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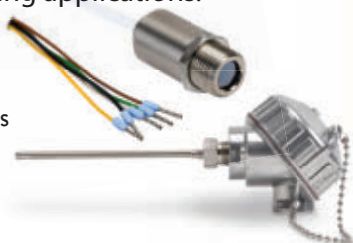


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SPRING 2023

# LEADERS IN MANUFACTURING

*Fueling growth across the industry, these top powerhouse companies provide the tools, equipment, technologies, and solutions to unlock new capabilities and efficiencies from design to delivery.*

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- Starter kits are easily assembled
- Includes structural rail, connectors, cup mounts, vacuum tubing, vacuum cups, fittings, basic ejector, flange for Universal robot, and a blank robot flange
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- Single profile kit with minimum active 20 pound-force load (90 N), maximum active 78 pound-force load (350 N)
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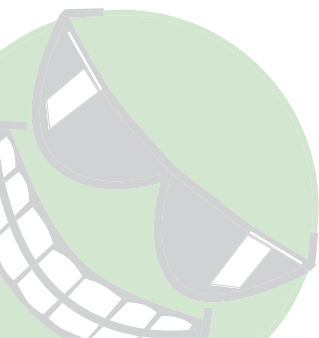


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### LEADERS IN MANUFACTURING

Fueling growth across the industry, these top powerhouse companies provide the tools, equipment, technologies, and solutions to unlock new capabilities and efficiencies from design to delivery.

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Extremely resistant to flank face wear, Walter USA's Tiger-tec Gold inserts are designed for turning operations in all steel applications.

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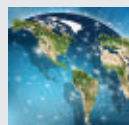
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TRU TEMP Stainless Black Oxide from Birchwood Technologies forms a clean, smut-free finish when applied on stainless steel parts.

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**igus**



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### Personal Multi-Gas Detector

Able to be worn on a clip, The **X-am 2800** multi-gas detector simultaneously measures up to four gases, letting users choose sensors for flammable gases/vapors, oxygen, carbon monoxide, hydrogen sulfide, nitrogen dioxide, and sulfur dioxide. Data can be transferred directly to a smartphone, and then to the Dräger Gas Detection Connect Cloud. Its large buttons make it easy to use while wearing gloves and the display shows gas readings, alarms, and the time.

**Dräger, Inc.**



More online: [newequipment.com/21260495](http://newequipment.com/21260495)

### Streamline Conveying

The **DCMove Belted Conveyor** features a wide load capacity range and a motor mounted inside the tails to reduce the conveyor's footprint and aid integration within a larger material handling system. Its plug-and-play iDrive v2 configurations allow customers to select the best control methods for their application ranging from a ready-to-run conveyor to a flexible control great for integration with PLCs via various communication protocols including Ethernet.

**Dorner Mfg. Corp.**



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### Suction Cup Ensures Pristine Fruits

A suction cup specifically for fruit, the **FCX50** robotic suction cup features flexible bellows for off-axis grips and adaptation as well as a multi-lip design for the surface ensuring good sealing. Due to its sealing capabilities which lead to less leakage, it allows users to use a smaller vacuum pump, saving energy. Thanks to the low vacuum levels needed, the FCX50 suction cup grips fruits firmly and gently while also being able to handle fruits of all different sizes and shapes. The FCX50 cup is FDA 21 CFR 177.2600, EU 1935/2004, and EU 2023/2006 compliant.

**Piab USA, Inc.**



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### Water and Shockproof Work Boot

A lighter, faster work boot that can handle the outdoors and the demand of the modern job site, the **Reno** features KEEN.BELLOWS FLEX technology, an ergonomic design that offers multidirectional flexion making bending, squatting, kneeling, and knee-down work easier than ever. Reno does not sacrifice when it comes to safety, offering asymmetrical carbon-fiber toes as well as an EH-rated, oil and slip-resistant rubber outsole to provide dependable footing.

**KEEN Utility**

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### Industry 4.0-Ready, IO-Link Pressure Sensor

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**MP-Sensors GmbH**

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### Concrete Oil Stain Remover

**Oil Eater Overnight Stain Remover** effectively treats oil & grease stains on porous surfaces like concrete, asphalt, and brick. This is the first concrete cleaner that uses oil-eating microbes to clean deep beneath the surface and effortlessly restore driveways and garages to a like-new appearance.

**Kafko International Ltd.**

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### Tankless Electric Water Heater

Ideal for diverse applications that require reliable hot water, the **ProSeries XTP** generates water temperatures up to 180°F (82°C) and specified flow rates from 0.5 to 20 GPM (19 to 75 LPM). The product family features 10 models in either 3 or 6 heating chamber configurations, and Eemax patented Adaptive Stability Technology (AST) to assess the heater conditions and shift the unit operation to ensure a consistent and reliable output.

**Eemax, Inc.**

More online: [newequipment.com/21258928](http://newequipment.com/21258928)



### Additive Manufacturing Software

Software for printing resin on non-planar surfaces, **ChromaScan** allows manufacturers to 3D print durable, flexible materials directly onto substrates of any shape including metal, plastic, and textiles. The result is industrial-strength adhesion between the printed material and the substrate without post-processing or assembly. First, the software scans an object placed on the print bed. It then manipulates the print path, yielding a high-quality print that conforms to the surface below.

**Chromatic 3D Materials**

More online: [newequipment.com/21254538](http://newequipment.com/21254538)



### High-Performance Camera

The 127.7 MP **HB-127-S** is the latest addition to the Bolt 25GigE cameras. Through its 25GigE SFP28 interface, the camera captures full-resolution (13400 x 9528) images at 19.9 fps. Available in monochrome and color versions, the camera features Sony's IMX661 CMOS image sensor. Both GigE Vision and GenICam compliant, the camera reaches 19.9 fps in 8, 10, and 12-bit modes.

**Emergent Vision Technologies**

More online: [newequipment.com/21254185](http://newequipment.com/21254185)



### Data-Driven Cleaning Platform

**Tork Vision Cleaning** is a digital tool that uses real-time data to understand when and where there are cleaning needs, as well as improve and optimize cleaning resources by allowing workers to spend time on what's most important and avoid unnecessary tasks. The cleaning solution uses people counters and connected dispensers to give cleaners and managers access to real-time data regarding immediate cleaning needs. Users can pick from three cleaning tiers with different features to find the solution that best meets their needs.

**Tork**

More online: [newequipment.com/21260310](http://newequipment.com/21260310)

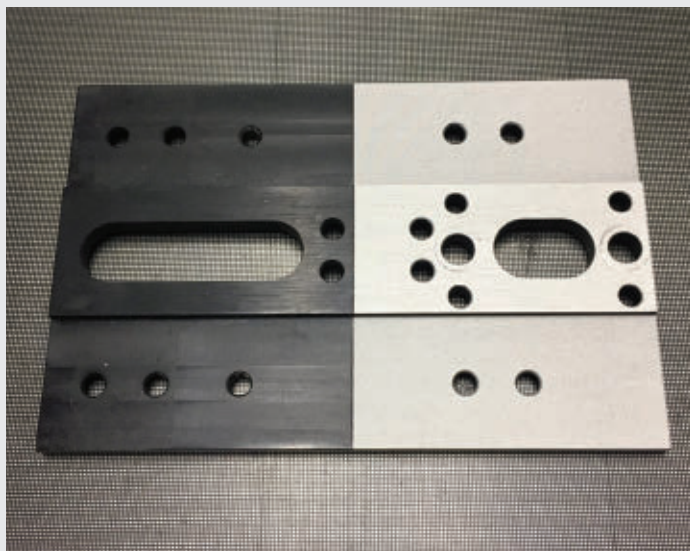
# New Tool in Surface Pre-Treatment for SUPERIOR COATING ADHESION

By Stephen Armstrong

**M**ost manufacturers understand the value of pre-treating metal surfaces of parts to remove corrosion, grease, residue, old coatings or to roughen the surface of metals prior to coating. By ensuring the items are cleaned down to the bare metal, manufacturers can avoid costly warranty issues that result when coatings peel, flake, bubble or otherwise fail prematurely.

Unfortunately, the traditional techniques used for this purpose—such as sandblasting, dry ice blasting, and chemical stripping—are messy and require expensive consumables, as well as substantial time for preparation and cleanup. These methods are also drawing scrutiny from regulators like the EPA and OSHA since they can pose risks to the environment and applicators.

A more effective alternative is using industrial-grade, precision laser-based systems that can remove paint, contaminants, rust, and residues with a high-energy laser beam that leaves the substrate unaffected. Prep and cleanup time are minimal, and the low-maintenance equipment can last decades.



**Laser systems remove corrosion, grease, residue, and existing coatings from metal surfaces quickly.**

According to Vincent Galiardi, owner of Galiardi Laser Clean, a surface cleaning operator based in St. Charles County, Missouri, many people are surprised to learn that clean technology lasers are cost-effective, efficient, and the safest method of industrial surface prep.

“Many people are unfamiliar with the use of lasers to pre-treat metal surfaces,” says Galiardi. “When I do a demonstration, at first the people in attendance are skeptical. But after I use the laser to treat a small area, everyone starts talking and getting excited. By the end, when I let them try the equipment, everyone is having a good time and saying how great the laser works.”

Given its effectiveness in pre-treating metal surfaces, industrial laser systems are increasingly being used in manufacturing facilities. The systems can be integrated into automated inline processing lines or technicians can use mobile hand-held units. With significant advantages in safety and efficiency, laser cleaning is poised to disrupt the surface pre-treatment market across more sectors.

## Resolving Conventional Cleaning Limitations

There are many applications in manufacturing that require pre-treatment of metal surfaces prior to coating. To improve coating adhesion, residue, oil or grease must be removed before coating application. In some cases, a manufacturer may seek to further enhance coating adhesion by roughening the surface.

When defective metal parts are produced, instead of discarding the product, manufacturers can strip the paint and re-coat the component.

To refurbish existing metal parts or re-coat industrial infrastructure, removing the previous coating along with any corrosion is usually required to facilitate the new coating’s adhesion to the surface.

To pre-treat metal surfaces, sandblasting, dry ice blasting or chemical stripping are traditionally used as industrial cleaning processes.

## Sand Blasting

Abrasive sandblasting involves forcefully projecting a stream of abrasive particles onto a surface, usually with compressed air or steam. The silica sand used in abrasive blasting typically fractures into fine particles and becomes airborne, which can cause serious or fatal respiratory disease.

When workers inhale crystalline silica, the lung tissue reacts by developing fibrotic nodules and scarring around the trapped silica particles, causing a fibrotic lung condition called silicosis. Estimates indicate that more than 1 million U.S. workers are at risk of developing silicosis and that more than 100,000 of these workers are employed as sandblasters.

In addition, particles are generated during abrasive blasting that further contribute to respiratory problems and other harmful health effects.

“When sand or any other media is used to knock off particles from a substrate, there is always a byproduct that has the potential to become airborne and inhaled,” says Galiardi. “Besides the sand, this could be the particles you’re removing—the coatings, plating, anodizing, corrosion, and even lead paint.”

“The industry has needed a cleaner, safer surface pre-treatment solution for a very long time,” adds Galiardi. “Sandblasting is inherently unsafe for operators. The silica glass used in sandblasting is toxic. An operator must wear a full HEPA suit when sandblasting to avoid breathing in particulates.”

Sandblasting also is time-consuming to clean up since the sand scatters everywhere, even though it’s usually considered a “fast” cleaning method.

## Dry Ice Blasting

With dry ice blasting, dry ice pellets are used as the abrasive. The challenge is that dry ice blasting is often not abrasive enough to sufficiently remove paint or corrosion from the surface of metals. Since dry ice is an expensive consumable, the costs can escalate when cleaning metal surfaces in higher volumes.

## Chemical Stripping

With chemical stripping, harsh, even toxic chemicals are used to strip metal-based objects of paint, rust, and other contaminants to bare metal. However, for operators, exposure to corrosive acids and noxious chemical fumes is inherently dangerous. The process can also be time-consuming to prepare the proper chemical bath, achieve the required level of cleaning, and dispose of the waste. In addition, disposing of toxic chemicals is costly and closely regulated by agencies like OSHA and the EPA.

## Safe, Effective Laser Cleaning

Laser-based systems have significant advantages over these traditional methods, including ease of use in which an operator simply points and clicks a high-energy laser beam at the surface. The substrate is not affected by the laser, and the systems do not create any mess or byproducts. The approach is eco-friendly, energy efficient, and completes the job in half the time of traditional methods when preparation and cleanup are considered.

“In our experience, laser cleaning is as fast at removing rust or old coatings as other methods, but without the same amount of cleanup,” said Galiardi. “When we treat a surface with lasers, any fumes or dislodged particulate is extracted into a HEPA filter and the job is done. There are no media [sand, dry ice, chemicals] to replenish or clean up.”



**CleanTech LPC-300TCH hand-held portable laser cleaning machine. Laser systems remove corrosion with less prep and mess than traditional techniques.**



Galiardi Laser Clean uses laser systems made by Orlando, Florida-based Laser Photonics, a leading provider of patented industrial-grade CleanTech laser systems for cleaning and surface conditioning. The American-made systems function either as mobile stand-alone units or can be integrated into production lines.

The laser systems are available in portable and stationary models ranging from 50 to 3,000 watts (a 4,000-watt version is in development) with chamber sizes from 3 by 3 feet (0.9 x 0.9 meters) in size to 6 by 12 feet (1.8 by 3.6 meters). The systems can also be installed in manufacturing lines in cabinets or operated by a robotic arm.

Galiardi says that laser pre-treatment of metal surfaces can be used to streamline various manufacturing processes. Corrosion, for example, can begin to accumulate within a very short time on new parts, depending on the material and environmental conditions, and should be removed prior to coating.

For one major auto manufacturer, Galiardi Laser Clean was asked to remove rust from conveying system components used to transport cars through the manufacturing process. The components were corroded due to being left outside during a six-month delay in the project. When it was time to install the items, the provider wanted to first treat the surfaces and return the components to a “like new” appearance.

In another example, Galiardi was asked to remove rust from over 400 transmissions in a couple of days. The laser systems are particularly effective when reaching into tight spaces that are hard to reach by hand. By masking the area to protect vulnerable parts, the laser can be applied without affecting the rest of the assembled product.

“No other parts [of the transmission] had to be removed and nothing had to be cleaned afterward,” he says.

Galiardi’s company also used the laser system to remove cleaning oils from truck chassis. “We used the laser to remove the oil right before painting so it was a bare metal object going with nothing on it that would affect the coating,” he says.

Industrial plants that need to re-coat existing metal structures also need to remove rust before painting. According to Galiardi, he removed corrosion from a very large storage tank using the CleanTech laser system in about half the time of the alternative being considered, an abrasive disc grinder.

“Disc grinders basically just chip off [the rust] and it becomes airborne and makes a mess. Grinders can also be dangerous because sparks or debris can shoot off the wheel or catch an article of clothing,” he says.

With clean laser technology, there is now an environmentally friendly alternative to abrasive blasting and chemical stripping for surface pre-treatment. The approach is safer for operators and highly adaptable to a wide range of manufacturing and industrial applications.

“As people become more aware of laser-based systems and compare them to traditional methods, they need to factor in prep and cleanup time, which can significantly impact the project cost. When the improved operator safety, equipment longevity, and lower maintenance of laser systems are also considered, the clean laser technology has a much higher ROI,” says Galiardi.

The longevity of low-maintenance laser systems further adds to their value, increasing ROI, and making replacement unnecessary for decades.

“CleanTech laser systems can last for 50,000 to 100,000 hours. That’s many decades of working eight-hour days. After purchase, there’s virtually no maintenance necessary,” concludes Galiardi. **NED**

**Stephen Armstrong** is a Tustin, Calif.-based freelance writer who is a regular contributor to NED. He has researched and written about industrial technologies, healthcare, automotive, and international trade for the past 15 years.

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*Images courtesy of Laser Photonics Corp.*



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### Double-Column Machining Center features a 7,000 rpm spindle speed

**MV12BxII** is a double-column machining center that brings the best-in-class speed of a rapid traverse to reduce non-cutting time while achieving high productivity. The machine uses grease to lubricate all of its spindle and feed axes to improve energy efficiency and running cost, and features an electric power unit that enables eco-friendly operations.

Additionally, it meets a diverse range of production requirements, such as high-precision surface quality to general parts machining.

With the high speed of the rapid traverse, the MV12BxII realizes the shorter non-cutting time, while its spindle's maximum rotating speed sits at 7,000 rpm, and its motor output at 26kW. With the use of an energy-efficient and low-noise electric power unit to operate its pump only when necessary, the machine consumes much less power than conventional hydraulic units that are always running.

**Nidec America Corp.**

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**Binder USA LP**



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### Hose Reel Mounting Brackets

*are available in two sizes*

The **SMK-702 SERIES** is a swivel bracket accessory for the 100 SERIES HOSE REELS and the V-100 SERIES VACUUM REELS. Built of heavy gauge steel, the SMK-702 wall mount swivel brackets feature 360-deg. rotation, with multiple locking positions via an easy-to-use ergonomic pin lock. Powder-coated gloss black, the swivel bracket allows the user to point the reel in the direction where the hose is needed, improving the experience and function during payout and rewind.

**Coxreels, Inc.**

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### Components Assembly Software

*shows where components must be added or removed*

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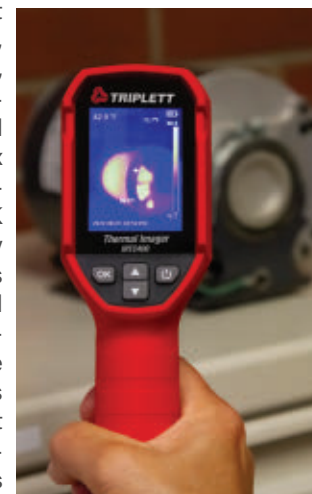
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## How to Win at ESG by **EMPOWERING** Suppliers

*Good supplier data is a function of good supplier engagement.*  
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Ksenia Kolesnikova | Dreamstime



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# The Warehouse Worker's New Best Friend

By Ron May



Work life as a warehouse associate can be much easier if a robot tags along. To understand how autonomous robots can transform what is a physically and mentally demanding job today, it helps to first understand the day in the life of warehouse work.

A warehouse picker (we'll call him John) grabs boxes out of various storage locations, places them onto pallets and then moves those pallets from one location to the next. On a shipping dock, he'll label and wrap his items, write up some paperwork, and start the process again for the next customer order. John starts his shift at 5 pm and ends it eight hours later after having walked 5 miles or more inside a 250,000-square foot warehouse. In that time, he might take just two 15-minute breaks and a dinner break. He will often be expected to work overtime.

John's day is physically demanding and can also involve repetitive tasks. So, any relief John gets to make his experience more enjoyable will make him a more productive and happier worker.

## Introducing an Important Role for Robots

In the days before Amazon acquired Kiva in 2012, if I'd mention robots in a warehouse, I'd be talking about autonomous guided vehicles (AGVs). These are roving robots that follow wire or tape on the ground or other visual markers to help guide their set path. AGVs were popular because they were the first foray into eliminating the need for humans to operate pallet jacks and the like to move pallets from one location to another. It eliminated the need for a human driver altogether.

These days, a new generation of warehouse automation tools, like the Amazon/Kiva robots, bring goods to pickers and a whole lot more. These are called autonomous mobile robots (AMRs).

AMRs are different from AGVs in infrastructure and intelligence. AMRs use vision systems like LiDAR (Light Detection and Ranging) or cameras that operate by learning the environment dynamically and navigating freely and safely from point A to point B without human intervention. This technology is similar to self-driving cars.

Without the need to change the warehouse floor, AMRs can map the territory, travel around freely (as compared

to older technology), and take over a chunk of work that used to be performed by people (such as driving a pallet or box from the racks to the dock door). Highly regarded for their safety, ease of use and flexibility, AMRs are not only contributing to profitability inside the warehouse but also providing a meaningful solution to the people working alongside of them.

Easy to implement and program, AMRs are best used as collaborative 'workers' next to people. In these ways, warehouse pickers like John would benefit by:

- **Changing the division of labor.** A majority of warehouse work is picking the product and specifically, spending the time handling boxes. AMRs can make picking more efficient, enabling John to stay within the same aisle or set of locations in the warehouse, so he can focus on handling product. AMRs will approach John when there are picks in John's zone, and when John's picks are completed, the AMR will travel to the next zone with that product to see one of John's co-workers. In this case, the robot is doing what it does best. It is traveling around the warehouse handling repetitive tasks with accuracy and without fatigue. John is doing what he does best. He is solving problems on how product should be handled and placed onto pallets or outbound containers.

- **Reducing worker travel.** Depending on the type of orders and size of the warehouse, travel can occupy anywhere from 30% to 70% of a person's day. AMRs can take over much of this in-warehouse travel and automate product movement. This reduces the burden on warehouse workers having to drive from one side of the warehouse (where product is located) to the other (where orders are packed and shipped), and also reduces the physical strain of walking.

- **Taking control.** Without the need to understand programming language, John can task his AMR to help him with his picking tasks, through various means. One way is through John's interaction on a screen attached to the robot, tapping to begin next action, which prompts the AMR to act. In more sophisticated operations, John follows instructions on his handheld device or uses voice interaction to capture what work he completed and,





Credit: Phuttaphat Tipsana | Dreamstime

through warehouse optimization software, the AMRs move alongside him automatically without John's direction. John has the peace of mind knowing his companion won't tire or call off work.

### Companies Are Spotting and Adopting this Smart Strategy

Companies, worldwide, are identifying the value of this collaboration and investing in it. For instance, fleet management company Ryder System Inc. recently announced that it implemented multiple types of AMRs in three different DCs to provide its workers assistance in reducing the burden of labor-intensive tasks and travel.

Two workers—one human and one robot—sharing tasks effortlessly and in harmony throughout the warehouse floor is not a sci-fi scenario. It's happening today. The key to making this elegant collaboration work well resides in the systems and software integrating the human/robot experience.

Integration means understanding how humans and robots should interact to accomplish the work normally done 100% by humans and how to make that experience as seamless as possible. How does the robot know where to go next to connect up with a person? How is the person communicating with a robot so that tasks aren't duplicative or—even worse—missed?

### A New Breed of Software

A set of software solutions, referred to as a warehouse optimization suite, are applied to bridge the gap and orchestrate warehouse work seamlessly. These software solutions understand all the work in the warehouse and manage completion of those tasks, electronically capturing results in real-time as tasks are completed on the floor. The process is more sophisticated than traditional warehouse control systems as it provides the intelligence in how these tasks are scheduled dynamically as opposed to a static work plan which is setup in advance and executed in a simple order. This ensures the right sequence of work is completed at the right time to ensure all customer demands are met, especially as warehouse conditions change such as trucks being rescheduled, which may require reprioritizing work.

These systems include both AMRs and people in understanding the real-time location of the work. As an emergency order comes into the warehouse, it is immediately assigned to the next AMR. Given the system's knowledge of all product needed for that order, the warehouse optimization software directs the AMR to the first area to be picked and also notifies John to go to this same location to meet up with it automatically. As John completes the pick and captures the result electronically, the AMR goes to the next warehouse location where John is also directed to go by this software. This continues until John completes the last pick in his area and the AMR goes to packing to be completed and shipped out ASAP. This is all directed through the sophisticated orchestration software.

In scenarios like this, the day in the life of a warehouse worker is greatly improved. You might wonder when this dynamic duo make sense?

**1. An abundance of product (SKUs).** To achieve the best ROI, organizations should be already managing a large number of SKUs or associated volume of product which, in turn, requires a large warehouse for storage. Large SKU volume would most likely require a sizable amount of in-warehouse travel which could then be reduced with AMRs.

**2. Workers must support the model.** The workforce should welcome this AMR+people scenario. I've heard management wonder if the use of robots will shift skills away from warehouse workers, minimizing their future

employment. I believe just the opposite. Assigning robots the repetitive tasks will free up people to take on higher-level problem-solving tasks, sharpening their skills and improving their own personal productivity. This can provide them more economic opportunities in the future. According to a recent Harvard Business Review study focused on warehouse worker perceptions, respondents were enthusiastic about the use of technology if it helped them be faster, safer and more efficient.

**3. It's not displacement.** Some in the industry express fear that robots will completely take over the role of the associate. I believe this displacement theory is a myth. There's plenty of work to go around. Consider that the U.S. is experiencing a nationwide labor shortage—and this is especially prominent among delivery drivers and warehouse workers. In the last six years, the number of job openings in the warehouse and transportation industry has doubled—shifting from 200,000 openings in 2015 to a record 490,000 in 2021, according to the U.S. Department of Labor. The actual number of open jobs is even higher than that when you add in seasonal workers and consider that retailers, manufacturers and distributors all have warehouses and may not have been included in those original figures. The industry is growing at a rate that minimizes the validity of the displacement theory.

### Making Life Better for the Warehouse Associate

People will always be needed for warehouse work that requires specificity and judgment. For example, people (not robots) are best suited to handle products which have variations in sizes, packaging and texture. Even the rigidity of packaging may require a customized approach. A pallet may be sitting off-center a bit or boxes are not stacked in the right order, or some boxes are dented. These fixes require people to reason through and address.

Additionally, as consumers turn to ordering more online, e-commerce has created complexities in picking for which people are ideal. For example, workers might not pick boxes but rather individual items of unique geometry such as cylinders for two-liter soft drinks or long thin bars. This is much easier done today by people rather than robots.

### The New Workforce = Workers + Robots

AMRs and people effortlessly working side-by-side on the warehouse floor is a scenario of the future of warehouse work. Investing in this modern collaboration will not only help you obtain better productivity, accuracy, safety and efficiency, but will also provide more meaningful work to people like John.

Re-distribute tasks so that people and robots each do what they do best. This will contribute to more job satisfaction of warehouse workers. During this time of labor shortages, worker satisfaction is key to retention—and recruitment.

Adding AMRs to your worker mix may help you address the overall labor shortfall, and aid in business continuity at a time when millions of U.S. workers have left their jobs.

Robotics are just a natural extension of all the automation transforming warehouses and DCs over the last two decades as a way to improve overall cycle times and throughput as all companies strive to compete with Amazon's same-day shipping and next day delivery promises. It should be welcomed for the smart efficiency it brings to everyone involved.

The technology to support robots/people is ready and it works. In the case of Ryder Systems, they produced a 25% increase in productivity simply by reducing travel time in the warehouse.

Robot/people collaborations are fast becoming a focus and could be your competitive advantage in the coming year. Consider it to fine-tune your operations and provide meaningful work to *your* employees. ■

**Ron May** is founding member and senior solution consultant at Lucas Systems, a provider of smart software for warehouse managers and on-floor workers.





# Robotics Are Stuck in Neutral Without the Right Human Labor Management

By Mike Babiak

**T**hroughout the industrial world and across every continent, businesses are making significant investments in robotics and automation. According to the McKinsey Global Industrial Robotics Survey, automated systems will account for 25% of capital spending over the next five years. Many of these businesses believe robotics-driven automation systems will drive major benefits in output quality, efficiency and uptime.

That being said, there are challenges for these implementations to be successful, including the cost of investment, experience in deploying projects, and the belief that more robotics will mean companies can rely less on human capital.

The report illustrates several industries that are expected to see major growth in the use of robotics and automation, such as retail and consumer goods, where 23% of retail survey respondents plan to spend more than \$500 million. That compares with 15% in food and beverage and 8% in automotive.

## Robotics and automation will continue to grow

However, logistics and fulfillment operations are expected to realize 30% or more of their overall capital investing over the next five years, which would place it as the number-one player in robotics. This most likely won't surprise anyone, as companies like Amazon and Wal-Mart – and

their logistics partners – have been battling to leverage technology to increase competitive efficiencies over the last five years.

The fundamental benefits of robotics and automation cannot be ignored and virtually every industrial deployment will result in a more intelligent use of resources. In most cases it frees the human employee from mundane, repetitive tasks and empowers them to concentrate on core business objectives instead, bringing about numerous benefits to the workplace.

In the early days of robotics, there was plenty of chatter about robots fully replacing human workers. The thinking was that robots will eventually outsmart humans and there will be less need for human capital. This has clearly not been the case, nor is it today's path of robotics and automation.

However, they are planning to represent a considerable amount of the average industrial company's production strategy going forward. According to a March 2017 report on automation in the workplace by PricewaterhouseCoopers, as many as 30% of jobs in the UK, 38% of jobs in the U.S., 35% of jobs in Germany, and 21% of jobs in Japan are at risk of being replaced by machine-based automation by the early 2030s.

Even more recently, 10.5 million jobs remained open, with roughly 1.7 jobs available per worker at the end of November 2022. While low

*Credit: Framestock Footages | Dreamstime*



headcounts of workers seem to be the new norm, robotics are not replacing anyone, but are filling the gaps that can't be covered with labor. Robotics tend to do the least desirable and most repetitive jobs in the supply chain.

**Even with more robotics, human labor will be a key driver**

There are a handful of documented reasons why humans and human labor will continue to play a significant role—despite the growth in robotics and automation.

Robots don't understand emotional thoughts. Robots operate on rationally programmed logic. However, there will always be irrational variables that involve emotional critical thinking in the decision-making process. This is why human labor will be important in supervising robotics so that changes can occur depending on any number of irrational changes to the environment.

Robots can't understand context. Especially for manufacturing jobs that require analysis, or the interpretation of slang from different countries and cultures, some robotics and automation may struggle in these types of warehouse production roles.

Lastly, robotics don't understand customer service. Robotics and automation may continue to prove challenging as industrial companies try to implement these functions into remote customer site visits for service and repair, for example. AI-powered robotics will always be programmed to deliver the most pragmatic solution without any consideration of how that might affect future customer relationships.

In each of these scenarios, robotics can play a role, but not without human interaction. As a result, successful industrial companies today are finding the right balance here and leveraging labor management technologies to better manage the relationship between human capital and robotics.

In a recent industrial-focused survey, 36% of executives said they currently leverage labor management system technology for their warehouse operations, and another 29% said they plan to make investments in this type of technology in 2023.

**What is labor management – why is it necessary for robotics?**

These companies are relying on labor management technologies to inject more flexibility to quickly adapt to a rapidly-evolving marketplace using robotics and automation. It allows for greater productivity and efficiency from logistics and warehouse personnel to support everything from increasing customer demand to rapid shifts in the use of robotics and automation programs on the floor.

This strategy is helping to modernize legacy warehouse environments through real-time visibility into delivery, labor management and operations to satisfy escalating customer expectations, save valuable resources and reduce overhead costs even further. The ability to optimize any facet of the warehouse automation system enables a highly flexible and responsive supply chain operation.

More importantly, today's advanced labor management solutions can leverage historical robotics data to create smarter performance tracking across the life of each automated system without complex and costly projects. In many cases, companies can leverage this technology to reduce data refresh from eight hours of programmed analysis down to just a couple of minutes for more real-time decision-making of labor needs.

Robotics and automation will continue to grow throughout the industrial commercial landscape. But without the use of intelligent labor management technology, these companies will not efficiently and effectively manage their robotics systems for optimum logistics and warehouse functions. ■

Mike Babiak is the director of supply chain technology strategy for consulting firm Longbow Advantage.





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# How to Alleviate Warehousing and Fulfillment Stress



Credit: TA Services | Dreamstime

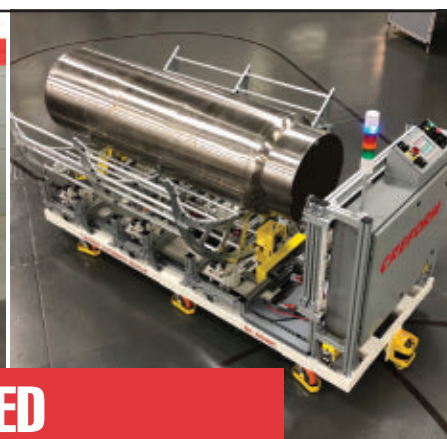
By David Bowers

**I**t's nearly Spring Break season in North America, and while many families and couples look forward to traveling, eating smores, sleeping in tents and hotel rooms, jumping in pools, and building sandcastles on beaches, there is so much behind-the-scenes planning

that goes into making these trips happen. Everything from coordinating meals, equipment, transportation, expenses, scheduling, timing and budgets must be planned out. This kind of planning is an excellent example of logistics services, which is defined as "the organization of a complex operation involving many people, facilities, or supplies."

While planning family vacations is only a micro-example, it is a great metaphor for a bigger logistical picture. If you think Mom and Dad were stressed out planning that trip to the happiest place on earth, imagine how stressed they would be trying to facilitate hundreds of thousands of goods across a country—or sometimes multiple countries—in a given day.

Of course, this responsibility is rarely taken on by any single individual in shipping logistics. When it comes to logistics management, there is a whole supply chain at play to make things work that requires coordination and efforts from several parties to get everything where it needs to go. This is no easy feat. A supply chain's weakness is visible within its name: a chain with individual links that make up a whole interconnected web of operations. The old saying of only being as strong as the weakest link is both cliched and true.



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Anywhere from raw suppliers to last-mile delivery, a pain point in any link of the supply chain can lead to bottlenecks, unsatisfied customers and loss of revenue. One important link within this long chain is warehousing, an industry that is experiencing a booming resurgence in North America due to businesses attempting to shorten their chains to be closer to their end customers.

In logistics services, warehouses can be thought of as the hotel the family stays at on a long trip to recharge before hitting the road to arrive at the final destination, or even sometimes another hotel. Nearly all businesses rely on storage facilities and distribution centers, and these facilities are a crucial link in the chain, regardless of industry specifications.

## Dedicated and Multi-Client Sites

Imagine that dedicated sites are like Airbnbs and multi-client sites are like a hotel. Dedicated warehousing and fulfillment sites are solely for one company, whereas multi-client warehousing sites are shared storage locations that are also utilized by other businesses. With multi-client warehousing sites located all over the country, the opportunity for vast geographic coverage grants organizations with substantially more connectivity and carrier rate shopping options when it comes time to move inventory.

So, what happens when there is a misbooked hotel room on the family vacation and panic ensues? Mom and Dad are forced to scramble and find a quality hotel with a vacancy and hope for the best. The same thing can happen when finding storage solutions. Finding quality storage facilities that meet every organization's specific needs can be uniquely challenging.

In the face of ongoing disruptions and faltered communication, it's important to have a reputable storage solution that can fill in the gaps of what's missing. Outsourcing storage needs and shipping services to a third-party logistics (3PL) provider can ensure peace of mind with consistent and reliable storage options.

Logistics service providers grant the framework to prioritize savings initiatives and develop process improvements through services that go beyond what a business can achieve as a solo entity. A 3PL partner will be able to provide shippers with a myriad of warehouse logistics services, such as:

- Just-in-time (JIT) order fulfillment,
- Quality screening and sampling,
- Order consolidation,
- Dedication transportation,
- Inbound and outbound logistics,
- Cross-docking,
- Order fulfillment and replenishment,
- Manufacturing support.

## Advanced Technology in the Supply Chain

Have you ever used a paper map to navigate when traveling? Maps can be tedious and difficult, especially when attempting to operate a vehicle. The Spring Break road trip would arguably be more stressful without the use of modern GPS technology, and the same is true of warehousing without advanced technologies and digitization methodologies.

Warehouse operations and order fulfillment processes are crucial to get right the first time to keep the link in supply chains strong and avoid potential bottlenecks. Warehousing is a complex industry that requires the implementation of complex advanced technologies that offer insight into current and future company needs. Digitizing the warehouse not only optimizes speed and accuracy, but presents the visibility required to make precise logistics decisions in real-time. Technology, data and digitization alleviates historical blind spots in the supply chain to drive efficiencies and allow businesses to focus on what matters most: meeting and exceeding their goals.

Embracing rapidly evolving technologies like a warehouse management system (WMS) integrated with a transportation management system (TMS) ensures visibility, traceability and adaptability throughout the entire logistical process. With the right technology, data silos can be eliminated and transformed into digestible data lakes, providing actionable information to utilize and gain efficiencies throughout the shipping and handling processes. The utilization of appropriate technology in warehouse and fulfillment operations ensures smooth product flow, so instead of Mom and Dad stressing over the missed exit while reading a paper map, the worry and hassle of navigation is eased with the embracing of technology.

Ultimately, if Mom or Dad had invested in a travel agent, they could relax and enjoy the vacation without the worry of intense logistical planning. Partnering with a 3PL for warehousing and fulfillment needs removes the pressure of logistics services. Utilize the expertise of these partners to enhance workflow processes and figure out what aspects of current operations are missing so they can be addressed and resolved.

Dedicated and multi-client warehousing and fulfillment sites along with advanced technology are key tools for accommodating shippers nationwide, providing optimal performance methods. Eliminate the perpetual concern about getting products to customers, regardless of a B2B or B2C business model, and focus on improving the product themselves as well as the core of the operation. ■

**David Bowers** is vice president of warehouse operations for TA Services, a third-party logistics provider.

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# Getting Ahead of Supply Chain Constraints

By Mark Holmes

Overcoming disruptions requires an intentional, proactive approach to supply chain optimization. While organizations have more data than ever, many lack the tools needed to organize it quickly and efficiently. The result: disconnected and siloed data that never reaches its full potential. Data can provide the predictive and prescriptive insights needed to get ahead of supply chain constraints, yet traditional approaches to data management often impede, rather than enable, optimization. The answer lies in a combination of automation, speed and intelligence integrated with data. This approach enables both predictive and prescriptive capabilities, helping supply chain leaders achieve a critical goal: a supply chain strategy that can foresee costly events and present trusted solutions.

## A Data Strategy for Supply Chain Success

Disruptions can occur in an instant. Timely, accurate data can offer retailers, manufacturers and businesses the insights they need to plan for disruptions proactively. While nearly every link in the supply chain produces data, it's often disorganized, delayed and left untouched because leaders face timeliness requirements and lack complete visibility into the data's supporting context, known as metadata. This means businesses can only react to disruptions as they arise.

The first mile—the first 120 days of the supply chain process—offers the greatest opportunity to optimize efficiency, accuracy and delivery all the way into the last mile. Disruptions can happen anytime, but if the first mile isn't communicating with the last mile, upfront challenges can become long-term detriments. This leads to stores with the wrong inventory—an issue during the 2022 holiday season. Affected retailers often choose to sell slow-moving inventory at reduced rates to make room for the right products, often too late, leading to lost profit.

According to supply chain leaders, current gaps, like lack of supply chain visibility and lack of coordination and collaboration between first and last mile, will get worse if they're not addressed today. When the supply chain lacks agility, no amount of forewarning is enough. And agility is less valuable when your data doesn't inform timely decision-making.

Leaders need to go beyond forecasting for demand and leverage their data to understand events in and around the supply chain so they can get ahead of disruptions.

Consider this use case: One of the world's largest food retailer consortiums often ran short of goods. They wanted to overcome this disruption through data but didn't know where to start. Having the data wasn't enough—the organization needed

to understand how to use it to improve operations. The retailer prioritized investments in self-service, and a high degree of automation, speed and intelligence, to guard against disruptions.

After careful analysis, the retailer found they were lacking an end-to-end enterprise resource planning (ERP) and point-of-sale system. Embedding this technology empowered local store managers to control their inventory at shelf level with accurate data to improve on and inform shelf availability. They implemented a web interface that provided store managers a unified, end-to-end view of their sales, inventory, orders and deliveries. Replenishment was automated in real time with machine learning technology. With the system running, the company could sense demand shifts and improve on-shelf availability at over 1,500 stores.

Tasks that were once handled individually across systems were streamlined and accelerated, improving supply chain efficiency, eliminating many risks as they occurred, and preventing others from occurring at all. The organization gained a full picture of its retail business, from shelf levels to timelines for food arrival.

This use case can be applied to almost any supply chain, fulfilling the need to achieve a full view of inventory optimization, production footprint analysis, transportation route optimization, and more. Leveraging data to predict when disruptions might occur in the "first mile," where grocery stock is ordered, for example, allows retailers to optimize the last mile, where store shelves are stocked. From there, managers can shift sourcing requirements, enable inventory rebalancing in the network, or optimize product allocation in real time.

So, what made this approach so successful? While experts across industries understand data's increasing value, industry leaders understand how to properly harness data to achieve lasting results from first mile through last mile. Modern data management techniques in supply chain, such as smart data fabrics, AI and machine learning, are granting some organizations competitive advantages. These developments will help businesses model demand, automate predictable and repeatable situations, and even provide prescriptive analytics to inform how to solve problems in real-time—unburdening the user and improving competitive advantages.

Today's leaders should identify their supply chain data goals and challenges and focus on the end goal: streamlining and simplifying existing data to create better outcomes. By gaining a holistic and comprehensive view of past, present and future, supply chain leaders and their organizations will become proactive rather than reactive to potential obstacles, saving time and money while improving customer trust. ■

Mark Holmes is senior advisor for supply chain with InterSystems, a provider of data solutions.



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# How to Win at ESG by Empowering Suppliers

By Costas Xyloyiannis

In the early 2000s I was a recent software engineering graduate. Along with a friend and fellow graduate, I landed some project work with a major pharmaceutical company. The CEO, who had just signed up to the UN Global Compact, needed to know how sustainable their supply chain was. He tasked the chief procurement officer (CPO) to audit their suppliers—some 150,000 of them.

Back then already, supplier data was a struggle. The CPO needed to know who all these suppliers were and whether they complied with a list of principles the company had committed to. It was our job to develop the platform from which this could be determined. Long story short, the CPO was able to gain the visibility which he required. This meant that he could demonstrate compliance at board level, making the project a success.

It was exciting for us to witness the role that data played in making supply chains more visible. In the 20 years that have followed, we've had the opportunity to explore this topic with some of the world's biggest brands. If there's one thing I've learned from this experience, it's that good supplier data is a function of good supplier engagement. And importantly, the reverse is also true.

## Experience In Equals Data Out

Today, environmental, social and governance (ESG) questions have become mainstays on the corporate agenda. As we learned when starting out, success in these areas requires visibility into supplier data. Traditionally, CPOs have faced the challenge of collecting and maintaining supplier data. In the current climate, there's an opportunity for the broader business to support this area. What it takes is for leaders to fundamentally rethink the experience they offer to suppliers.

Receiving supplier data for ESG is straightforward, in theory. Suppliers own it. Manufacturers need it. The resolution would be simple, but for the technology which governs how the parties work together.

During the COVID-19 pandemic, digital transformation in procurement accelerated. Adoption of best-of-breed technologies was triggered and now, the average supplier must login to at least eight solutions to serve a single customer. Apart from the burden on suppliers, each login also represents a data entry point. This data gets spread across systems and quickly becomes duplicated, outdated and inaccurate. Suppliers find it difficult to view and manage. Yet this is the data which big brands, with thousands of suppliers, use to inform their ESG decisions.

Expecting suppliers to login to too many solutions is one of many ways in which businesses complicate the relationship. And it's one of many ways in which they hinder the upkeep of good supplier data. Ultimately, supply chain visibility suffers, and so does ESG.

Forward-looking businesses are evolving their technology strategies to remove operational friction. This encourages a more satisfied supplier base that can do better work and provide better data—an environment in which ESG can thrive.

Known as supplier experience management, the principle is becoming increasingly popular among procurement leaders. It champions the idea of treating all suppliers like partners with their own business objectives, rather than as resources from which to just extract value.

## The Broader Business Must Buy In

Successful supplier experience management requires a procure-tech strategy which simplifies the supplier relationship. When fine-tuning this approach, CPOs must don their “supplier-first” and “data-first” hats. Can an environment be constructed in which suppliers can access many solutions with very few clicks? Concurrently, can they have fewer data entry points? By fixing the flow, procurement can help suppliers to help the function.

And executives can help procurement to help the enterprise. Leaders who foster a culture in which supplier experience is valued are crucial to making supply chains more visible. ESG stakes can be high, and CPOs can do with the right level of support.

When delivering a procure-tech strategy, CPOs need a budget to purchase technology and upskill people. The challenge lies in analyzing ROI. Finance can help by understanding the value which a supplier-based digital transformation could offer, intangible as it may be. Integrating third-party technology can also be a challenge. IT leaders can help to transfer knowledge from successful integrations elsewhere in the business, such as from customer-facing teams.

Being in a position to operate sustainably requires the entire business to partner with the entire supplier network. Leading manufacturers recognize that their businesses need suppliers—all suppliers. A supplier-centric approach seeks to address the entire base of suppliers, not just a strategic few. This is the most reliable route to a transparent supply chain and better ESG results.

## Supplier Experience Benefits Everyone

The good news is that offering suppliers a better experience has a knock-on effect. Every department in the enterprise that uses supplier data is strengthened. In addition to sustainability outcomes, this also enables a resilient business model.

The uncertain landscape rising from events such as Covid-19, natural disasters and war in Ukraine is forcing businesses to rethink how they build supply chains—from focusing exclusively on being efficient and lean, to building resilience.

Gratifyingly, quality supplier data has benefits beyond ESG. It also powers cyber security, fraud prevention, reputation management, and other key items on the corporate agenda. Better supplier relationships can advance the broader business too. As in employee engagement, treating suppliers well can increase their productivity and loyalty. A recent HICX survey found that suppliers are 20% more likely to prioritize orders and go the extra mile for a “customer of choice,” a status worth having.

At the end of the day, suppliers who are treated better can provide better data. And companies who empower their suppliers to provide better data can generate better ESG results. When leaders improve how their businesses work with suppliers, they unlock collaboration. Then the relationship can flourish to its full potential. It's from this vantage point that businesses can help protect the planet. ■

**Costas Xyloyiannis** is co-founder and CEO of HICX, a provider of supplier experience management solutions.

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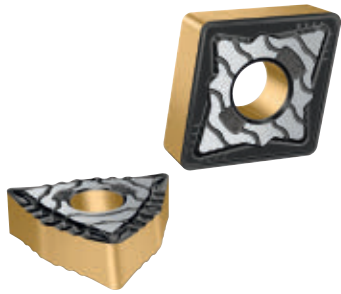
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**Walter USA, LLC**

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### Ultra-Fast Oscilloscopes

*feature a memory of 400 Mpoints/channel*

For accelerated insight, the **MXO 4** series oscilloscopes feature an ultra-fast, real-time update rate of over 4.5 million acquisitions per second. The 12-bit ADC has 16x the resolution of traditional 8-bit oscilloscopes at all sample rates without any trade-offs for more precise measurements. The oscilloscopes come in 4-channel models with bandwidths of 200, 350, and 500 MHz, as well as 1 and 1.5 GHz.

**Rohde & Schwarz USA, Inc.**

More online: [newequipment.com/21251805](http://newequipment.com/21251805)



### Compact Light Source

*features 10, 14, and 30-deg. lens options*

Part of the Camera-to-Light series, the **JWL150** external light delivers an intense, compact light source with an integrated camera mount. It's compatible with most major machine vision cameras and can be directly connected and controlled through a camera's trigger output. The JWL150's design illuminates a larger area than built-in lighting systems and easily combines with polarizers, diffusers, and other optical elements.

**Smart Vision Lights**

More online: [newequipment.com/21250800](http://newequipment.com/21250800)

### Chemical & High-Temp Resistant Epoxy

*has a 24,000 to 26,000 psi compressive strength*

**EP35AOLV** is a two-part heat-cured epoxy system, designed for bonding, sealing, coating, and potting applications. It's a thermally conductive, electrically insulating compound that with-



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against corrosion in harsh environments and helps prolong the longevity of equipment. It has a temperature range of -60 to 500°F (52 to 260°C) and a glass transition temperature of 329 to 338°F (165 to 170°C).

**Master Bond, Inc.**

More online: [newequipment.com/21261447](http://newequipment.com/21261447)

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*maintain sharper cuts with fewer passes*

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**Laser Research Optics**

More online: [newequipment.com/21261446](http://newequipment.com/21261446)



### Agricultural Tires

*have an extra wide profile for high flotation and traction*

The **AGRIXTRA 70** and **AGRIXTRA 65** family of agricultural tires have expanded to new sizes to provide farmers and growers with more options for varied farming applications. The 70 series, engineered to deliver extra flotation and traction, will add seven sizes. The 65 series, engineered to employ premium rubber compounds that reduce ozone cracking and weathering, will release two new sizes.

**MAXAM Tire**

More online: [newequipment.com/21251918](http://newequipment.com/21251918)



### Classic Arc-Rated Face Shields

*provide improved peripheral vision*

The **17 Cal/cm<sup>2</sup> Arc-Rated Face Shield** (AFS-180) with a hard hat features a molded shape to provide minimal distortion with good visible light transfer. This face shield will be included in the Category 2 Contractor, UltraLite, and Feature Series PPE kits. It meets the requirements of NFPA 70E, CSA Z462, ASTM F2178, ANSI Z87.1, ANSI Z89.1, and CSA Z94.1.

**Cementex Products, Inc.**

More online: [newequipment.com/21252231](http://newequipment.com/21252231)



### Ethernet-Based Encoders

*have a temperature range of -40 to 185°F (-40 to 85°C)*

The **EtherNet/IP** encoders are certified by the ODVA. The resolution in single and multi-turn can be individually configured via an integrated web server (single-turn 16-bit, multi-turn 43-bit). The very high environmental data allow use in harsh industrial environments, as well as in mobile working machines. The devices with hollow end shafts eliminate additional couplings and the devices with shafts have a long-lasting, stable connection with bearing loads of up to 400 N.

**Wachendorff Automation USA Inc.**

More online: [newequipment.com/21250176](http://newequipment.com/21250176)



### Multisensor CMM

*is powered by ZONE3*

The **FlexPoint 12-Series** is part of the family of large-format Multisensor Coordinate Measuring Machines. It's made for large, heavy parts with complex dimensions and tolerance and measures volumes up to 47 x 118 x 39 in. (1,200 x 3,000 x 1,000 mm). The VersaFlex multisensor head is a patented sensor array that offers up to three simultaneously available sensors on one articulating head.

**Optical Gaging Products, Inc. (OGP)**

More online: [newequipment.com/21251925](http://newequipment.com/21251925)



### Shaft Collar Operates With One Hand

*features a split hub and an integral adjustable clamp*  
**Flip-Lok Shaft Collars** feature a split hub and an integral adjustable clamp to let users make adjustments for setting up stops for virtually any linear and low rpm rotary application. Providing a thumbscrew tension nut for tight clamping when the lever is engaged, this quick adjust flange collar handles a 200-lb. axial load and is made from aluminum with a black anodized finish.

**Stafford Manufacturing Corp.**

More online: [newequipment.com/21259046](http://newequipment.com/21259046)



### Portable, Hand-Held Laser Cleaning Machine

*quickly switches from laser cleaning to laser finishing*  
 Perfect for laser cleaning, roughing, and finishing across a variety of surfaces, the **CleanTech LPC-300CTH** hand-held laser system uses class 4 fiber laser technology while being safer and more eco-friendly compared to traditional abrasive cleaning methods. It offers precise accuracy in minimal time, under any condition, and provides 5 pulse laser patterns for different applications and surface types.

**Laser Photonics**

More online: [newequipment.com/21258697](http://newequipment.com/21258697)



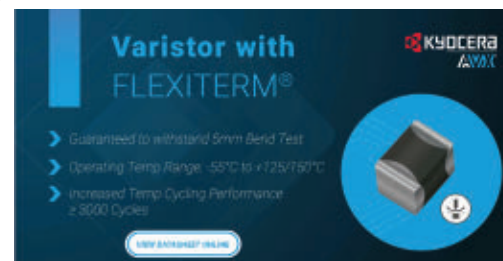
### Crew Communication Headsets

*can connect up to 9 users*

Designed for professional crews that need hands-free, wireless communication, **EVADE** is a class of light industrial, full duplex headsets. Single and dual ear EVADE features deluxe padding and a sleek, fully adjustable headband that provides outstanding comfort. The Evade XTreme is a heavy-duty, dual-ear model that can be worn with a hard hat.

**Eartec Co.**

More online: [newequipment.com/21253515](http://newequipment.com/21253515)



### Automotive-Qualified MLVs

*reliably withstand severe vibration*

The **VCAS Series MLVs (multilayer varistors)** with **FLEXITERM** technology feature soft terminations that provide up to 0.2 in. (5 mm) of flexure over 3,000 temperature cycles extending up to 302°F (150°C) with zero flex failures and stable electrical characteristics. The AEC-Q200-qualified series also provides high current and energy handling capabilities, bidirectional overvoltage protection, and EMI/RFI attenuation in power and signal lines.

**KYOCERA AVX**

More online: [newequipment.com/21252030](http://newequipment.com/21252030)

### Compact Lift Table

*includes swivel wheels and locking casters*

The **LiftMaster 7000** is a high-capacity hydraulic lift table that allows users to lift or lower a variety of parts into position for maintenance or other operational tasks. With a compact and maneuverable design, the lift table provides easy operation for some of the most demanding needs.

It features a lift-off capacity of 5,500 lb. (2,495 kg) and a full capacity of 7,000 lb. (3,175 kg). A pump handle is used to raise/lower the table with a maximum lift height of 38 in. (965 mm).

**LiftWise**

More online: [newequipment.com/21242341](http://newequipment.com/21242341)



### Plastic Guide Rollers

*should not be used under axial load*

Achieving smooth and dynamic movements, the guide roller generation **GN 753.1** has a special deep groove ball bearing of hardened roller bearing steel. They are available in six sizes, from 0.86 to 1.97 in. (22 to 50 mm) outer diameter. The bearing is covered on both sides by metal disks as it features permanent lubrication and a typical 2Z seal to protect against dust and dirt.

**J.W. Winco, Inc.**

More online: [newequipment.com/21251472](http://newequipment.com/21251472)

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*automates route planning and reporting*

**Baseline Team** helps thermal imaging teams automate their work, route execution, and reporting to optimize asset maintenance. The cloud-based software allows users to easily access it from any smart device without installing a desktop app and supports both technicians' and supervisors' workflows to improve scheduling, planning, and tracking.

Baseline features image management and analysis functionality as well as report automation tools that can reduce reporting time by up to 75%. It's also easy to train new, entry-level technicians and have them proficient in a short period of time.

Asset details are entered into Baseline, a Work Event is created for where the work will take place, for whom, and which assets to check. Once the event is published, the supervisor assigns it to a technician. On-site, the technician pulls up the Work Event on their Baseline app, follows the instructions, and records observations and results.

The technician then uploads the images which can then be reviewed and indicated as pass, fail, watch or skip. Once they're satisfied, a PDF report can be generated to share and distribute.

**Fluke Corp.**

**More online:** [newequipment.com/21260411](http://newequipment.com/21260411)



### High Sensitivity Hygrometer

*uses an electrolytic, phosphorus pentoxide sensor*

As a trace moisture analyzer, the battery-portable, fast-responding **PPM2** hygrometer uses a fundamental principle and a diffusion barrier to measure trace water vapor in gases from 0.1 to 1,250 ppm; recalibration is not required under normal usage. Built to monitor dew/frost point temperature or ppm water vapor content in gases, it's configured to meet remote, spot sampling or semi-permanent absolute humidity measurement requirements.

**Edgetech Instruments, Inc.**

**More online:** [newequipment.com/21247471](http://newequipment.com/21247471)

### Replacement Vacuum Interrupter

*is impulse tested to ANSI C37*

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**Vacuum Interrupters**

**More online:** [newequipment.com/21251484](http://newequipment.com/21251484)



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**TSI, Inc.**

**More online:** [newequipment.com/21258703](http://newequipment.com/21258703)

### Hygienic Capacitance Level Switch

*provides point-level detection of liquids, solids, and liquid/liquid interfaces*

Offering point-level detection of liquids and solids, the **OPTISWITCH 6700 Capacitance Level Switch** features 10-Link communication with high and low-level detection. Ideal for overfill and dry-level protection of food and pharmaceutical products, the switch monitors CIP and SIP cleaning processes, media separation, clogged or blocked pipes, moisture levels, and offers dry-run protection.

**KROHNE, Inc.**



**More online:** [newequipment.com/21259651](http://newequipment.com/21259651)



### Checkweighing and Serialization System

*has a transversal adjustment handling unit*

A track-and-trace/checkweighing combination solution aimed at small and mid-market manufacturers in the pharmaceutical and cosmetics industries, the **CT33** system gives operators a deep level of integration between mark & verify, serialization, and precision weighing capabilities. This lets them achieve compliance, better brand protection, quality control, and supply chain traceability.

**Mettler-Toledo, LLC**

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### Mobile Powered Cart

*has a large selection of optional accessories*

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**Newcastle Systems**

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*resist thermal stress, wear, and abrasion*

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**Regal Components, Inc.**

More online:  
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*simplifies conversion for future requirements*

The **Viper-HV Recloser** is a high-voltage pole top recloser that supports faster overcurrent protection through fault isolation and automatic restoration for temporary faults on overhead sub-transmission lines. Designed as a self-contained system featuring 3-in-1 capabilities of a recloser, CTs, and integrated internal voltage sensors, the Viper offers installation flexibility through a variety of configurations, including phase-over-phase and cross-arm versions to match existing line infrastructure.

**G&W Electric Co.**

More online:  
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### High Productivity Punch Drill

*can also be used as a step tool*

**PunchDrill** is a new drill design offering high feed drilling which doubles the feed rate compared to standard drills without increasing the axial force or spindle speed. It reduces machining forces and optimizes chip-breaking, producing cycle time savings of 50% or more when machining cast aluminum alloys with at least 7% Si content and magnesium alloys. The drill results in shorter machining times, fewer tool changes, and high metal removal rates, in addition to higher productivity and reduced power consumption.

**Emuge Corp.**



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**Sealevel Systems Inc.**

More online: [newequipment.com/21252352](http://newequipment.com/21252352)



### Pick & Place Feeder

*runs up to 80 cycles/min.*

The **FA1** pick-and-place feeder for blister machines can feed difficult-to-handle, solid-dose pharmaceuticals and nutraceuticals such as fragile, unusually shaped, and orally dissolving products. With a vibratory feed track, it achieves good final product quality through gentle handling, virtually eliminating particulates from reaching the blister web and accurately positioning products within blister cavities.

**Pharmaworks**

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*allows for greater throughput*

For hygienic and industrial applications, the **Dynashear 850** high-shear inline emulsifier has a tandem shear head design built for processing up to 350 gal/min. (1,325 L/min.). It's particularly effective at wetting out powders into liquids and is ideal for processors who need to blend, dissolve, deagglomerate, disperse, and emulsify a range of fluids and semi-fluids.

**Admix, Inc.**

More online: [newequipment.com/21250985](http://newequipment.com/21250985)

### Reagentless Free Chlorine Analyzer

*is compliant with EPA method 334.0*

The digital plug-and-play, intelligent **FC80 Free Chlorine Analyzer** is ideal for municipal water techs and engineers concerned about productivity and expensive maintenance. The FC80's advanced panel mount design includes built-in flow control, eliminating the need for complicated pressure regulators and rotometers. Built-in automatic pH compensation with ECD's S80 pH Sensor eliminates expensive reagents, reducing maintenance time and analyzer sensor life-cycle costs.

**Electro-Chemical Devices (ECD)**



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**Titan Tool Supply Inc.**



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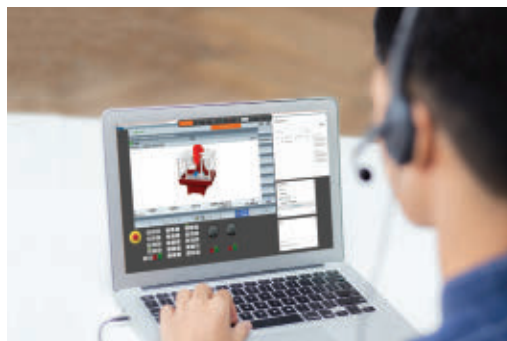
### Angle Brooms for Skid Steers

*can be installed with either end to the left or right*

**Skid Steer Angle Brooms** can swing 30-deg. left or right of center for effective and efficient cleaning and clearing of snow, dirt, debris, grass, and more. Polypropylene brush with wire filaments provides long service life even in adverse conditions. A standard skid steer quick coupler and storage stand are provided for simple mounting, dismounting, and storage. Broom speeds of up to 200 rpm are attainable, depending on the prime mover.

**Werk-Brau Co., Inc.**

**More online: [newequipment.com/21255322](http://newequipment.com/21255322)**



### CNC Product Expert Assistant

*is offered to all Siemens CNC community members*

The **Virtual Product Expert (VPE)** is a support program for Siemens' CNC machine tool users, machine builders, dealers, and importers. Through the program, customers can interact directly with a SINUMERIK CNC product expert and have their specific operation and programming questions answered—from the basic functions of the control to the most advanced machining technology aspects of the hardware and software suites.

**Siemens USA**

**More online: [newequipment.com/21254906](http://newequipment.com/21254906)**



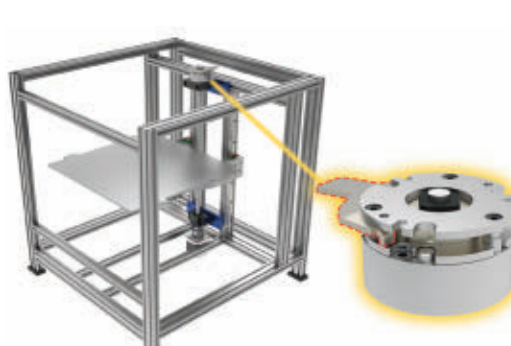
### Optical Sorter for Whole Potatoes

*removes a wide range of color defects, diseases, and surface abnormalities*

Ideal for whole potatoes prior to processing, the **Herbert OCULUS optical sorter** improves performance to find and remove potatoes with defects, ensuring product quality while reducing labor. The enhanced sorter features cameras that offer 2X the resolution of the previous generation cameras; an advanced 64-bit operating system for better analysis of each tuber; longer-lasting air cylinders with better seals to minimize energy usage; and lighter reject fingers that move faster to improve reject accuracy.

**Key Technology**

**More online: [newequipment.com/21259613](http://newequipment.com/21259613)**



### Space-Saving Brakes

*provide power-off, fail-safe braking*

The manual release lever feature on **BXW** brakes allows fine-tuning automated production processes. It allows the operator to depress the lever and manually adjust when the system is powered off and enables easy system indexing in the event of a power failure. These spring-actuated, electromagnetic brakes provide reliable braking when a system's power is disengaged and hold up for long-term staging, loading, and unloading operations.

**Miki Pulley US**

**More online: [newequipment.com/21255000](http://newequipment.com/21255000)**



### Graphical Panel Meters and Hour Meters/Counters

*feature alarms to alert operators when out of range*

The **Trumeter ADM series** of graphical panel meters include current, rate, process, and temperature meters. Featuring a programmable 40-segment curved bar graph display, they provide an instant visual representation of an analog meter. In addition, a line of **Trumeter hour meters and counters** are available in electromechanical and battery-powered LCD units to provide reliable counting and run hours tracking for any application.

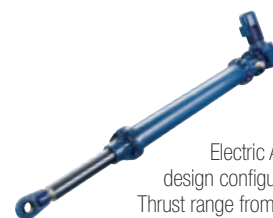
**AutomationDirect**

**More online: [newequipment.com/21258270](http://newequipment.com/21258270)**

# The True Pioneer of Electric Actuators

## RACO International, LP

RACO Electric Actuators provide a reliable solution for all of your linear and rotary motion needs. A variety of design configurations provide a multitude of thrust and speed ratings. RACO Electric Actuators are designed to be robust with virtually no maintenance while also being economical to operate and friendly to the environment.



### RACO MA-Series

The modular design of RACO ACME and Ballscrew Electric Actuators allow for a variety of design configurations while offering a Linear Thrust range from 70lbs to 225,000lbs, Linear Rod Speeds from 0.2"/sec to 30"/sec and Linear Travel (stroke) up to 20 ft.

### RACO LM-Series

The RACO LM-Series is designed for high speeds and long travel (stroke) with capabilities that are frequently found in today's automation processes. The LM can be used as a single axis system or can be combined to form a multiple axis system.



### RACO Rotary-Series

The Rotary Actuator is designed to automate the operation of valves, gates, dampers, louvers and other positioning applications requiring partial or multi-turn rotational movement.



## RACO International, LP

3350 Industrial Blvd. | Bethel Park, PA 15102

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### High-Density, Goods-to-Person Picking

*handles up to 650 totes per hour*

**PopPick** is a next-generation, goods-to-person picking solution for warehouse operations and supply chain management. In a warehouse setting, picking robots carry movable racks from storage locations to PopPick dual-unit picking workstations. Stored on the movable racks, totes are picked automatically by the station and presented to the operator for easy picking. Compatible with items of varying sizes, PopPick's slotting supports automatic unmanned operations based on order forecasts analyzed during idle time.

**Geek+ Robotics**

More online: [newequipment.com/21260138](https://newequipment.com/21260138)



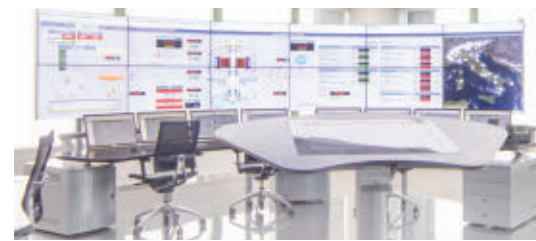
### ISO-Sized Automotive Relay

*is capable of switching up to 110V DC*

The **A2K Series Automotive Relays** use a blow-out magnet to help break the electric arc that is formed when the contacts of the relay are opening. With a large switching capacity of up to 60A, the series also offers resistor and diode options for coil suppression. Coil power is 1.6 W with contact ratings of 1A or 1C, with or without a diode and resistor.

**CIT Relay & Switch**

More online: [newequipment.com/21250798](https://newequipment.com/21250798)

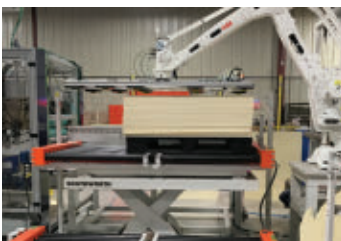


### Distributed Control System Accelerates Digitalization

*uses HTML5 web-based operation to view data anywhere*  
The **Ability Symphony Plus distributed control system (DCS)** supports digital transformation for power generation and water industries. The latest version helps support customers' digital journey through an OPC UA1 connection to the edge and cloud, without interfering with core control and automation functionalities. Symphony Plus delivers customers access to digital solutions and process and alarm data from mobile devices through the ABB Mobile Operations application.

**ABB**

More online: [newequipment.com/21259979](https://newequipment.com/21259979)



### High Duty Cycle Lift Tables

*are ideal for congested areas*

With upgraded components and more durable wear parts, **High Duty Cycle Lift Tables** increase recommended maintenance intervals from 50,000 to 200,000 cycles. The rugged parts deliver longer life and better performance in applications with oversized or non-uniform loads. Often specific for integration with other

handling systems, such as conveyors and sortation systems, they are ideal for applications with limited maintenance staff to inspect and maintain equipment.

**Southworth Products Corp.**

More online: [newequipment.com/21250983](https://newequipment.com/21250983)

### Round Beacons Improve Signaling

*offer audible and visual indication*

**Bulletin 855R** industrial beacons improve how industrial operators deliver warning and status indications to workers on the plant floor. The family of 110 mm (4.3 in.) round beacons offers enhanced performance and meets a broader range of signaling needs. A single beacon can offer both audible and visual indications, preventing confusion in the event of a critical machine or equipment condition alert.

**Rockwell Automation, Inc.**



More online: [newequipment.com/21248928](https://newequipment.com/21248928)

# Material Handling Muscle

**Up to 25,000 Lbs. Push/Pull Capacity**

**Extra-Duty PowerPusher™**

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- Productivity gains through labor reduction
- Improve operator safety to mobilize heavy loads



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### Ratchet Coupling Connector

*integrates optimized PCB tails*

Part of the M series, the **HY** is a vacuum-tight model specifically designed for all applications requiring vacuum-tight integration in harsh environments. This fixed socket model is available in all sizes and low-voltage configurations. The potting material enables vacuum-tight sealing with ultra-low leak rates over an extended temperature range, allowing for good performances in optical enclosures or high-altitude applications.

**LEMO USA, INC.**

More online: [newequipment.com/21248025](https://newequipment.com/21248025)

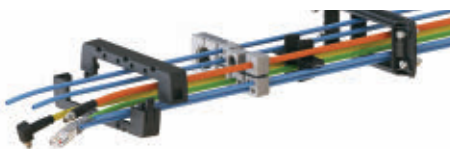


### Customized Cable Management

*is halogen and silicone free*

The inverse and modular **KDSI-SR** cable entry system is for reliable sealing, maximum flexibility, and time-saving feed-through for cables with and without plugs. The system is designed for installation from the outside of a control cabinet, enclosure or machine. The components can be easily removed, exchanged, and reassembled.

**Conta-Clip**



More online: [newequipment.com/21251474](http://newequipment.com/21251474)



### Ultra Heavy-Duty Casters

*have a sealed precision ball bearing*

As maintenance-free casters, the **97** and **97 HD Series** casters deliver the strength needed to quickly move large amounts of materials safely and effectively. They feature a high-capacity swivel section that reduces turn force, making it easier for AGVs to maneuver. The HD model features a dual row of bearings, giving it extra load capacity, and it can move up to 20,000 lb. (9,072 kg); the 97 Series can move up to 10,000 lb. (4,536 kg).

**Caster Concepts, Inc.**

More online: [newequipment.com/21254624](http://newequipment.com/21254624)



### Filtering Chip Conveyor

*fits most coolant tanks*

The enhanced **LNS Turbo MH140** filtering chip conveyor filters coolant to 0.0055 in. (140 µm). It's ideal for sliding headstock and multi-tasking machining centers that produce mixed chips of any size and geometry from a variety of materials including aluminum, brass, cast iron, and more. The MH140 prolongs coolant life, reduces tool wear, protects coolant pumps from damage, and reduces coolant tank maintenance.

**LNS America, Inc.**

More online: [newequipment.com/21254734](http://newequipment.com/21254734)



### Wireless AP/Client for Train Communication

*supports Auto Carriage Connection (ACC)*

Auto Carriage Connection (ACC) technology in the **AWK-3131A-RCC Series** 802.11n wireless AP/client enables intelligent wireless bridging between carriages, streamlining train coupling and decoupling. ACC technology automatically forms adaptive inter-carriage Wi-Fi bridges whenever the train composition changes, eliminating the need for additional carriage wiring. Optimized for passenger Wi-Fi services, it complies with EN 50155 specifications covering operating temperature, power input voltage, surge, ESD, and vibration.

**Moxa**

More online: [newequipment.com/21260130](http://newequipment.com/21260130)



### Thermoelectric Coolers Speed up PCR Testing

*allow for more narrow temperature zones*

The **PowerCycling PCX Series** of high-performance thermoelectric coolers use enhanced module construction to provide long-life operation in thermal cycling applications. Ideal for molecular diagnostics where fast temperature ramp rates are required while maintaining precise temperature with minimal gradient, the series withstands harsh thermal cycle testing based on the latest PCR qualification standards without degrading performance.

**Laird Thermal Systems**

More online: [newequipment.com/21259609](http://newequipment.com/21259609)



### Low-Profile, 5G Tracking Antenna

*covers multiple frequency bands without field tuning*

A configurable, low-profile antenna platform—the **Trooper Max 5G FR1**—covers multiple frequency bands from 617 MHz up to 6 GHz without field tuning. It includes two high-efficiency cellular ports and two dual-band 2.4/5 GHz Wi-Fi ports, with an option for an external port for either TETRA or UHF LMR frequency bands. The antenna supports leading 5G cellular routers and includes high-rejection GNSS capability for precise location and asset tracking.

**PCTEL, Inc.**

More online: [newequipment.com/21258608](http://newequipment.com/21258608)

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### Cleanroom-Rated Static Eliminator

*is ideal for PCB or electronics manufacturing*  
**Intellistat Ion Air Nozzle** provides a light-weight solution rated Class 5 for clean rooms and controlled environments per ISO 14644-1. It comes equipped with a mounting bracket to assist with remote mounting or benchtop assembly for hands-free use. It will reduce 1,000V to less than 100 in 0.6 seconds. The Intel-listat Ion Air Nozzle is a comprehensive solution for neutralizing static in sensitive processes like scientific and electronic testing, cleaning medical or pharmaceutical products and packaging or removing debris from sensitive electronics.



**EXAIR Corp.**

More online: [newequipment.com/21261270](http://newequipment.com/21261270)

### High-Efficiency, High-Pressure Axial Fans

*have tip speeds up to 351 ft/s (107 m/s)*  
 High-pressure **PMAX7** axial fans, engineered to deliver increased airflow for power generators, harvesters, and large construction equipment, feature fewer blades, for a lower profile to fit into tight spaces. Blades have an optimized backswept design for reduced noise and more efficiency. Offered in diameters from 47 to 63 in. (1,200 to 1,600 mm), these fans are available with 5 and 7-blade configurations with 26, 31, and 36-deg. pitch angle options.



**Multi-Wing Group**

More online: [newequipment.com/21261274](http://newequipment.com/21261274)

### Gear Drive Mixers for Viscous Applications

*feature right-angle gear reducers for low-profile configuration*  
**BGTC-series** gear drive IBC bracket mount mixers are designed specifically to mix heavy viscosity materials or re-suspension of settled materials, including traffic paint formulations. The series gear drive mixers are available with air, electric, and variable speed electric operation, from 0.75



to 2 hp, to provide various levels of torque. Units include a shaft, folding impellers to easily fit through 6-in. (152 mm) tote openings, and an expandable mounting bracket.

**INDCO**

More online: [newequipment.com/21261273](http://newequipment.com/21261273)

### Pass-Through Continuous Cleaning System

*is designed to work with Renegade detergents*  
**Renegade I-Series 4824 Pass-Through Wash, Rinse, Dry Parts Washer System** delivers multi-stage continuous cleaning to clean and dry heavy, multi-ported parts transported via inline conveyORIZED operation. Each wash and rinse stage compartment contains a 512k BTU gas immersion heater



and spray manifolds with nozzles to deliver high-pressure force and high-temperature cleaning. The 225k BTU gas-heated dry stage contains dual zones with a 15-hp air blower in zone 1 to remove residual water from cavities and two 2-hp heated recirculating blowers in zone 2.

**Renegade Parts Washers and Detergents**

More online: [newequipment.com/21261272](http://newequipment.com/21261272)

### Advanced Stepper Drive

*has a microstepping resolution of up to 25,600 steps/revolution*  
 Featuring smoothness, precision, and torque across the full speed range in a compact package, the **P80630-SDN** stepper drive powers and controls stepper motors operating on 24 to 75V DC with up to 5.5 Arms current per phase (7.8 Arms peak). It's an ideal solution for labelers, indexing tables, CNC machines, packaging systems, pumps, and other single or multi-axis systems requiring low-speed, point-to-point motion control for fixed loads.



**Kollmorgen**

More online: [newequipment.com/21261275](http://newequipment.com/21261275)

### Anti-Vibration Rotary Latch Units

*secure panels with push-to-close convenience*  
 Two new options have been added to the R4 Rotary Latch line, offering an anti-vibration feature and an integrated cable mounting bracket solution. The **R4-30 Rotary Latch** additions dampen noise from vibration and simplify cable mounting for applications requiring remote latching. The models feature either single or two-stage engagement to support operator safety by eliminating false latching conditions in heavy-duty equipment applications.



**Southco, Inc.**

More online: [newequipment.com/21261277](http://newequipment.com/21261277)

Extra Heavy Duty Welded Rail System designed to meet your most severe guarding needs. Manufactured with 4 inch square 7 gauge tube. Every joint is continuously welded for maximum strength.

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SPRING 2023

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## LEADERS PROFILE

## ACE CONTROLS INC.



### Control Motion and Vibration With ACE

ACE Controls Inc., headquartered in Farmington Hills, Michigan, is a leading innovator in deceleration, vibration and motion control technology. Our quality and performance make us the first choice for the industry. Outstanding service, short development times, reliability and fast on-site availability make the difference to keep things running. Highest performance without compromise is our promise you can rely on.

ACE components can be used in a variety of applications and industries such as aerospace, aviation, machine building, marine, medical, oil & gas, packaging, and robotics. From up in the air to under the sea, ACE products:

- Slow down moving loads
- Increase efficiency and throughput
- Reduce vibration and noise
- Protect against wear and tear
- Reduce downtime
- Increase throughput
- Increase safety

With over 250 distributors across the globe, there's always an ACE expert nearby. Visit our website to find your nearest supplier, [www.acecontrols.com](http://www.acecontrols.com).

### Automation Control

Optimum tuning for any design

ACE universal damping solutions convert kinetic energy in to heat. This makes machines faster, quieter, more durable, lighter, and therefore, more competitive and profitable. Here you will find the perfect selection of machine elements, which turn damaging forces into harmless heat. These solutions from ACE smoothly decelerate moving loads. This involves the lowest possible stress on machines, which makes the damping products from ACE so valuable.

### Motion Control

Custom control of hand forces

The ACE products in this segment enhance the quality of any type of movement. Anyone who wants to raise or lower loads, regulate the feed of an object to the precise millimeter or gently decelerate rotating or linear movements will find the right solution here. ACE delivers industry leading quality. Our innovative solutions correspond with stringent requirements for ergonomics and individuality, including custom pressurized gas springs.

### Vibration Control

Isolate unwanted vibrations

This ACE product group includes innovative solutions to provide customers with the best assistance in isolation technology and vibration isolation. These machine elements are also distinguished by their light design and wide variety. The product range extends from extremely low frequency isolating pneumatic leveling mounts to ready-to-install rubber-metal isolators and damping pads. With this portfolio, ACE is capable of offering you customized vibration isolation for almost any application.

### Safety Products

Protection for all machine designs under any condition. This ACE product group provides emergency braking to safely slow down moving loads and reduce damaging forces. Although the safety shock absorbers, TUBUS elastomer bumpers and clamping elements differ so much in design, every single ACE component provides the best protection for your machine. They demonstrate their main advantages in Safety Products emergency stop situations and, based on the protection they provide, are very cost-effective. Furthermore, they can all be easily integrated into existing design and largely work independent of energy supplies.

### Engineering Tools & Resources

ACE has simple solutions to make your job easy, including a host of online resources and one-on-one assistance. Connect with ACE's application engineers who will work with you to calculate and select the right product for your needs. Or, take advantage of our online tools:

- Configuration and sizing tools
- Standard products available to buy online
- CAD library
- Blog featuring case studies
- VibroChecker iPhone app



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**Online Tools**

- Calculations & product selection
- Chat function for application assistance



**Resources**

- ACE CAD database
- ACETips video tutorials
- Technical blog & case studies



## LEADERS PROFILE

# ADVANCE LIFTS®

Our state of the art 120,000 square foot building houses all operations including sales, design, and manufacturing. Our company is ISO 9001:2015 certified and we also have a UL listed panel shop in-house.

Advance Lifts was founded in 1974 and quickly became the leading dock lift manufacturer in the country. We have maintained that position through innovative design, quick deliveries, and superior service. Our goal is to make the entire process of buying, installing, using, and servicing of our products as easy and trouble free as possible for each and every customer.

We are also dedicated to the principle of producing the most durable products in the industry. Our loading dock lifts, industrial scissors lift tables, industrial turntables, container tilters, container dumpers, work access lifts, multistage lifts, and reciprocating conveyors all have the longest and best warranties in their respective product groups.

Responsiveness is a key driver in our operations. More than 80% of the calls for quotations are satisfied during the initial phone call. Our service department is staffed so that knowledgeable people are available on initial calls and rarely require return calls.

Additionally, our services include the most complete website in the industry. Our website is available 24/7 and contains interactive product selection aids, photos, videos, operational specifications, architectural specifications, installation drawings, product manuals, and a listing of our nationwide distributor network. Therefore, if you have questions about our industrial lifts, you can get answers by calling a local distributor, calling the factory direct or by visiting our website.

The final element of our value package is our nationwide network of knowledgeable distributors. We routinely service nationwide retail chains, manufacturers, and government agencies with seamless coordination between our distributors to provide outstanding sales, installation, and operational service.

We offer the best value in the industry by providing the lowest total cost of ownership. Explore our line of industrial scissor lift tables and dock lifts for sale!



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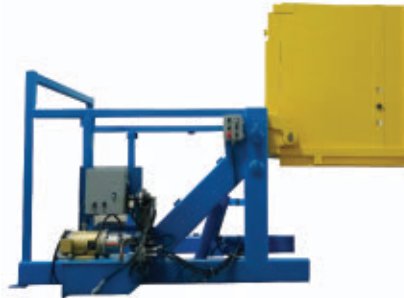
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## LEADERS PROFILE

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**Look no further than Engineering Material Handling.**

Since 1988, EMH Inc, headquartered in Valley City, Ohio, has continued to serve a wide range of industries; designing, manufacturing, and selling a wide range of durable.. robust, and heavy-duty overhead material handling equipment solutions—for loads of 25 lb. to 300 tons. Our overhead material handling solutions include Bridge Cranes, Gantry Cranes, Jib Cranes, Self-Standing and Workstation Cranes, Crane Kits, and custom and standard Wire Rope Hoists and End Trucks. EMH is ISO 9001:2015 certified.

Count on global coverage with manufacturing in the USA, India, and Germany; and a network of strategically located distributors, providing local sales and service support.

Looking for local service and support you can trust? EMH offers a total service program designed with your individual service needs in mind. It's just another part of our total commitment to excellence in the material handling industry. Aptly called the EMH Total Service Program, it was created to provide any (or all) of the maintenance-related service, repairs, parts, and inspections you need—resources vital to your company's continued productivity.

At EMH Cranes, we build cranes and relationships that last, standing the test of time. It's why we take great strides to ensure that all of our customer needs are responded to in both a timely and professional manner, minimizing crane downtime. For more information, contact us today.

### Engineered Material Handling®

Looking for a manufacturing solutions source with cranes you can trust, trouble-free, and able to withstand the test of time? Look no further than Engineered Material Handling.



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With light weight track profiles and an exclusive EMH T-Slot design, AL Systems safely and efficiently handle a wide variety of lifters and handling devices. They are also easily configured to suit almost any application need. Plus, because the rail sections are surface treated and anodized, AL Systems Workstation Cranes are virtually maintenance-free.

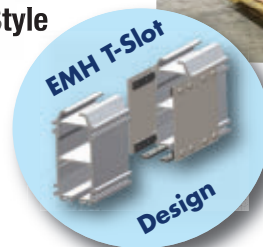
**AL SYSTEMS Workstation Cranes are ideal for lighter weight installations, from 25 lbs up to 2,200 lbs. Also, ask about new AL-1 lightweight aluminum rails with capacities up to 500 lbs.**



Lamp Post Style



Jib Crane Style



## Why NOMAD® Free Standing Cranes Are Better Solutions

When manufacturing needs change, crane needs may change as well. Don't lock in your decision for crane location into a building structure. Modular NOMAD® Free Standing Crane Systems are also perfect solutions when overhead crane installation is either difficult or impractical. With bolted assembly, the NOMAD is easily dismantled, relocated and reassembled.

**NOMAD® Free Standing Cranes easily handle capacities up to 10 tons. For even more capacity, up to 20 tons and 60-foot spans, ask about new NOMAD® XW Free Standing Cranes.**



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## LEADERS PROFILE

# EXAIR



### Intellistat Static Control Products

EXAIR's new **Intellistat® Ion Air Gun** and **Intellistat® Ion Air Nozzle** are perfect for sensitive processes like scientific testing or electronic manufacturing. Both of these Intellistat products carry a **Class 5 rating for cleanrooms per ISO 14644-1**. With a +/-30V offset, the Intellistat was designed to consume minimal compressed air while simultaneously delivering precise blow-off and exceptional static decay rates capable of reducing 1,000V to less than 100 in under one second at up to 24 in. away. The Intellistat Ion Air Nozzle comes with a stainless steel bracket for easy mounting to allow for hands-free operation in processes where both hands are needed like precision parts assembly, testing or packaging. These new products fit in perfectly with our complete line of Gen4 static eliminator products, including Super Ion Air Knives, Ion Air Guns, Super Ion Air Wipes, Ion Air Cannons, and Ionizing bars, all in stock. Learn more about our static eliminators at [https://exair.co/61\\_static](https://exair.co/61_static).

### Super Air Knife Replaces Noisy Blowers

EXAIR's **Super Air Knife™** delivers a uniform, high-volume, high-velocity sheet of air for blowoff, cooling, and drying applications. The Super Air Knife offers a more efficient way to clean, dry, and cool parts, webs or conveyors. Energy use is 1/3 that of typical blowoffs, comparable to a blower without the costly downtime and maintenance. Noisy blowoffs become a whisper when replaced with the compact Super Air Knife. Even at high pressures of 80 psig, the sound level is quiet at 69 dBA for most applications. Air knives are CE compliant and available in one piece construction up to 108 in. (2,743 mm). Special lengths and materials are available to fit existing machines and environments. Learn more about Super Air Knives at [https://exair.co/61\\_sak\\_prf](https://exair.co/61_sak_prf).



### EXAIR Profile

**EXAIR** manufactures Intelligent Compressed Air® products that provide innovative ways to blowoff, dry, cool, vacuum, convey, lift, and eliminate static electricity. Since 1983, EXAIR products have been engineered to improve the overall efficiency of a wide range of industrial processes. Our staff of qualified application engineers is familiar with a wide variety of manufacturing processes and offer help to individuals trying to find the best solution to their problems.

With the world's largest selection of engineered, intelligent compressed air products, we offer the widest variety of material and sizes to match your requirements. Download 3D models, CAD drawings, and installation manuals from our website's knowledge base. Design compressed air conservation and safety into your coating, cooling, conveying, cleaning, and other applications with EXAIR.

EXAIR products are made in Cincinnati, OH and can be modified (special lengths, materials, and sizes) to suit specific application requirements. All of the catalog products have a 30-Day, Unconditional Guarantee and ship from stock.



#### CONTACT

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[techhelp@exair.com](mailto:techhelp@exair.com)  
[www.exair.com](http://www.exair.com)



# Choose Your Liquid Spray Solution from EXAIR's Award Winning Atomizing Nozzles

**EXAIR.com**

## Air Atomizing Spray Nozzles

EXAIR has a large selection of **Air Atomizing Spray Nozzles** available in stock. EXAIR's atomizing spray nozzles atomize fluids (most commonly water) in a range of spray patterns for a variety of uses. They combine liquid and compressed air to create a mist of atomized liquid that can be easily adjusted to meet the needs of your application. All models use stainless steel construction for durability and corrosion resistance.

EXAIR's Patented **No Drip Air Atomizing Spray Nozzles** have the added benefit of positively stopping liquid flow when the compressed air is shut off. Post spray can cause big problems, ruining finishes and wasting liquids. No Drip Spray Nozzles are ideal where liquid conservation and product finish are priorities.

## Liquid Atomizing Spray Nozzles

Pressurized liquid nozzles increase liquid flow for cooling, washing and rinsing. Liquid Atomizing Spray Nozzles are engineered with a vaneless tangential flow design that resists clogging and produces a uniform distribution in a full or hollow cone round pattern and medium to large droplets.

- FullStream™ 1/4, 1/2, 3/8 NPT
- HollowStream™ 1/4 NPT

## Atomizing Nozzle Families

### Internal Mix and No Drip Internal Mix:

Internal mix nozzles mix the liquid and air inside the air cap and produce the finest atomization. Internal mix nozzles can be used on liquids with a viscosity up to 300 cP. Both air and liquid sides are pressure fed. **1/8 NPT, 1/4 NPT and 1/2 NPT sizes available.**

### External Mix and No Drip External Mix:

External mix nozzles have the highest flow rates and allow the air and liquid flows to be adjusted independently. These nozzles are best where precise liquid flow is needed. External mix nozzles can be used on liquids with a viscosity above 300 cP. Both air and liquid sides are pressure fed. **1/8 NPT, 1/4 NPT and 1/2 NPT sizes available.**

### Siphon Fed and No Drip Siphon Fed:

Siphon fed nozzles require no liquid pressure and can be used with gravity fed liquids or lift liquids from a siphon height as much as 36 inches (91cm). Siphon fed nozzles can be used on liquids with a viscosity up to 200 cP. **1/8 NPT, 1/4 NPT and 1/2 NPT sizes available.**

## Advantages

- Fully adjustable
- Maximizes liquid dispersion
- Minimizes liquid consumption
- Many liquid flow rates within each spray pattern
- Compact
- Versatile
- Minimizes air consumption
- Fine atomization



**Narrow Angle Round Spray Pattern**



**Wide Angle Round Spray Pattern**



**Narrow Angle Flat Fan Spray Pattern**



**Flat Fan Spray Pattern**



**360° Hollow Circular Spray Pattern**



**90° Right Angle Spray Pattern**



**Cone Spray Pattern**



You will find the perfect atomizing nozzle at EXAIR. Choose your nozzle family. Choose your standard or no drip nozzle type. Choose your nozzle sizes. Perfect for your specific application! EXAIR's Application Engineers are ready and waiting to help you choose exactly what you need!

**Hollow Cone Spray Pattern**



**EXAIR.com**  
Manufacturing Intelligent  
Compressed Air Products for Industry

If you would like to discuss an application,  
contact EXAIR's Application Engineers.  
11510 Goldcoast Drive Cincinnati, Ohio 45249-1621  
(800) 903-9247 / fax: (513) 671-3363

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WHAT YOU NEED**

[https://exair.co/61\\_4180](https://exair.co/61_4180)





## LEADERS PROFILE

# HAMILTON CASTER



### Hamilton | Leader in Industrial Casters, Wheels, Carts, and Trailers

Hamilton Caster, a 116-year-old manufacturer, produces one of the world's most comprehensive lines of industrial casters, wheels, carts, and trailers. Casters range from models of 300 lb. to the Ultra Maxi-Duty line rated up to 43,000 lb. Hamilton provides 24 to 48 Hour PRONTO® Shipment on thousands of casters and wheels stocked in their warehouse. Free CAD models are available for easy download. In addition, Hamilton leads the industry in designing and manufacturing custom-engineered casters and wheels to solve your specific material handling needs. Hamilton's line of industrial inplant trailers (caster steer, auto steer, and fifth wheel type) as well as platform trucks can also be custom engineered to handle loads up to 50 tons. Consider Hamilton for all your material handling needs.

### New Wheels for Ergonomic and AGV Applications Deliver More Push and Staying Power

Hamilton offers an extensive lineup of ergonomic casters, wheels, and related accessories. Its latest modular solution, the UltraGlide™ wheel series, is designed to reduce the amount of energy needed to move loads in manual or powered applications.

Consistent with Hamilton's other ergonomic products, the UltraGlide™ series features independent swivel surfaces that eliminate scrubbing, making it much easier to turn. It also has split outer raceways to minimize friction, resulting in low startup and maintenance forces.

Engineers upgraded the precision ball bearings in both size and quality in the new UltraGlide™ series which more than doubled the bearing life. Hamilton engineers designed the die-cast aluminum center with a new concave face that concentrates the compression of the urethane toward the centerline of the tread. This design change simulates the cushioning benefits of a thicker, softer tread, but provides the same durability and long life as other more conventional heavy-duty wheels.

### Building the Colossus | 200-Ton Toting Casters

One of Hamilton's highlights in the last few years was the opportunity to design and build four 100,000-lb. capacity casters for a federal contractor. Fully assembled, each caster towers 52 in. above the factory floor and weighs more than 8,000 lb. Together, they represent Hamilton's highest payload capacity ever: 200 tons.

Each Colossus caster was designed with a spring-loaded suspension system to absorb shock. The swivel construction consisted of 32 and 18-in. diameter raceways; flame hardened to 55-60 HRC with a total of (96) 1.5-in. diameter ball bearings. Each caster featured an eight-position swivel lock for directional control, a huge 7-in. diameter oscillating axle to accommodate uneven surfaces, and a foot-operated braking system. The massive payload required 36-in. diameter by 20-in.-wide extreme duty press-on tires with 4.5-in. diameter tapered roller bearings. Hamilton's Carts & Trailer Division designed and fabricated the integrated towing system weighing over 4,500 lb. for the two front casters.



### Hamilton Caster Opens New Building, Announces New President

Hamilton's new 65,000-square-foot plant located in Hamilton, Ohio, opened in the summer of 2021. The facility includes a climate-controlled environment in its manufacturing spaces, tilt-up concrete walls, a material handling system, CNC machines, robotic welders, and more. The new plant joins two other buildings on campus: one dedicated to Hamilton's Carts & Trailers Division, and the other for test equipment.

Hamilton Caster, in its fourth generation of family leadership, is excited to announce Mark Lippert as president. Mark is an energetic and highly effective business leader with a strong technology background. He specializes in brand and product positioning, business development, strategic planning, and process improvement strategies. He has led Hamilton Caster's brand to be ranked #1 in brand perception studies. Mark succeeds David R. Lippert who retired in December after 40 years of service.



#### CONTACT

1637 Dixie Highway  
(513) 863-3300  
[www.hamiltoncaster.com](http://www.hamiltoncaster.com)  
[www.cartsandtrailers.com](http://www.cartsandtrailers.com)



## Pinion Gearboxes for Maximum Feed Rate

are available for gearboxes sizes 090 to 200



The **PM2 pinion series** of planetary gearboxes come with a pre-installed pinion and are designed for gearboxes with a flanged output shaft. Fitted with a mechanical interface standardized to ISO 9409-1, the range includes 16 to 22 teeth for module 2, 14 to 19 teeth for module 3, 20 to 22 teeth for module 4, and 19 teeth for module 5.

**Neugart USA Corp.**

More online: [newequipment.com/21261110](http://newequipment.com/21261110)

## Modular, Freestanding Workstation Canes

handle capacities of 1/8 through 2 tons

### Tiger Track Freestanding Workstation Cranes

are lightweight yet powerful modular solutions that make operations easier than using traditional bridge cranes. The enclosed track design ensures smooth movement and minimizes the accumulation of dirt and dust in the track. Fully customizable to fit exact production needs, they can be easily modified by adding components as requirements change.

**Harrington Hoists, Inc.**



More online: [newequipment.com/21261109](http://newequipment.com/21261109)

## Environmentally Friendly Hydraulic Fluids

are a direct replacement for mineral oil-based hydraulic fluids



For Power utility aerial buckets, scissor lifts, towable air compressors, and more, **Bio-Ultimax 1500 Dielectric Hydraulic Fluids** meet the needs where high dielectric (>35 kV) insulating properties are desired. Available in ISO 22, 32, 46, and 68 weight formulas that meet or exceed

ASTM D877 specifications, the biodegradable, bio-synthetic formulas perform well in low and high-pressure hydraulic systems that require anti-wear, anti-rust, anti-oxidation, anti-foam, and demulsibility properties.

**Renewable Lubricants, Inc.**

More online: [newequipment.com/21261122](http://newequipment.com/21261122)

## Pug-and-Play 6-Channel Transmitter

reduces the need for PLCs on small skids and systems

The **9950-10/11 Transmitter** is a 6-channel option that supports a variety of functions for complete flexibility. Fully configurable to fit any system's needs, it features derived functions and Boolean logic to provide expanded control options that may reduce the need for PLCs on small skids and systems. The 9950 features up to six 4-20mA outputs, Modbus connectivity, and input and outputs that are 100% customizable.

**GF Piping Systems**



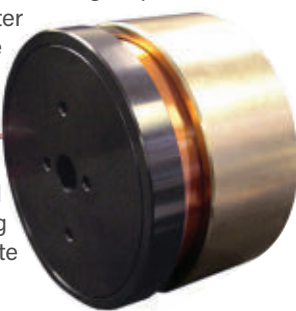
More online: [newequipment.com/21261115](http://newequipment.com/21261115)

## High Force Linear Servo Motor

has low inertia, high acceleration/deceleration, and high speed

DC servo motor **LVCN-095-038-01 Linear Voice Coil Motor** features zero cogging, high accuracy, and high repeatability when operated in a closed positioning loop. This servo is 3.75 in. (95.3 mm) in diameter and has a continuous force of 23.1 lb. (102.7 N) and a peak force of 73.1 lb. (324.4 N) at a 10% duty cycle. It features a pattern of four 10-32 UNC-2B threaded mounting holes in the housing and in the coil end to integrate into applications.

**Moticont**



More online: [newequipment.com/21261132](http://newequipment.com/21261132)

## Digital Controller & App for Air Curtains

easily programs air curtains across multiple locations

A digital controller platform for the shipping dock and door industrial air curtain market, **Industrial Intelliswitch** enables building managers to control and monitor air curtains individually or in groups via additional options such as the Berner AIR smart controller/app and BACnet. Able to be installed remotely or on the unit, the controller operates with a built-in time delay, preset programs, 7-day scheduling, a temperature probe, and low voltage circuit for unit activation via door switch or BMS.

**Berner Int., LLC**



More online: [newequipment.com/21261136](http://newequipment.com/21261136)

## Trailer Platform Boosts Double-Decking Efficiency

can be positioned by hand in 13 seconds

The **ConnectedDeck System** merges two or three adjustable, self-leveling decking beams with a formed composite panel that creates an integrated cargo platform that is easily adjustable, stores at ceiling height, and never has to be disassembled and reassembled. The ultra-lightweight decking platform enables workers to quickly deploy and adjust an entirely decked, ready-to-load, two or three-beamed cargo platform within seconds.

**Doleco USA**



More online: [newequipment.com/21261126](http://newequipment.com/21261126)

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Factory tested for

**72 HOURS**

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## FROM THE COVER



### Entry-Level Collaborative Welding System

*addresses high-mix, low-volume scenarios in a small footprint*

An entry-level cobot designed for shops and welders who are new to robotic welding, the **Copilot Collaborative Welding System** removes complexity and makes it easy to handle quick changeovers for high-mix, low-volume parts.

For the most accurate welds, the AccuGuide Precision Joystick simplifies precise gun positioning and adjustment with easy, fingertip control. The Miller software takes the guesswork and complexity out of weld settings; welders input material thickness and wire diameter and IntelliSet technology configures the ideal settings for the best results.

Powered by the Auto-Continuum 350 welding power source and featuring Accu-Pulse, Versa-Pulse, and Regulated Metal Deposition welding processes, the Copilot system will grow with businesses and operations as they take on more projects.

**Miller Electric Mfg.**

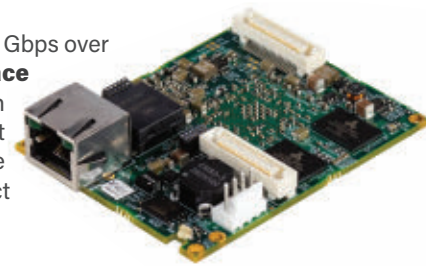
More online: [newequipment.com/21260480](http://newequipment.com/21260480)

### High-Performance GigE Vision Embedded Interface

*provides designers with scalable bandwidth and flexible features for high-performance, high-reliability imaging devices*

Seamlessly transmitting low latency GigE Vision video and data at 10 Gbps over flexible Ethernet cabling, the **iPORT NTx-Deca embedded interface** supports a range of bandwidth and performance requirements with a design that's scalable across multiple devices and applications. It supports IEEE 1588 Precision Time Protocol to synchronize image capture and imaging system elements, with PLC integration to connect and control manufacturing or inspection system components.

**Pleora Technologies, Inc.**



More online: [newequipment.com/21261166](http://newequipment.com/21261166)



### Workholding Grippers Fit a Variety of Applications

*include hex, round, and threaded body configurations*

A complete **line of industrial gripper inserts** can be used in jigs, fixtures, and chuck jaws and are versatile enough to fit any number of applications. Available in round, square, and angle configurations with many different serrated tooth patterns, the gripper contact materials include high-speed tool steel, solid carbide, carbide tipped, and urethane surface.

**Fixtureworks**

More online: [newequipment.com/21261170](http://newequipment.com/21261170)



### Conveyor Belt for Corrugated Board Production

*ensures safe transport and secure grip*

**GKD Bluebacker corrugated board belt** for the double facer is fitted with Conducto technology which ensures constant electrostatic dissipation and prevents the corrugated board from adhering to the belt. It's a two-in-one solution for corrugated board production and consists of an open mesh design with 135 CFM. Production speed can be increased by 50% with drive energy reduced by 15%.

**Nextwire, LLC**

More online: [newequipment.com/21261176](http://newequipment.com/21261176)



### Injection Systems Support Transition to New Fuels

*enable good mixing and minimize wall wetting*

Designed to support the global energy transition to low-carbon fuels, the **portfolio of injection systems for P2X fuels** in large engines ranges from 100 to +1,000 kW/cylinder to enable all possible combustion concepts. The range of direct solenoid actuated injection systems meets requirements for simpler and retrofitted systems, including methanol injection systems for Port Fuel Injection and Direct Injection.

**Woodward**

More online: [newequipment.com/21261229](http://newequipment.com/21261229)



### Geared Linear Actuator Product Family

*supports large input speed or high output force*

The **Linear Actuator L** product family offers a turn-key solution for a broad range of applications. The smaller versions 06L/08L/10L are ideal for medical, lab automation, optics & photonics or space applications. The larger versions 22L/32L using GPT gear technology, are designed for automation and optics & photonics. The actuator family can be combined with a wide range of DC motors, 4-pole and 2-pole brushless motors or stepper motors.

**FAULHABER MICROMO LLC**

More online: [newequipment.com/21261182](http://newequipment.com/21261182)



### High-Speed Camera for High Magnification

*achieves 39,000 to 444,000 fps*

Featuring a backside illuminated, 4-MP sensor that maximizes light sensitivity with a peak quantum efficiency of over 90%, the **Phantom T4040** high-speed camera captures fine detail and movement over larger areas. Ideal for material impact tests, particle imaging, explosive research, and more, the camera improves the accuracy required for tracking elements and debris after the collision.

**Vision Research, Inc.**

More online: [newequipment.com/21261227](http://newequipment.com/21261227)





### Gigabit Ethernet Switches Simplify Configuration

are available in 6, 8, 10, 16, and 18 port configurations

**N-Tron Series NT5000 Gigabit Managed Layer 2 Ethernet switches** are designed to improve network security and reliability for industrial organizations of all sizes and environments. The NT5000 maximizes operating performance and system uptime through seamless integration, advanced management & diagnostic capabilities, network redundancy & layered security, and helps organizations meet information technology and operational technology needs for dependable communication.

**Red Lion Controls, Inc.**

More online: [newequipment.com/21261243](http://newequipment.com/21261243)

### End Effector Makes Robots More Sensitive

handles loads up to 13 lb. (6 kg)

The **Smart Flex Effector**, a sensor-based compensation module, gives robots and Cartesian linear systems human-like sensitivity offering new opportunities for factory automation. Processes that are difficult to manage can now be automated, optimized, and monitored through simple retrofitting. Thanks to a kinematics system that works independently in 6 DoF, the tactile device with sensitive touch precisely records the position of the workpiece and passes the information to the robot control unit for active compensation purposes.

**Bosch Rexroth**

More online: [newequipment.com/21261239](http://newequipment.com/21261239)



### Proportional Valve Controller Modules

easily snap onto available DIN Rails

A line of eight **DIN Rail Mounted Proportional Valve Controller Modules** feature both low and high-side drivers. The freewheeling flyback snubber diodes are present. Designed for open-loop operation, they're ideal for pressure control valves, flow control valves, solenoids, actuators, voice coil motors, DC motors, and hydraulics. The input control signals are 0 to +5V DC or 0 to +10V DC.

**Optimal Engineering Systems, Inc.**

More online: [newequipment.com/21261236](http://newequipment.com/21261236)

### Single Sensor Measures Fill Heights in 3D

detects items of any size, shape or orientation

**ZMX series 3D Time of Flight Sensor** provides a single-sensor solution for monitoring the volume of materials, products or packages that are routed to fill a bin or similar container. The sensor can be placed above a bin to monitor fill level to avoid overfill, package damage or shipping empty space. It's perfect for bin fill & height monitoring, overfill detection, pallet stacking or depalletizing, parcel management, shipping & receiving, and tracking material volume or height statistics.

**Banner Engineering Corp.**

More online: [newequipment.com/21261235](http://newequipment.com/21261235)



### 3D Simulator Validates Designs in Advance

offers a selection of 2,500 types of equipment

**MELSOFT Gemini 3D Simulator Software** allows users to expedite the design and construction of manufacturing projects as they introduce new automation components to their facility. By connecting to a variety of software and factory devices, Gemini provides visualization, simulation, and the streamlining of work processes. It operates using a PC-based 3D digital space and connects directly to factory devices without having to go through an OPC server.

**Mitsubishi Electric Automation, Inc.**

More online: [newequipment.com/21261242](http://newequipment.com/21261242)



### Flex-Power Performance Measurement Indicators

have 24 AWG 5.5-in. color-coded wire leads

**Bi-Color PML50 Harsh Environment PMI Series** delivers reliable performance for a range of environments including railroad & transportation; high-humidity, sunlight or rain-exposed conditions; outdoors, maritime, and oil & gas; and more. Features include 5 to 28V DC with FlexVolt technology, a wide viewing angle and full brightness in milliseconds, an IP67 rating for dusty and/or wet conditions, and an operating life of up to 100K hours.

**Visual Communications Company (VCC)**

More online: [newequipment.com/21261246](http://newequipment.com/21261246)



### iSLC Firmware Technology Seizes 5G and AI Opportunities

achieves 100K P/E Cycles

To help customers overcome the obstacles of storing and accessing data in harsh industrial environments, **iSLC technology** with exclusive firmware technology combines the BiCS5 112-layer TLC 3D NAND Flash to enhance industrial storage performance. With iData Guard and iPower Guard firmware, data transitions can be conducted in unstable environments and achieve stability and experience for business opportunities in 5G networking, smart city, and AIoT applications.

**Innodisk Corp.**

More online: [newequipment.com/21261233](http://newequipment.com/21261233)



### Electronics Kit Explores IoT Sensor Design

enables out-of-the-box prototyping in a simple way

A sensor experience kit, the **Henkel Qhesive Solutions Sensor INKxperience Kit** offers four different printed electronics technologies that are pre-configured with hardware and software for prototyping and engineering ideation. It includes a leak detection sensor, a non-contact liquid level sensor, a positive temperature coefficient heater, and a single and multi-zone force-sensitive resistor sensor which are all reusable. Designed for engineers, it enables them to quickly and

efficiently explore and experiment with printed electronics for the development of IoT sensor solutions.

**Henkel Corp.**

More online: [newequipment.com/21261185](http://newequipment.com/21261185)

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### Renewable Energy Asset Maintenance Software

*provides a clear view of renewable operations in one space*  
**Ovation Green** is a software portfolio that provides an automation platform, a deep renewable energy knowledge base, cybersecurity solutions, and remote management capabilities for renewable energy assets across the enterprise. It provides secure, standardized access to data, independent of equipment manufacturer or system type, across single or multiple sites through data-driven asset control and management solutions.

**Emerson Electric Co.**

More online: [newequipment.com/21260314](https://newequipment.com/21260314)

### Ergonomic Curved Wire Stripper

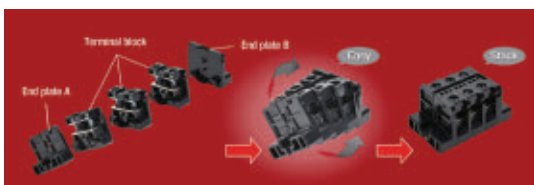
*cuts, curls, and pulls*

The versatile **Stainless Steel Curve Wire Stripper (WSS-1020)** cuts and strips the most commonly used stranded and single conductor wires. The blades on the WSS-1020 can cut and strip solid wires from 10 to 20 AWG and stranded wires from 12 to 22 AWG. The tool's jaws also feature six stripping holes, two looping holes, and cutting holes for 8-32 and 10-32 threaded screws.

**Jonard Tools**



More online: [newequipment.com/21261237](https://newequipment.com/21261237)



### Stacking Terminal Blocks

*lets users easily add or remove terminals at any time*  
**BTBH-H easy-stack surface mount terminal blocks** can be easily stacked together or ordered preassembled to meet the needs of any application. Available in four different amp ratings—10, 15, 30, and 50A—they can be ordered as individual components or as complete assemblies by amp rating for 2 to 30 poles. The terminal blocks are assembled in a twist-and-snap-together fashion, without the need for tools, connecting rods or DIN rails.

**IDEC Corp.**

More online: [newequipment.com/21261256](https://newequipment.com/21261256)

### Inline Filling & Capping Machine for Nasal Dispensers

*fills, seals, caps, and labels up to 50 vials/min*

An automatic machine for the inline filling & capping of multi-dose nasal dispensers, the **Mini-Monoblock MDN-50** accurately and quickly fills, seals, caps, and labels nasal spray containers at a rate of up to 50 pieces/min. Suitable for vials with volumes from 4 to 30 ml, it can accommodate spray pumps from various manufacturers including those with tamp, crimp, and screw closures.

**TurboFil Packaging Machines LLC**



More online: [newequipment.com/21261250](https://newequipment.com/21261250)

### Sustainable Corrosion Inhibiting Film

*can be used with all types of heat-seal packaging equipment*

A new version of VpCI-126 Film Technology, **VpCI-126 PCR** corrosion inhibiting film helps meet sustainability goals while protecting all metal products from corrosion. Vapor phase Corrosion Inhibitors in the film evaporate and then condense on metal surfaces inside the package, reaching every area of the part and protecting its exterior as well as hard-to-reach interior surfaces for up to 5 years.



**Cortec Corp.**

More online: [newequipment.com/21261257](https://newequipment.com/21261257)

### Pipe Saw for Concrete Lined Pipe

*eliminates torch cutting and grinding*

The **MILLHOG APS-438 Air Powered Saw and Wrap-Track system** uses a trolley that mounts on a wrap-around track and features an articulating arm that keeps the saw blade on its leading edge to produce square cuts accurate to  $\pm 1/16$  in. (1.6 mm). Available with track sections for cutting pipe from 6 to 60-in. dia. (152 to 1,524 mm), this combination saw and track system employs a 12-in. (305 mm) abrasive cut-off blade designed for cold cutting concrete lined ductile pipe.



**ESCO Tool**

More online: [newequipment.com/21261259](https://newequipment.com/21261259)

### Small-Diameter Cable Glands

*are suitable for extreme minus temperatures*

**SKINTOP MINI cable glands** now have an extended range of 0.08 to 0.28-in. (2 to 7 mm) diameter glands, allowing designers to obtain protective, secure seals for small-diameter cables while reducing cable density in networked devices. Features include low height for high-density packing, nickel-plated brass construction, temperature range of -76 to 392°F (-60 to 200°C), and IP68 protection for harsh environmental conditions.



**Lapp North America**

More online: [newequipment.com/21261263](https://newequipment.com/21261263)

### Small-Batch Blister Machine

*can run up to 20 cycles/min*

The **Eagle-LP**—short for “Lab Pack”—joins the company's packaging family as a cost-effective solution for development stages, stability testing, and initial small-batch production. It addresses affordability and floorspace measuring just 6 ft (1.8 m) in both length and height, and just 3 ft (0.9 m) in width. The unit can easily accommodate PVC, PVDC, PET, ACLAR, ALU, and PP while also being capable of thermo and cold foil forming.



**Maruho Hatsujyo Innovations (MHI)**

More online: [newequipment.com/21261264](https://newequipment.com/21261264)



### Grease Cartridge Eases Lubrication Jobs

*allows for a wide range of lubricants*

A compact cartridge pump that provides effective lubrication to applications, the **AECF**, automatically lubricates up to 22 lubrication points making it more time and cost-effective than manual methods. The AECF requires no special refilling tool or equipment; grease is stored in standard grease cartridges making it easy to swap out and prime while the motor and pump elements pull grease in a metered way.

**SKF USA, Inc.**

More online: [newequipment.com/21261262](https://newequipment.com/21261262)





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### High-Power Diode Lasers

range in output power from 3.5 to 40 kW

Six high-efficiency diode laser solutions (**DLS-ECO**), providing advantages over thermal ovens, replace less efficient infrared bulbs and environmentally unfriendly gas-fired furnaces for heating and drying applications. These diode laser sources range in output power from 3.5 to 40 kW with wall plug energy efficiencies of over 52%. The DLS-ECO is suited for dry industrial coatings such as battery slurries, paint or powder coatings, and is employed when extremely tight process control is needed.

**IPG Photonics Corp.**

More online: [newequipment.com/21261348](https://www.newequipment.com/21261348)

### PD3.0 Intelligent Chargers

automatically select the required DC output voltage

**PD3.0-compliant fast mobile chargers** for consumer and industrial applications have a long life and high reliability. The pocket-sized



chargers are available in 20, 30, 65, and 100 W versions and are compatible with Apple, Samsung, Google, LG, and other brands. Ideal for charging mobile phones, notebooks, tablets, portable devices, test instruments, and

audio/video gear, the 65 and 100 W models feature exchangeable AC plugs that are available with USB-A and USB-C ports in configurations from one to four ports.

**Brightworks Technology, Inc.**

More online: [newequipment.com/21261352](https://www.newequipment.com/21261352)

### Rotating Paddle Level Control for Bins

is offered in 120 or 240V AC, single-phase operation

The model **CR ROTO-LEVEL** control can be either top or side mounted on most types of storage bins. It functions as a high or low-level indicator to monitor material overflow, empty bins, plugged chute conditions, jammed conveyors, bag house dust levels, product spillage or damaged equipment. Common applications include aggregates, sand, chemicals, plastics, fertilizers, and grains.

**Conveyor Components Co.**



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### Wear-Resistant Monoflex Bellows Vacuum Cups

quickly begin new gripping procedures due to resetting ability

Durable, secure-grip, non-marking **Monoflex bellows vacuum cups** from the **SP-BX1** and **SP-BX2** series combine the elasticity of rubber with the durability of polyurethane. The vacuum cup is the perfect choice for gripping cartons and other uneven and porous materials, such as cardboard, textured plastics, and composites with a raw surface. The SP-BX1 (1.5 folds) and SP-BX2 (2.5 folds) are targeted at the packaging and plastics sector.

**FIPA**

More online: [newequipment.com/21261371](https://www.newequipment.com/21261371)



### Compact & Powerful Order Picker

works with a range of pallets

**J2-192 Joey Order Picker**

is a versatile, safe, and productive picker that supports both forks forward and forks trailing operator stances that can be changed on the fly while maintaining consistent steering orientation. At just 36-in. (914 mm) wide, it's highly maneuverable and has a smaller footprint while still maintaining support for loads of over 2,000 lb. (907 kg).

**Big Joe Forklifts**

More online: [newequipment.com/21261354](https://www.newequipment.com/21261354)

### Lightweight, Compact Gear Couplings

have a bore capacity range of 6 to 47 in. (150 to 1,200 mm)

Next-generation **Jaure MTGR** large gear couplings are ideal for use in metals, cement, mining, and other demanding industries. The gear coupling increases torque and bore capacity while reducing mass for more efficient power transmission. The reduced size of the MTGR makes the coupling easier to handle and requires less time to heat during installation, reducing downtime by 3 to 6 hours depending on coupling size.

**Regal Rexnord Corp.**



More online: [newequipment.com/21261356](https://www.newequipment.com/21261356)



### Self-Centering Metal Rotary Scale Discs

eliminate the need for manual alignment

A metal scale disc for the **ATOM DX** encoder series, the **CENTRUM CSF40** scale discs are quick and easy to install due to their innovative mounting features that automatically center the scale when pushed onto an appropriately sized shaft. These stainless-steel discs have 40-μ pitch incremental graduations and are available in a range of sizes with external diameters from 1.5 to 4.7 in. (38.4 to 120 mm).

**Renishaw, Inc.**

More online: [newequipment.com/21261357](https://www.newequipment.com/21261357)



### Made in the USA Screwdriver Product Line

*features both individual tools and sets*

A new line of over **100+ screwdrivers** that are entirely made in the USA feature ergonomic acetate tri-lobular handles for maximum strength and torque transfer, ribbed necks for fingertip control and a non-slip grip, and durable black oxide finishes for corrosion resistance. All blades are manufactured using tempered high alloy steel and each tip is precision CNC machined to industry specifications with tight tolerances for secure and reliable fastener engagement.

**Mayhew Steel Products, Inc.**



More online: [newequipment.com/21261360](https://newequipment.com/21261360)

### Power Tubing Bender for HVAC/R

*can power more than 100 bends per charge*

The latest addition to the BreakFree series of cordless tools, the **NTB7L Power Tubing Bender** is designed to make quick work of bending large-diameter tubing for HVAC/R professionals. Suitable for seven tubing sizes with O.D. ranging from 0.25 to 7/8 in. (6.35 to 22.3 mm), the bender allows soft ACR copper to be bent to any desired angle up to 90-deg. via a single press/release control switch, and offers simple O.D. size changes in seconds. Upon a completed bend, the unit's baffle auto-ejects the tubing while the tool resets.

**NAVAC**



More online: [newequipment.com/21261362](https://newequipment.com/21261362)

### Glove Coating Provides Amplified Grip in Any Environment

*delivers +50% more abrasion resistance and Level 6+ abrasion protection*

Magid's **VersaTek** coating is an intelligent and durable technology that adapts to almost any environment so workers can get the job done without having to sacrifice safety, comfort, grip or dexterity. Specially engineered stabilizers allow this coating technology to read the environment and adapt to amplify the worker's grip when working in wet, dry, slick, abrasive or oily conditions. It's designed for comfort and flexibility so workers can maintain natural hand movements and precision when handling small parts.

**Magid Glove & Safety Mfg. Co., LLC**



More online: [newequipment.com/21261364](https://newequipment.com/21261364)

### Contactless Detection Linear Encoder

*has a temperature range of -40 to 185°F (-40 to 85°C)*

The **DAX linear encoder** product family for high-precision detection

of piston positions in hydraulic cylinders can provide comprehensive diagnostic information via CANopen interface. Three housing variants are available: a design for integration into industrial hydraulic cylinders, a flat type with block magnets for mounting in tight installation situations, and a version with a slide profile that guides the position magnet. The measuring range is between 2 and 98 in. (50 and 2,500 mm) and is individually configurable in 1-mm increments.

**SICK, Inc.**

More online: [newequipment.com/21261368](https://newequipment.com/21261368)



### Hand-Held Sensors for pH, Conductivity Measurements

*are suited for lab measurement and sampling*

Compatible with the Liquiline CML18 hand-held laboratory analysis device, five Memosens liquid analytical sensors—**CPL53E**, **CPL57E**, **CPL59E**, **COL37E**, and **CLL47E**—join the CPL51E family. The sensors support data and quality management in the verification processes of online measurements and provide immediate and tamper-proof calibration history traceability with easy data transfer using Bluetooth technology.

**Endress+Hauser**

More online: [newequipment.com/21261351](https://newequipment.com/21261351)



### Multi-Port T-Valves Eliminate Field Fabrication

*combine multiple components to save space and time*

**Webstone Pro-Pal Multi-Port Transition Tees** are a compact alternative to installing gangs of tees. These products feature lead-free, forged dezincification-resistant brass, your choice of press or press x hose drain run, and F1960 or F1807 PEX branches. Sizes include 0.75 or 1 in. (19 or 25 mm), with or without reduced branches. Customization options are also available for additional sizes, connection types, and accessories.

**NIBCO**

More online: [newequipment.com/21261370](https://newequipment.com/21261370)

### Industry 4.0-Ready Networked Weld Monitor

*simplifies resistance welding data capture, storage, and analysis*

The IIoT-ready **WM-200A Networked Resistance Weld Monitor** enhances resistance weld monitoring capability by simplifying data capture, storage, and analysis on a networked platform. It monitors all aspects of the resistance welding process, providing visual and statistical feedback during R&D as well as production environments. The WM-200A offers high-resolution data capture (up to 200 kHz sample rate) and can simultaneously monitor eight different inputs and up to four distinct windowed process limits per primary channel.

**AMADA WELD TECH, Inc.**



More online: [newequipment.com/21261372](https://newequipment.com/21261372)

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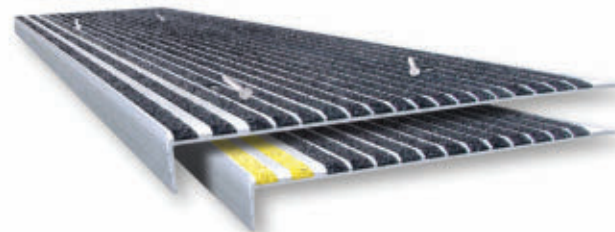
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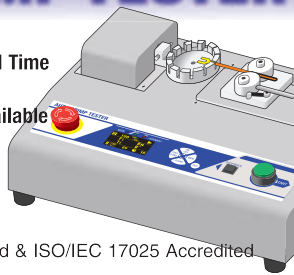
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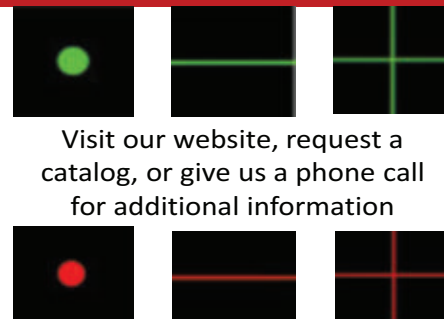
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## Birchwood Technologies

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## Watson-Marlow Fluid Technology Solutions

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## FROM THE COVER



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## FROM THE EDITOR

# The Art of Leading

As we focus on leaders in the manufacturing industry this month, I would like to reflect on what it means to be a leader—specifically in the area of product development.

Developing a new product is an exciting and rewarding process, but it requires a significant amount of work, time, and effort. From the initial concept to the final launch, there are many steps involved in creating, researching, and developing a new product.

Leaders in this area need to be brainstorming generators, constantly churning out creative ideas that solve problems. The catch here is to not create a problem that doesn't exist just for the sake of a new product. And this requires a lot of research, knowledge, and market analysis—identifying the gaps and finding where there's room for innovation.

Then comes concept development; being able to refine and develop a clear vision for a product is no easy task. (I'm great at ideas, I'm not so great at executing them.) Designers, engineers, and other stakeholders need to be pulled into this process to ensure it's feasible and meets customers' needs. This means that leaders need to be able to adapt and be open to feedback from their team. If not, it opens the door to greater risk due to unmet needs or impractical designs.

How many times have you used a product, which you like, but you're disappointed by its packaging or design? From personal experience, packaging for makeup makes or breaks the product. It's usually a 50/50 gamble on what you're getting.

This is why it takes a great leader to go through the research and development phase slowly and deliberately with patience. There's going to be a lot of trial and error, and that's OK—that's necessary. After all, the first pancake always gets burnt. Even the second pancake isn't going to be perfect.

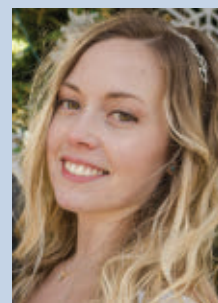
Once this phase is done, it's time for manufacturing and production. Choosing the right process, the right materials and sourcing them, and creating the supply chain takes a lot of planning and organization to ensure production is efficient and cost-effective.

Finally, leaders have to set up marketing and product launches. So now they're involving another team which they have to work with, communicate their vision to, and strategically plan with to ensure successful exposure.

As you can see, there's a lot here that goes into developing a product and it takes a certain leader to be successful at it, and I didn't even get into everything.

As we highlight some leaders in the manufacturing industry in this issue (page 27), we should take a moment to appreciate the work that goes on behind the scenes. These companies have honed their product development processes and continue to lead the industry. It's essential to recognize the efforts of these leaders and their teams who work tirelessly to create and develop innovative products that make a difference in the world.

— Laura Davis, Editor-in-Chief



# 3 Digitalization Strategies Driving SUPPLY CHAIN RESILIENCY

By Merilee Kern, MBA

**W**ith the considerable supply chain disruptions brought on by the pandemic and amid escalating inflation, supply chain resilience is more critical than ever before. The unforeseen pandemic of late has presented a range of challenges that many supply chains were clearly—often admittedly—unprepared for.

Labor shortages, shipping cost surges, new patterns of production and consumption have all played a key role in disrupting business logistics, upending markets, industries, and whole economies in the process.

In its wake are logistics, procurement, and other supply chain professionals who continue to suffer stress and chaos on the front line, scrambling to react to newly exposed systemic weaknesses and vulnerabilities.

“In order to prepare against unforeseen and inevitable turbulent events ahead, it’s important to take proactive measures to identify the most inherently fragile areas within a supply chain,” urges Nirav Patel, CEO of Bristlecone—the leading provider of connected logistics solutions that’s part of the \$19 Billion dollar Mahindra Group.



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“In this post-pandemic era, we need to challenge conventional thinking and pursue digital innovation on a much larger and more significant scale. Embracing emerging technologies like AI and SAP integration can transform and fortify companies with an appropriate level of resilience and agility to defend against future crises and unforeseen challenges.”

## Three Common Risks to Supply Chain

While there are numerous reasons why supply chains are disrupted, there are a few prime culprits:

- **Environmental Forces:** External factors, such as natural disasters, economic turmoil, and geopolitical instability impact supply chain performance in numerous unsavory ways like damaged transport infrastructure, canceled deliveries, and demolished inventory—all of which can lead to unbalanced supply and demand.

- **Value Chain Disruptions:** Issues within the value chain, the process starting from businesses receiving raw material to then selling the finished product to consumers, can create a bullwhip effect where small fluctuations in initial operations can lead to even greater negative effects across

the entire supply chain. Value chain triggers include labor disputes, limited supplier cash flow, manufacturing accidents, and so on.

- **Business Operation Challenges:** When troubles arise internally within key areas of the business, like breaches in the finance, IT or HR divisions, core operations will struggle to function and that will impede the company at large.

As supply chain threats like these and others remain omnipresent—with regional, national, and global implications—it has become imperative for organizations to employ digital tools for enhanced automation, visibility, and resiliency.

Here are three digital strategies leaders can implement to do so:

1. **Supply Chain Digital Twins:** Digital twins are digital replicas of physical supply chains. They integrate with the company’s systems to provide real-time insights on any sudden disruptions in a supply chain’s performance level, allowing supply chain management to become more proactive than reactive.

Digital twins help companies mitigate environmental risks by immediately notifying them of natural disasters or other external forces that can harm the supply chain’s efficiency. This simulation provides an additional level of visibility that would otherwise be impossible without leveraging technology.

2. **Predictive Maintenance:** This is a preventative technique that uses machine learning technologies and sensors to track how machines and systems are functioning. Predictive maintenance is able to foresee when a machine is likely to develop issues in the near future so that maintenance can be done before any breakdowns. Supply chain operations become more resilient knowing that all machines and robotics are working efficiently.

3. **Tracking:** Today’s supply chain management companies live in a fortunate time where they can collect real-time updates on current events courtesy of the internet and other technologies. Companies can leverage social media to obtain consumer behavior analytics while also monitoring the industry, news, and other sources that can indicate potential supply chain disruptions like the passing of a new regulation.

Logistics and transportation technologies provide powerful modern digital fleet tracking so that companies can track their shipments and fleets across land and sea, all over the world. Analytics from cloud-based and other technologies provide valuable insights on—and can fiscally quantify—things like employee engagement and productivity. This data is direct feedback that supply chain managers can leverage to assess what leadership tactics are effective and which fail to drive workforce benchmarks.

Mitigating avoidable business risk by proactively transforming and shoring up supply chains with digital technologies and methodologies like these is a trend forecasted to persist over the next few years. This as Gartner predicts that “by 2026, more than 75% of commercial supply chain management application vendors will deliver embedded advanced analytics (AA), artificial intelligence (AI), and data science.”

A McKinsey survey also cited that more than 90% of respondents reported they have invested in digital supply chain technologies in the last year. Digital transformation is already reinventing the modern supply chain across sectors as technologies like Artificial Intelligence (AI), Machine Learning (ML), Internet of Things (IoT), and Blockchain integrations grow.

These next-gen digital deployments are offering innovative ways for supply chain professionals to procure highly accurate, up-to-the-minute data—the kind that creates opportunities for companies to predict and aptly react to macro and micro conditions, mitigate risks and, at the most extreme level, thwart a business busting disaster.

“Supply chains are complex and disruption is becoming the norm,” Patel says. “Businesses must be able to operate seamlessly within their ecosystem of functional teams, partners, logistics providers, customers, and other stakeholders, and work together to navigate and mitigate supply chain risk—all while improving customer experience. Establishing multi-tiered digitalization replete with data aggregation, information exchange, collaboration, risk management, AI-powered analytics, and robust cloud technologies can shore up a supply chain with unprecedented speed, visibility, synergy, and control. It’s a mission-critical way to maintain the kind of resiliency that will demonstrate—and protect—business value.” **NED**

**Merilee Kern, MBA** is an internationally-regarded branding, leadership, and communications analyst and strategist who works with companies, agencies, C-suite thought leaders, and subject matter experts worldwide. Merilee is also the Founder, Executive Editor, and Producer of “The Luxe List” and is the Host of both the “Savvy Ventures” business TV show that airs nationally on FOX Business TV and Bloomberg TV and the “Savvy Living” lifestyle TV show airing in top U.S. markets.

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