivering highly efficient, IoT-based automation strategies. It enables machines, plants, and production lines to be connected in ways that unlock their full efficiency potential across entire processes. In this context, TwinCAT Cloud Engineering adds a new dimension by providing users with an easy means of engineering TwinCAT instances and controllers in the cloud.

BECKHOFF AUTOMATION

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MOBILE AND DISTRIBUTED ASSET MONITORING

The AG24 IoT Gateway, a solar-powered wireless gateway, brings the benefits of IoT to mobile and distributed assets. With high-speed 4G LTE cellular connectivity, real-time GPS tracking, ability to read data from a wide range of sensors, and a multi-year battery with solar recharging, the AG24 brings Samsara's IoT platform to a host of new applications and use cases. The AG24 is designed for tracking semi-trailers, heavy equipment, rail cars, generators, and other high-value mobile or distributed assets.

Featuring plug-and-play integration with Samsara's suite of gateways, sensors, and cloud-based software, the AG24 is part of a complete platform for fleet management, industrial monitoring, safety, and compliance.

Samsara Fleet Management provides wireless software solutions to vehicle operations. Their FMS offers a variety of features, all of which are collected into a main dashboard which fleet managers can use to view data on all their vehicles.

SAMSARA NETWORKS, INC.

www.nedinfo.com/76471-30

EFFORTLESS CONNECTION TO MACHINES

Designed for Industrial IoT environments, the Moxa Remote Connect (MRC) is a remote connection management platform that includes server and client software along with a hardware gateway to seamlessly bridge the gap between field devices, engineers, and application servers for greater visibility and support. Hosted on Amazon EC2, MRC connects Ethernet-based edge devices to the server portal with the security needed in today's networks. Client software connects the engineer's laptop to the server portal so that they can manage all devices in real-time through a HTTPS web console.

MRC delivers greater flexibility by supporting a variety of connections including 1-to-1, multiple-to-multiple, and site-to-site. It empowers companies to remotely manage numerous machines and users at different locations, which makes it an ideal solution as businesses scale to satisfy growing demand.

MOXA INC.

www.nedinfo.com/76471-31



IOT MODULE EXTENDS NEXT-GENERATION CISCO WIRELESS CAPABILITIES

The Honeywell OneWireless Network is the only industrial wireless network on the market with capabilities for supporting ISA100 Wireless (IEC 62734), WirelessHART (IEC 62591), and Wi-Fi devices on one end-to-end redundant, scalable, and cyber secure network. Honeywell wireless technology allows seamless extension of the process control network into the field.

OneWireless IoT Module is for the next-generation of Cisco's industrial access points, the Cisco Catalyst IW6300 Heavy Duty Series Access Point.

Building on a decade of proven successes, the OneWireless IoT Module delivers ISA100 Wireless and WirelessHART multi-protocol connectivity, extending the Wi-Fi connectivity delivered via the Cisco Catalyst IW6300 Heavy Duty Series Access Point. The joint wireless solution enables Honeywell customers to quickly and easily deploy wireless technologies as an extension of their Experion Process Knowledge System (PKS). Combining the leading IT network technology from Cisco and the leading OneWireless multi-protocol technology provides customers with a single infrastructure that meets all their industrial wireless needs.

When combined with OneWireless, the Cisco Catalyst IW6300 Heavy Duty Series Access Point offers the security, speed, and network performance needed to allow the seamless extension of the process control network into the field.

Honeywell Process Solutions

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FROM THE COVER

World's First Autonomous Snowblower

keeps your driveway clean day and night, from a light dusting to a blizzard



Snowbo is the first fully autonomous, AI-powered snow blower that does not require human interaction or control. The robot uses weather forecasts, which it downloads from the cloud, to determine when and how long it goes outside to work.

Unlike its human counterparts, Snowbo does not experience fatigue or the shock of colder temperatures. It starts to clear driveways as soon as the snow begins to fall and continues to keep these spaces clean during and after winter storms.

Snowbo uses its patent-pending obstacle detection technology, SafeStop, to detect obstacles and navigate around them to safely clean snow-covered areas. Available for pre-order, Snowbo is estimated to be available in December 2020.

Roboworx Inc.

MORE ONLINE: nedinfo.com/76471-33

5G Production Test Solution

supports functional and DC parametric test capabilities



Based on the flexible and scalable PXIe modular platform, the TS-960e-5G provides a compact integrated test solution that can be configured with up to 24 independent VNA channels, up to 256 dynamic digital channels with per-channel parametric measurement units (PMUs), and a wide range of digital and analog instrument options.

Marvin Test Solutions, Inc.

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Pneumatic Pinch Valve

optimizes single-use batch production



ASCO Series 273 Pinch Valve for the life sciences market expands Emerson's extensive pneumatic valve offering to single-use batch applications in bioreactor and fermentation tanks, tangential flow filters, chromatography skids, and other drug discovery lab applications. The series features an innovative pinching mechanism that remains firmly in place to provide better tube retention and eliminates breakage or damage to the soft tubing.

Emerson Automation Solutions

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its unique edge is ground by hand on a diamond wheel to create a blade that's effective and safe to the touch.

Slice, Inc.

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Acid Storage Cabinet

sealed on all edges for easy cleaning



The Acid Storage Cabinet is specifically designed for the storage of corrosive chemicals and is available in multiple widths. The molded one piece fiberglass liner inserts directly in the cabinet and is sealed on all edges for ease of cleaning.

HEMCO Corporation

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Boring Kit Has it All

includes inserts for fine boring of steel and cast iron



The Series 112 Boring Kit is a ready-to-go, high-precision boring head kit that provides everything you need to tool up for boring jobs in a range of diameters from $\varnothing 0.700$ to 6.000 in. with just one boring head. The tooling and carefully selected accessories come stored

in a custom carrying case with foam inlay to keep the components organized and to protect the instruments when not in use.

BIG KAISER Precision Tooling Inc.

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Hygienic Lump Breakers

reduce agglomerates and lumps down to 1 mm



The Nibbler line of lump breakers feature a novel shaft assembly that allows the entire basket, screen, and front end to be quickly removed and fully accessed for complete

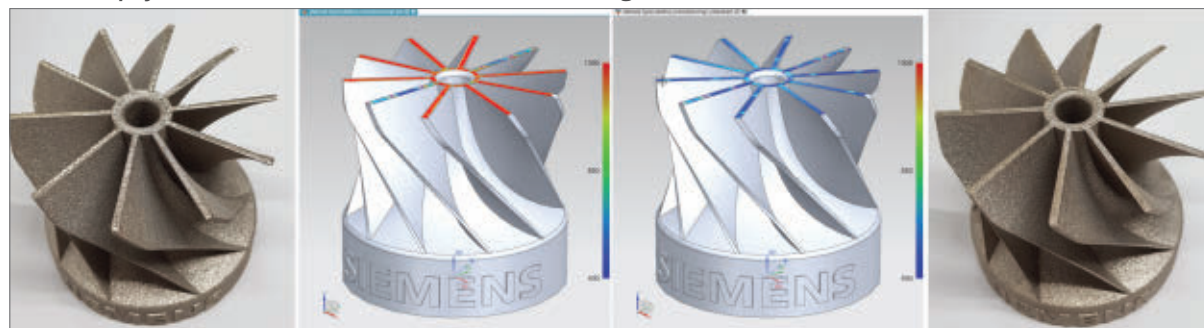
cleaning, thorough inspections, and easy maintenance. The deagglomerators include woven wire screens in 316 stainless steel, continuously welded seams throughout, and polished internals to virtually eliminate the potential to harbor product or bacteria.

Gericke USA, Inc.

MORE ONLINE: nedinfo.com/76471-39

AM Path Optimizer

combines physics-based simulation with machine learning



Additive Manufacturing (AM) Path Optimizer, a beta technology integrated in NX software, helps customers solve overheating challenges and helps reduce scrap and increase production yield to achieve the industrialization of AM, or the use of AM at the industrial scale. Siemens has developed this next generation advanced simulation technology to help maximize the production yield and quality of powder bed fusion manufactured parts.

Siemens Industry Software Inc.

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Prima Power Laserdyne

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Composite Tubing for Cylinders

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Polygon Composites Technology

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eliminates waste with 100% usage design



Pacific Blue Ultra High Capacity Coreless Toilet Paper Dispenser System includes a carousel that holds four jumbo tissue rolls and advances a new roll once the current roll is completely used; quality two-ply perforated and easy-to-access tissue that eliminates the need for sharp dispenser edges; and a translucent cover that helps protect unused tissue rolls from contamination and ensures rolls are visible to custodial staff.

Georgia-Pacific Consumer Products LP

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Microbe-Based Parts Washer System

makes the process of washing parts less expensive



A microbe-based parts cleaning system, the Bioremediating Parts Washer System, makes the process of washing parts less expensive, safer for employees, and kinder to the earth while inhibiting the foul odors that are typically associated with other microbe-based parts washers on the market. Bioremediation is the use of microscopic living organisms to break down oil, grease, and other hydrocarbon-based contaminants.

Oil Eater

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Compact, Multi-Sensor CMM

can stand-alone or integrate into a machine base



ALTERA[®] ceramic-bridge coordinate measuring machine (CMM) range uses the latest metrology software, multi-sensor technology, and CMM designs for demanding quality control applications. ALTERA[®] is equally at home in an inspection department or on the shop floor, especially as pneumatic mounts isolate the CMM well from nearby sources of low frequency vibration such as large machinery.

LK Metrology

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Variable Speed Compressor

reduces refrigerant requirements



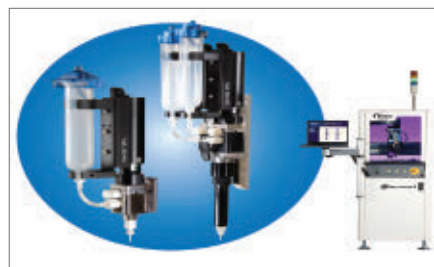
With an advanced SynRM motor-drive combination, the SFC 18 delivers 31 to 156 cfm with superior part-load efficiency, longer service life, and reduced maintenance costs. Developed in partnership with Siemens, the SynRM motor-drive combination achieves top tier IES2 classification.

Kaeser Compressors, Inc.

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Progressive Cavity Pumps

feature easy set-up and low flow rates



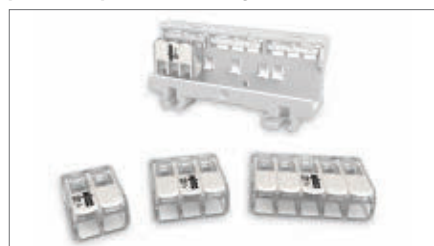
The Vortik Series of pumps incorporate progressive cavity pump technology in a fully integrated dispensing system solution complete with process controls for mass flow control and a patent-pending Automated Ratio Control (ARC) system for mixing two-component fluids.

Nordson ASYMTEK

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Hazardous Splicing Connectors

provide quick and easy installation



221 Series LEVER-NUTS for Ex applications now supports use for extreme and hazardous applications. These splicing connectors obtain AEx (class 1, zone 1) rating when used in conjunction with the mounting carrier, which can either be clamped onto a DIN rail or screwed tightly to any smooth surface.

WAGO

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- 2.7 to 65 l/min flow control

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Compression Latch Withstands High Pressure

delivers robust, vibration-resistant fastening



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Southco, Inc.

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Fluid Bed Dryer Eliminates Entry Hazard

allows safe, easy access to dryer interior for complete cleaning



Vibrating fluid bed dryers feature a cover lift davit system that enables safe, quick, and easy removal without tools. Eliminating the traditional port-holes that limit access to the interior, the system invites full access to via a manual winch to promote complete cleaning, thorough visual inspection, and speedy maintenance.

The Witte Company, Inc.

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Air Tool Safely Removes Crud from Vehicles

features a 10-position power/speed regulator for easy RPM adjustment



longer tool life. The air tool is ideal for industrial fleet vehicles, aircraft tugs, and other commercial vehicles.

Snap-on Industrial

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The Crud Thug Removal Air Tool safely and efficiently removes rust, paint, gasket material, seam sealers, and other crud without fumes, heat buildup or damage. The tool uses a 0.45 HP thermally balanced air motor to route air between the housing and liner for cooler operating temperatures and

Continuous Processors

feature removable shafts



The line of Continuous Processors permit safe, 360-deg. access to screws and paddles due to their removable shafts. The processors promote complete cleaning and invite thorough inspection to help safeguard against cross-contamination without requiring any significant disassembly.

Readco Kurimoto, LLC

MORE ONLINE: nedinfo.com/76471-52

HMI for Harsh Environments

requires JMobile V2.8 or higher



Designed specifically for harsh environments, the eX700G HMI Series combine a high-performance, sunlight-readable display with state-of-the-art connectivity features and top performance in a great design.

Exor International

MORE ONLINE: nedinfo.com/76471-53

Composite Backshell Connector

offers strain relief to open wire bundles



The One Arm Composite Backshell is specifically designed to offer a robust and unique performance in terms of reliability and functionality for harsh environment applications. It is designed to satisfy requirements for all sizes of MIL-DTL-38999 Series I, II, and III connectors.

SOURIAU-SUNBANK

MORE ONLINE: nedinfo.com/76471-54

Automated Calibration System

supports up to four accelerometers



The 4-in-1 MDAC facilitates simultaneous and accurate calibrations of up to four piezoelectric (charge or PE), IEPE (low-impedance voltage mode) or variable capacitive accelerometers of the same model and type, each weighing up to 20 grams over frequencies from 1 to 4,000 Hz.

MB Dynamics, Inc.

MORE ONLINE: nedinfo.com/76471-55

Economical Tombstone Fixtures

can be mounted on most HMC pallets



300 lb. lighter (depending on model size) than a tombstone with clamps or vises.

Kurt Manufacturing Industrial Products Division

MORE ONLINE: nedinfo.com/76471-56

Machine shops looking to use tombstone workholding fixtures on their HMC should know about the economical and convenient way of setting-up their machine using Kurt VersatileLock Vises mounted back-to-back. The VersatileLock tombstone setup can be used on a wide range of existing HMC machining centers, particularly smaller ones with work envelope size and weight limitations. The VersatileLock back-to-back tombstone can be 200 to

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Self Powered LCD Counter/Timer L3/L4 Series

ENM's Series L3/L4 AC/DC or Free contact is offered as a pulse counter or hour meter. It features a 7 digit LCD display with self-powered CMOS circuit. These units are powered by an internal lithium battery. The totalizing counter or hour meter can be with and without external electronic reset. The total running count or time is displayed at all times. The meter is 100% epoxy encapsulated and protected from shock and vibration to keep out the harshest environments plus provide years of service. This instrument is ideal for any application that requires reliable count or time keeping for service maintenance schedules in a small space.

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FROM THE COVER

Intelligent Washer

enables wireless measurement of bolt axial load



Introducing an advanced level of smart connectivity to mechanical engineering, SMART WASHER performs the fundamental role of a standard washer, but uses intelligent connectivity to provide maintenance and service engineers with a clear picture of axial loads. This has been achieved by incorporating a proprietary strain gauge, as well as a transmission system into the washer, which (via an accompanying app) combine to wirelessly relay information on smart devices such as tablets and smartphones.

SMART WASHER is expected to significantly increase the efficiency of assembly and maintenance operations by reducing the need to manually check the torque level of every single traditional bolt. Instead, in just a few seconds engineers can be quickly alerted to those specific fasteners that are either too tight or too loose and attend to them accordingly.

JPB Système

MORE ONLINE: nedinfo.com/76471-57

Router Extends Firewall Functionality

offers Denial-of-Service (DoS) protection



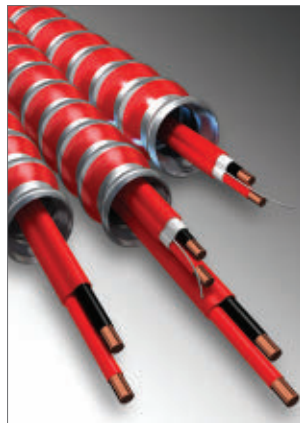
The TC Router permits remote access to SCADA networks and control systems over the cellular network. Since these networks involve critical infrastructure, the TC Router VPN and firewall have been updated to increase network resiliency and protect against cyberattacks. The upgrade includes firewall rules that can prevent unauthorized users from logging into the device over the internet (external access), or prevent specific devices from communicating to the TC Router through the XML interface.

Phoenix Contact

MORE ONLINE: nedinfo.com/76471-58

Fire Alarm Cable

mechanically protected for ease of installation



Power Limited Fire Alarm Cable is mechanically protected with low-smoke PVC jacketed individual pairs for easy installation. Its multiple copper conductors make the cable ideal for fire alarm wiring or remote control hook-ups connecting a main fire alarm control panel with pull stations, smoke detectors, and audio/visual alarms.

AFC Cable Systems, Inc.

MORE ONLINE: nedinfo.com/76471-60

Electric Grapple for Sub-Compact Tractors

features gripping notches to retain loose materials



The ESCG-48S electric grapple for sub-compact tractors (up to 32-hp) handle debris, brush, limbs, orchard prunings, and more. Being electric, no auxiliary hydraulics are required to operate the grapple clamp. An industrial duty 12-V linear actuator with an 8-in.

stroke operates the clamp and the grapple is supplied with a wiring harness for direct connection to the tractor's battery.

Worksaver, Inc.

MORE ONLINE: nedinfo.com/76471-59

Highly-Configurable Laser Workstation

has a large window for easy visual observation



WL-300A laser processing workstation, configured for nanosecond pulsed fiber laser applications, is a larger version of the LMWS laser marker workstation that is designed to accommodate larger parts. Integrated with Amada's industrially proven LMF Fiber Lasers (10-70 W), the units have the same GUI and interface for easy transfer from prototype to production phase.

Amada Miyachi America Inc.

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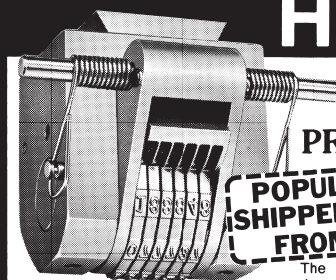


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provides frictionless operation



Designed for batch weighing on a Gain-in-Weight basis, the 403B(D) Series offers technologically advanced scales with stainless steel flexures for all pivotal connections. Frictionless in operation, these units are stable, rugged, and counterbalanced so only the weight of the material in the weigh hopper is weighed.

Acrison, Inc.

MORE ONLINE: nedinfo.com/76471-62

Packaging Material Shredder

creates packaging material up to 16.75-in. wide



PacMaster S Packaging Material Shredders turn corrugated cardboard waste into high-quality packaging material in seconds. The shredder's cutting head creates a series of perforations, creating a flexible, expandable material that can be reused for shipping.

Intimus International

MORE ONLINE: nedinfo.com/76471-63

Small Electric Press Brake

supports standing or sitting



BB306, a fully electric press brake, offers a smaller footprint to fit any facility and form smaller parts. It comes with an integrated all axis pulse handle, thickness detection, multi-axis back gauge, LED lighting, and the largest user-friendly control on the market.

MC Machinery Systems

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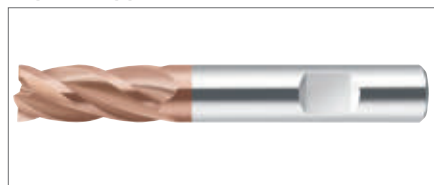


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Solid Carbide Milling Cutters

improve approaches with corner radii



The MC232 Perform line of solid carbide milling cutters feature a corner radius and reduced neck to allow improved approaches to individual component geometries. The reduced neck in turn makes the milling cutter more flexible, as it can be used with an even wider variety of cutting depths. MC232 Perform line can be used for all typical milling applications and are suitable for a variety of materials.

Walter USA, LLC

MORE ONLINE: nedinfo.com/76471-65

Mixing & Molding System

provides functional prototypes



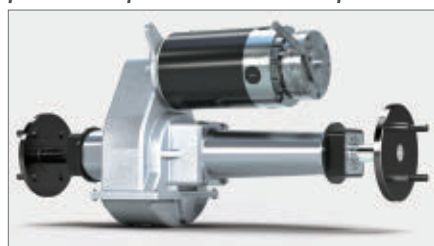
The MIX-MOLDER SYSTEM includes a hand-operated Injection molding machine (Model S-100) and a miniature polymer mixing device (Model M-100) to offer a solution for mixing together small quantities of molten plastics, additives, and fillers, and then immediately injecting that mixed material to create molded parts for evaluation.

Galomb, Inc.

MORE ONLINE: nedinfo.com/76471-66

Heavy-Duty Transaxle

produces up to 270 Nm of torque



Mark 600 is a next-generation fully enclosed transaxle that combines high performance with outstanding durability and is fully capable of replacing internal combustion engines. It produces up to 270 Nm of torque at 60 RPM under high load in high-torque configurations making it suitable for a wide range of applications.

ASI Drives

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Innovative Tablet Press

features advanced multi-layer flexibility



ed electrical cabinet, a torque drive, a fully sealed machine design, and a fast-change capability.

KORSCH AG

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Cover Protects Wellheads from Subzero Temps

prevents freezing condensation and wind damage



Protecting and preventing frozen condensation on wellheads and gas collection hoses, the PolarGuard Insulating Wellhead Cover allows for quick and easy installation using velcro closures and web buckle straps. The PolarGuard Insulating covers are available for both Precision Control and Accu-Flo Wellheads and can accommodate wellheads of up to 3-in.

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3D (Bio)Printing Platform Meets Industrial Needs

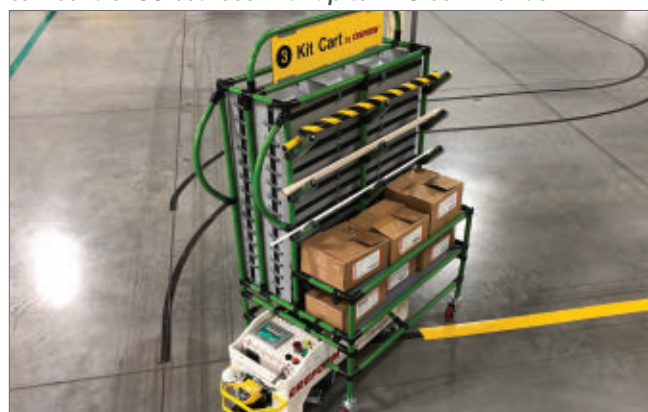
features several 3D printing technologies in a single device
The modular 3D (bio)printing platform, Brinter 1, combines several 3D printing technologies into a single device enabling genuine multi-material printing of materials ranging from pastes and gels incorporating living cells to granulates of plastic-free cellulose or metal injection molding (MIM) materials. Thanks to the Brinter platform, rapid R&D changes and shorter lead times are becoming commonplace both in the lab-scale research as well as in the mass-production of complex-shaped industrial components. Brinter 1 institutes Rapid Prototyping Technology, streamlining endless bio applications: Users are able to automate fabrication of anatomically correct biological structures with computer models through sequential material layering.

Brinter

MORE ONLINE: nedinfo.com/76471-70

AGV Kitting Cart

can control 50 courses with up to 128 commands



Tite-Space BST AGV with kitting cart provides a manufacturer with the ability for presenting a specific kit of parts in order to increase production and process efficiencies. Model CA-250060-NSI-K9 works as an automated tugger, traveling along a magnetic tape guidepath, slipping under the stationary cart, extending a tow pin into the cart's frame, and then conveying it to a designated workstation or unload point. This unit has the functionality of a Creform BST-NSI, but in a compact package. The AGV offers a programmable control system and can control 50 courses with up to 128 commands for each.

Creform Corporation

MORE ONLINE: nedinfo.com/76471-71

Rolling Compactor Reduces Waste

offers manual, continuous or timed operation



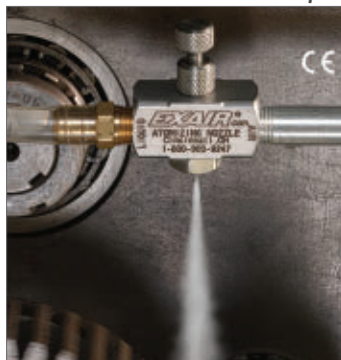
The ROPAX Jumbo Rolling Compactor uses a rolling drum with sharp metal teeth to crush, macerate, tear, rip, and compress waste in large open top containers/dumpsters. The rolling drum, which weighs over 2 tons to aid in compaction, is attached to an articulating boom which moves it from one end of the container to the other and back again, crushing and compacting waste all along the way. The ROPAX Jumbo provides effective compaction of a wide variety of items including but not limited to cardboard and other packaging, wood pallets and crates, cable reels, paper, and film and foil.

Epax Systems, Inc.

MORE ONLINE: nedinfo.com/76471-72

Siphon-Fed Spray Nozzles

create a mist of atomized liquid that is easily adjusted



These 1/8 NPT siphon fed spray nozzles atomize fluids in a range of spray patterns for a wide variety of uses. Siphon fed atomizing nozzles require no liquid pressure and can be used with gravity fed liquids or lift liquids from a siphon height as much as 36 in.

EXAIR Corporation

MORE ONLINE: nedinfo.com/76471-73

Rigid Shaft Couplings

can be customized to the user's specification



Customizable Shaft Couplings let users specify their own custom rigid couplings from 7 standard blank sizes for shafts from 3/8 to 2-in. O.D. and a series of standard design templates. They include one and two-piece configurations with or without keyways, and straight-through or stepped bores.

Stafford Manufacturing Corp.

MORE ONLINE: nedinfo.com/76471-74

FROM THE COVER

Ideal Robot for Light Industry provides reminders with speech system



MARS, the Mobile Arm Robot System, is a smart, integrated, autonomous service robot platform that combines mobility, sensing, manipulation, and human-machine interaction functions for a range of tasks.

The mobile platform of MARS uses a suspended two-wheel differential drive which is capable of fast linear response and rotation. This robotics system even adapts to uneven floors and crosses ground wires. Moreover, MARS can fuse information from its LiDAR and depth vision sensors to plan routes and avoid obstacles.

MARS is suitable for all kinds of indoor applications such as inspection services in warehouses and retail stores and many tasks in light industry.

ITRI

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Gearhead Family Offers Numerous Ratios

can support input speeds up to 20,000 rpm



The metal GPT planetary gearhead family is characterized by its compact dimensions, high torque, and very fine graduations of the numerous gear ratios. It is extremely robust and tolerates both frequent as well as sudden load changes. The gearheads operate with

high efficiency, can be combined with many different motors and enable various shaft configurations.

The FAULHABER Group

MORE ONLINE: nedinfo.com/76471-76

Compact Air Filtration System

offers less noise, lower costs, and maximum results



The Prism Compact air filtration system for welding and cutting applications introduces a compact design and quiet operation, while delivering quick and easy installation and maintenance to help promote a safe and healthy work environment. Available in indoor and outdoor configurations, the system sits at a lower height to fit efficiently into smaller spaces.

Lincoln Electric

MORE ONLINE: nedinfo.com/76471-77

Rotary Continuous Bulk Solids Mixer

allows uniform spraying of liquid additives onto a wide expanse of material



Sanitary Model RCM36X9SS Rotary Continuous Mixer blends dry bulk solids with or without liquid additions, in-line at a low cost over long production runs. Intended for dust-free mixing of bulk materials in large volumes, it blends primary bulk ingredients, minor ingredients, and/or liquid additions and coatings uniformly with little or no degradation. It features a stationary inlet, a stationary outlet, a rotating drum with smooth interior surfaces, and proprietary mixing flights that impart a gentle tumbling action, distributing particles with each degree of drum rotation, imparting no shear or energy into the material. The rotary continuous design has no internal moving

parts and offers lower power requirements; a 3 HP (2.24 kW) electric motor rotates the drum at 8 to 10 RPM.

Munson Machinery Company, Inc.

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Heating Drum Jackets

water-resistant for indoor and outdoor use



Designed for use outdoors, indoors, or in washdown locations, the wet-area cloth heating jackets feature water-resistant designs and built-in insulation to maximize efficiency. All versions of the heating jackets are lightweight for easy installation and include power cords and plugs, and the drum and IBC/tote heaters are plug-and-play with built-in controlling thermostats.

BriskHeat

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Quick-Cutting Grinder Wheels

offer minimal burr and a smoother finish



High-quality Slitter INOX-Prime grinder wheels offer excellent cutting speeds per cut with minimal burr and a smooth finish. Designed for precise and quick cutting on high-quality steel, these thin abrasive wheels constructed of high-quality, mono-crystallized grain are manufactured in Germany using a patented manufacturing process.

Weldcote

MORE ONLINE: nedinfo.com/76471-80

IO Link Configurator

enables precision diagnosis



Using the IO-Link communication system to connect intelligent sensors and actuators to the controller significantly reduces the amount of time required. Sensors can connect quickly and without any errors using a pre-assembled cable while automated commissioning is also made possible by means of downloading parameter sets.

Weidmuller

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Off-Highway Truck

delivers excellent maneuverability



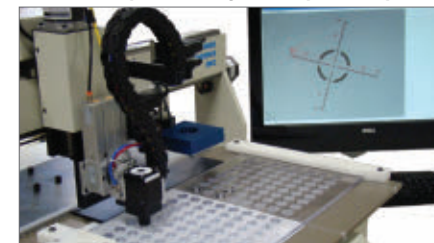
The HD785-8 rigid frame off-highway haul truck with a Tier 4 Komatsu SAA12V140E-7 engine has the highest in class net horsepower (1,140 HP) in North America. With a payload capacity of 101.6 U.S. (short) / 92.2 metric tons, it's built for mining, quarry, and aggregates.

Komatsu America Corp.

MORE ONLINE: nedinfo.com/76471-82

Benchtop Dispensing System

assures repeatability from part to part



RP Series robotic dispensing system performs pattern recognition and edge/hole detection for simpler setup and fixturing, while assuring repeatability from part to part. The robot takes a picture of the part, does any necessary offsets, and adjusts its program for precise dispensing and part placement.

Dispense Works Inc.

MORE ONLINE: nedinfo.com/76471-83



Compact Lifter Transporter
Ideal for a wide range of environments, the LiftStik PLS67-285 is a versatile 4-wheel lifter transporter made of strong, durable, impact-resistant aluminum. Rated for a 285 lb. lifting capacity, loads are evenly distributed over four oversized casters that roll easily over thresholds and uneven floors. A unique adjustable width base can be set as narrow as 20-in. for use in tight quarters or as wide as 28-in. to provide extra stability for wider loads.

Presto ECOA Lifts

MORE ONLINE: nedinfo.com/76471-84



Lube Free Air Hoists
TCL Series lube free air hoists operate without air supply lubrication, which leaves the surrounding environment free of oil mist from the air exhaust and are recommended for the food, chemical or pharmaceutical industries. The hoists are available in 1/4, 1/2, and 1 Ton capacities with either cord or pendant controls and feature an unlimited duty cycle for continuous operation and extremely fast lifting for applications where speed is critical.

Harrington Hoists, Inc.

MORE ONLINE: nedinfo.com/76471-85



Paperless Logistics Software
Dok-Vu, a paperless software system, brings a sense of clarity and order to logistics and helps put cluttered, noisy operations in the past. Instead of using spreadsheets and radios, now everyone can synchronize and communicate in realtime.

Rite-Hite

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Work Platform Lifts
Autoquip's Work Platform Lifts are designed to safely lift personnel, their tools, and material to the work. They provide the ideal work surface for assembly or maintenance work that needs to be done at multiple heights on one single product.

Autoquip

MORE ONLINE: nedinfo.com/76471-87



RFID Labels for Electrostatic Discharge
Specifically designed to suit commonly used electrostatic discharge (ESD) containers, ((rfid))-Dis-taFerr ESD solves the challenge of RFID systems performing poorly on ESD containers. The labels offer protection against aggressive substances, are weather-resistant and wash-proof.

Schreiner ProTech

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Thermal Camera Expedites Repairs

FLIR TG267 thermal camera enables professionals to inspect equipment and identify problems from a safe distance by visualizing the hot and cold spots that can indicate larger issues. From electrical connections to mechanical breakdowns within a temperature range of -25 to 380°C, users can troubleshoot failing systems and then can provide customer reports with images that document the repair.

FLIR Systems, Inc.

MORE ONLINE: nedinfo.com/76471-89

**GorillaYarn Gloves**

Versa-Gard Flex G2 and G4 Cut Resistant Gloves made with GorillaYarn exhibit an inherent strength and softness. These gentle giants of cut-resistant hand protection mark the debut of Saf-T-Gard GorillaYarn, a proprietary yarn blend designed to supply continuous comfort without sacrificing cut resistance. The gloves' polyurethane coated palms are highly resistant to abrasions, punctures, snags, and tears, grip well on wet or oily surfaces, and when-combined with GorillaYarn shells—provide an ideal balance of comfort and ANSI Cut Level A2 and A4 protection.

Saf-T-Gard International, Inc.

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**Toxic Gas Probes**

DirectSense II smart probes accommodate 2 to 8 plug-and-play smart sensors into a single hand-held, desktop, or wall-mounted housing. Choose from 25 different indoor air quality and HVAC parameters including: TVOCs (PID), Carbon Dioxide, Carbon Monoxide, Ozone, Nitrogen Dioxide, Ammonia, Sulfur Dioxide, and more.

GrayWolf Sensing Solutions

MORE ONLINE: nedinfo.com/76471-91

**Multifunction LED Safety Light**

PMF LED-Hi LED multifunction light, for both indoor and outdoor use, features three signal options, eight different operating modes, and a wide signaling area of up to 1,350 ft. The PMF offers day/night reduction, individually switchable sectors, and in-rush current limitation.

Pfannenberg, Inc.

MORE ONLINE: nedinfo.com/76471-92

**Explosion Proof Gas Sensor**

Used to test and monitor levels of toxic gas in the air, the EXP-SNR-TG-EC-ITS-ALG-HC200 is configured to uncover hydrocarbon vapors with a detection range of 0 to 200 ppm.

Larson Electronics LLC

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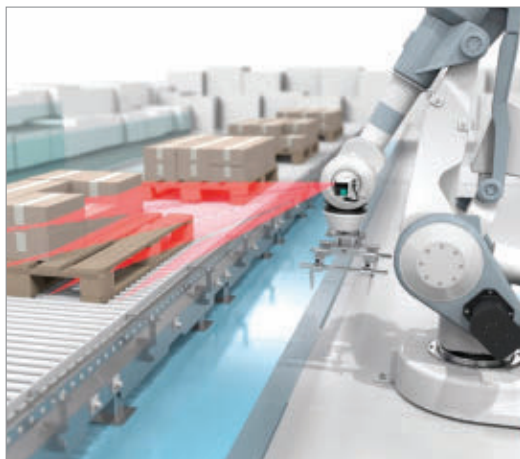
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Pepperl+Fuchs Inc.

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Novotechnik U.S

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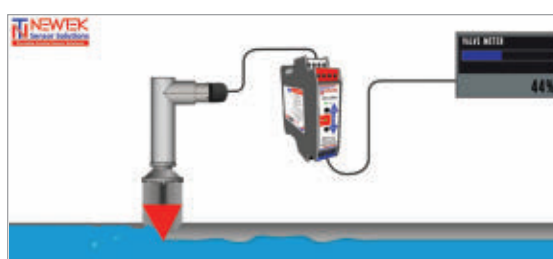
Linear Position Sensor



MHP-7 series linear inductive sensors are designed to be installed into the rear endcap of hydraulic cylinders for operation at pressures up to 5,000 psig. Their 1-in. hex aluminum or stainless steel housing are ideal for mobile hydraulics, factory automation machinery, or oil and gas exploration equipment, and mount to the cylinder with a standard male o-ring port thread.

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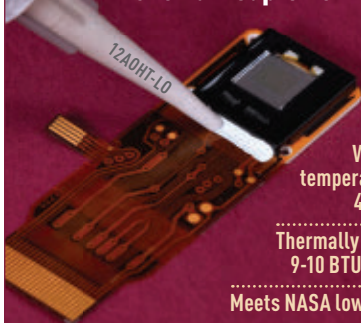
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Ditch Witch

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The Grieve Corporation

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FROM THE EDITOR

Welcome, AI Overlords

Stop me if you've heard this one before: new advances in artificial intelligence technologies will fundamentally disrupt the market, replace human workers, and result in massive unemployment.

It's an old story, one that stretches back to the dawn of the first industrial revolution (and likely before that, too). It's only that the villain has changed.

As we stand here in a new year in a new decade, these disruption stories likely have us all looking over our shoulders for signs of a technology boot. For some of us, these fears may well be valid. But for most, as I see it, this is just part of the growth process.

My first steady job was shoveling coal to feed a (very) old furnace at a local mini mall. I was about 12 at the time and everyone seemed to agree that this kind of child labor would help "build character." After a few winters, the job ended exactly as you'd expect—not with a bang (luckily) but with a whimper as the decrepit old furnace finally fizzled out.

I rebounded from that job with a new position manning the music counter at the local VHS rental place. Which ended in something much closer to a bang.

Later, I got a job visually checking school IDs at my university gym. Then, at a... let's call it an online bookstore startup in Seattle, I called publishers to check their inventory levels all day, every day. I followed that up at about 22 in a Pittsburgh claims office where I took endless stacks of faxed forms and manually typed them into an online database. I think you can see where I'm going with this.

From this count, I figure I had at least five jobs completely eliminated by technology change in just the first 10 years of my working life.

Looking at that surface-level interpretation of the facts, one could reasonably become pessimistic about the future. But a deeper look tells a different story.

In four of the jobs I described here, technology improvements directly increased the capacity of the businesses, which led to greater sales, greater profits, and added headcount. Better heat meant more vendors at the mall, card scanners meant longer gym hours and more users, self-service claims meant better customer service, and of course that little online bookstore company did alright.

This is exactly where we are with technology and AI today. It will disrupt some things, it will shift jobs and re-leverage the brains of organizations. But as it does so, it will help companies produce better products faster, it will streamline orders and deliveries, it will enable leaders to make better informed decisions. All of which will likely mean expansion, new opportunities, and net new jobs.

That is what I'm counting on through this next decade—not tech disruption but tech-driven operational improvements and growth. If we all stay on top of this movement, if we all work to put technology to work, the process should unfold without many bumps.

The only risk, of course, is for those of us stuck selling CDs at a VHS store at the beginning of the computer age—in the wrong industry at the wrong time. That is part of the process, too, and that's why we're always looking over our shoulders for the old disruption story. However, that narrative should not drive the story.

The future is bright and, with the help of technology, real growth is possible. The disruption on the way to that future is just an inevitable part of the process.



Travis Hessman
Editor-in-Chief

6 Warehouse Technologies That 3PLs Should Offer

Ensure you're making the right choice when it comes to selecting a 3PL partner.

By Kate Began

From eCommerce fulfillment to brick-and-mortar shelf-stocking, much of what businesses do today relies on the efficient transportation and distribution of goods. At every stage, from raw materials processing all the way down to the retail level, logistics operations must deliver results. Since many businesses don't have the capital to invest in private logistics, selecting the right third-party logistics (3PL) partner can be a make-or-break factor in your business's success.

Warehousing is a particularly critical service that businesses often hire 3PLs to perform. Thus, it's important that 3PLs offer the technologies that help create warehousing excellence. From inventory to temperature control and beyond, the six we'll talk about here are some of the most common must-haves.

This list isn't about hard and fast rules—not every business will need all six technologies we discuss. But just about every product-based business will need at least one or two of them, so it pays to be familiar with these technologies when evaluating a 3PL.

1. RFID INVENTORY TRACKING

It's critical that a business be able to put its trust in a 3PL completely and reliably inventory management is part of what makes a high-quality and trustworthy logistics partner. Out-of-stocks, missing inventory, and mis-pulled orders can create serious hits to a business's bottom line, so businesses should look for 3PLs with sophisticated inventory management technologies such as RFID inventory tracking.

RFID inventory tracking is the new gold standard technology in the warehousing industry, and it offers a big improvement on older inventory technologies. RFID uses radio frequency scanners that communicate with tiny transmitters hidden inside labels or small electronics enclosures. The idea is similar to a barcode scanner, but RFID tags offer much greater range and can contain far more data than barcodes. RFID also offers all kinds of useful features, including readers that automatically scan when a product crosses



through a doorway, making it an important capability for inventory control and security.

2. TEMPERATURE CONTROL AND MONITORING

Customers increasingly want fresh food and other perishables delivered straight to their doors. That means that many businesses need temperature-controlled shipping to ensure that food, pharmaceuticals, and other perishables arrive safely, making perishable goods shipping a bigger market than ever.

Temperature-controlled warehouses also now offer many value-added services to their clients. This can include anything from blast freezing to high-pressure processing (HPP). Finally, many of today's temperature-controlled warehouses also feature multiple temperature and humidity zones suitable for different types of products, meaning that a grocery distributor can now ship meat, ice cream, produce, and wine—all from the same warehouse.

3. CROSS-DOCKING

For companies interested in maximizing distribution speed and economies of scale, cross-docking can be the secret sauce that unlocks a new level of performance. Cross-docking is a warehouse technique that involves unloading a newly-arrived truck or rail car and transporting its cargo straight onto another outbound truck or rail car. Corporate giants like Walmart use cross-docking in their dis-

tribution centers to reduce on-hand inventory needed and distribute goods more efficiently.

Cross-docking requires a well-trained warehouse crew, highly efficient scanning and tracking systems and large warehouses with many docks and/or rail car access. Thus, working with a 3PL can be one of the easiest ways to experiment with cross-docking—but make sure to select one that has the experience, skill, and resources to successfully run a cross-docking scheme.

4. OMNICHANNEL SUPPORT

Omnichannel logistics support is often a must-have in a 3PL, particularly in consumer-focused industries like food and apparel. A 3PL warehouse that offers omnichannel support will be able to process orders from a variety of channels simultaneously, whether they come from brick-and-mortar stores, online platforms or somewhere else. Likewise, an omnichannel warehouse should have the ability to distribute goods into whichever channel is needed.

It's important that omnichannel support include the flexibility that each business needs to develop its own omnichannel solutions. Many businesses trying to establish omnichannel distribution reach will have the additional challenge of mastering the quirks of each individual market, so it's a good idea to prioritize flexibility and a wide-ranging network when evaluating a 3PL's omnichannel capabilities.

5. IT INFRASTRUCTURE SUPPORT

Part of running an efficient 21st century logistics operation is ensuring that your network has the infrastructure power to keep up. This is particularly true in warehousing, where IT infrastructure must be suitable for coordinating deliveries, managing inventory, and the many other intensive tasks of logistics. Thus, a 3PL should have technologies like cloud-based document sharing for bills of lading and logistics IT cybersecurity that protects sensitive information.

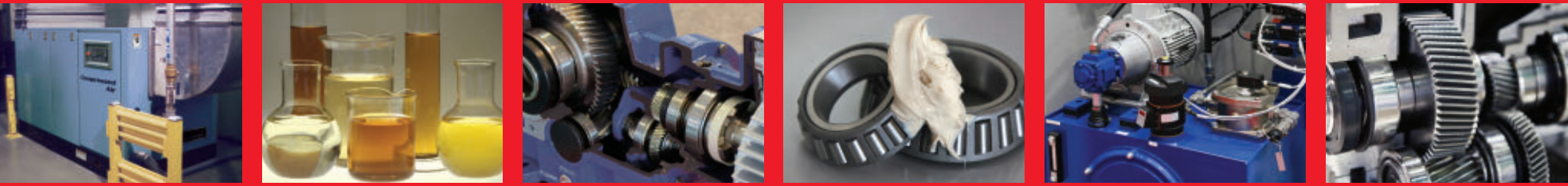
For businesses that already have existing warehouse operations, it can be critical to work with a 3PL that can add their technology to existing logistics technology stacks. Ask potential 3PLs about their ability to work with your existing ERP and WMS systems, because it's often much easier to change 3PLs than it is to change enterprise software.

6. KITTING AND ASSEMBLY

Kitting and assembly services are some of the most common value-added services that the new breed of 3PL warehouses provide for businesses. These processes involve preparing a product for its final delivery by collecting multiple individual pieces that make up a single package or "kit" and then assembling that kit into a form that's ready to ship to the consumer.

Kitting and assembly are common needs in many popular consumer goods sectors such as subscription box services and consumer electronics. They require excellent picking accuracy and inventory control to run smoothly, meaning that they're often best outsourced to a capable 3PL. Some tech and electronics companies may even require specialty services such as assembling simple components inside an electronics enclosure.

Each business needs something a little bit different from its 3PL warehousing partners, so remember that the first step is always to take stock of the company's needs. Once your business has a firm grasp on the unique success factors that are needed to achieve major goals, the process of shopping for a 3PL will become more manageable and more likely to succeed.



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The DNA of Safety

Machine safety is a complex topic. Companies are increasingly calling on qualified safety specialists for their specific know-how to guide them in making the appropriate decisions for their safety needs. For Schmersal, machine safety is part of our DNA: Over 70 years of technical knowledge and industry experience allows us to combine the building blocks of safety-rated components with control systems and software for customized and comprehensive safety systems.

Tampering with safety switches has always been a major concern in machine safeguarding. One measure to avoid the safety switch from being bypassed is to conceal it within the framework of the machine. If the safety device cannot be concealed, an individually coded switch which accepts only one unique actuator should be used and mounted with tamper-proof fasteners. High level coded switches in accordance with ISO14119 offer 1,000s of actuator options, making it tougher to bypass because the likelihood of obtaining a second actuator which would work with the safety device are greatly reduced.

Schmersal can meet your need for high level coded safety switches with a variety of mechanical and RFID based electronic safety devices.

Mechanical safety switches with high level coded actuators



- Electromechanical safety switches and solenoid interlock options
- Individually coded internal cams
- Supplied with matching actuator
- Over 15,000 unique combinations

Electronic safety switches use RFID for high level coding



- Safety sensors and solenoid locking options
- Non-contact operating principle
- Single or repeatable teach-in options
- Delayed switch activation after teach-in discourages tampering