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PRODUCTS FOR INDUSTRY

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Explore how these top-tier companies are empowering manufacturers with cutting-edge tools and solutions to boost productivity and efficiency.

THE LEADERSHIP ISSUE

TRADE SHOW COVERAGE

IMTS TRADE SHOW

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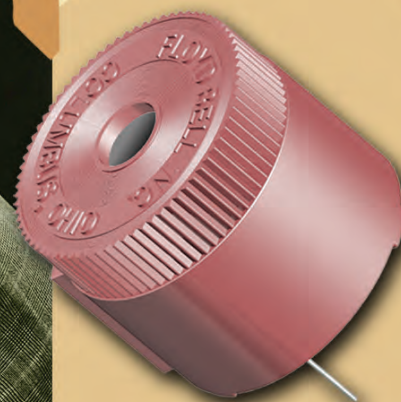


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SELF POWERED ENGINE DIGITAL TACH/MAINTENANCE HOUR METER PT17 SERIES

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Laser Sheet Metal Processing Machine for SMEs

The **Platino Linear 2D laser machine** for sheet metal caters specifically to small to medium-sized businesses and dynamic production operations. While saving on shop floor space with its compact footprint, its maintenance-free linear drive system reduces downtime and associated costs. The cantilever architecture and open-design cabin provide complete access to the work area, while the synthetic granite frame delivers vibration absorption and thermal stability. An aluminum carriage minimizes the weight of moving components without sacrificing rigidity.

Prima Power Laserdyne



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CIP Safety Module for ABB Drives

The **CIP Safety FSCS-21 Function Module**, certified by TUV, is a compact plug-in safety module that enables easy integration of ABB drives into a CIP Safety network with any CIP Safety PLC. The module features two built-in safety functions: Safety Torque Off and Safe Stop 1, time controlled, which meet machinery safety requirements up to SIL3/Plc. These ready-made safety functions require no special parameterization, software, or safety password.



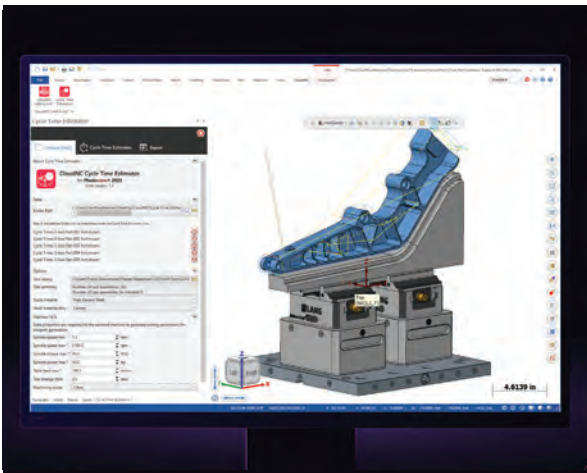
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Accelerate the CNC Machining Estimation Process

CAM Assist Cycle Time Estimator accelerates the CNC machining estimation process and eliminates bottlenecks in the quoting workflow by allowing users to turn around estimates up to 20x faster, depending on the complexity of the part. As a result, estimators using CloudNC's CAM Assist solution within Mastercam or Autodesk Fusion can generate accurate machining times and tool path strategies in bulk for 3-axis and 3+2 axis parts in minutes. Data can be exported and integrated with estimation workflow. Metadata is also provided for each part, including part volume, stock volume, and other relevant data.

CloudNC



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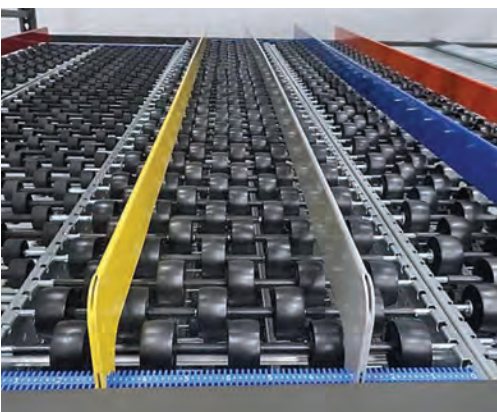
Modular On-Site Electrolyzer

A regional version of the **CECHLO-MS 200** ion exchange membrane electrolysis (IEM) technology has been launched for the N.A. market. The on-site electrolyzer can safely produce either high-strength, 12.5% sodium hypochlorite or chlorine gas and caustic soda (sodium hydroxide) using 3 simple and common consumables: salt, water, and electricity. The technology mitigates risks associated with delivering and storing hazardous chemicals. The modular systems generate from 550 to 6,600 lb./day (250 to 3,000 kg/day) of free chlorine and treat up to 35,000,000 ft³/day (1,000,000 m³/day) with low power consumption and no unwanted byproducts, offering maximum efficiency in an ESG-conscious solution.

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Mallard Manufacturing

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Variable Frequency Drive Compressor

Kaeser has launched the **SFC 110M variable frequency drive compressor** with a 110 kW (150 hp) permanent magnet motor and flows up to 742 cfm. It features a new Sigma Profile airend driven by a permanent magnet motor, boosting energy performance and flow with a smaller physical footprint and less heat. This model inherits all the features of the current series such as the speed-controlled fan with a brushless DC motor for better cooling and the Sigma Control 2 for superior condition monitoring and external communication capabilities.

Kaeser Compressors, Inc.

More online: newequipment.com/55139285

Conveyable Condition Monitoring Tools Provide Insights on the Spot

by Sheila Kennedy, CMRP

Portable condition monitoring options for routine rounds, periodic inspections, and equipment troubleshooting are not what they used to be. Today's tools are smarter, more efficient, and more effective at detecting the subtle patterns and problems that put asset health in jeopardy, enabling predictive maintenance to boost reliability and uptime. Recent innovations span mechanical, electrical, oil, material surface, and instrumentation condition monitoring.

Targeted Approaches

Irregular or abnormal condition findings provide clues to underlying asset and system problems. The new **VibWorks LT entry-level vibration data collector** announced by LUDECA is BETAVIB's latest portable solution. The user and budget-friendly condition monitoring solution enables high-quality vibration data acquisition and AI-powered analysis.

It also generates reports with a single click, facilitating documentation and regulatory compliance.

The device leverages "advanced AI technology for real-time data collection and analysis, significantly enhancing maintenance decision-making," explains Mario Rostran, product manager for VibWorks LT at LUDECA. "Our system's intelligent anomaly detection predicts potential issues before they escalate, offering actionable solutions to streamline troubleshooting."

The novel **P7MiX AcouTherm camera** from FOTRIC integrates professional thermal and acoustic imaging, enabling multi-angle inspection and increased efficiency. During electrical or industrial inspections, current-induced heating equipment such as bus bars and clamps emit significant heat when malfunctioning, making them suitable for thermal cameras, says Application Engineer William Tsai. Conversely, voltage-induced heating



equipment like insulators and couplers emit partial discharges detectable by acoustic imagers.

"Additionally, simultaneous thermal and acoustic imaging cross-validates fault identification. Acoustic imagers are often used in industrial sites to detect gas leaks, but background noise can cause distractions. Thermal imaging helps confirm findings," Tsai adds.

For electrical inspections, the **IM75-2 insulation tester and digital multimeter with METERLiNK** from Teledyne FLIR

VibWorks LT, an entry-level, portable data collector for industrial maintenance, features advanced AI for real-time data collection and analysis. Enhancing maintenance decision-making with minimal setup and training, its design and customizable reporting ensure comprehensive monitoring and easy documentation.

© Ludeca, Inc.

combines a high-quality, CAT IV-600V multimeter and a high-quality, up-to-1-kV insulation resistance tester within a single package. It's built for demanding conditions with premium features like VFD mode and a 10-foot drop test rating.

"The FLIR IM75-2 saves weight and space on the professional's tool belt and on the overall cost of equipment. Meanwhile, the FLIR METERLiNK functionality enables users to capture readings over time and send them to their smartphone, which provides the ability to document findings and send reports while on the move," observes Rob Milner, global business development director at Teledyne FLIR.

FluidInspectIR Portable from Spectrolytic is a battery-powered measurement system for oil and fluid condition



Combining thermal imaging and acoustic detection into a single device, the P7MiX acoutherm camera provides high-definition, vibrant thermal images while detecting and diagnosing remote acoustic signal patterns for leakage and partial discharge.

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monitoring. “It uses a novel mid-infrared (MIR) technology platform, with no moving parts, embedded in a small and robust shell. This, coupled with the high signal-to-noise ratio of the device, allows lab-quality measurements in the field for all types of fluids, fuels, and base oils,” says Neil Conway, applications manager at Spectrolytic.

Using advanced algorithms, the system extracts chemical data on degradation, additive depletion, and contamination, displaying these in the same parameters, units, and accuracy as conventional oil laboratories, notes Conway. The MIR platform is also leveraged in FluidInspectIR Inline-mini, the company’s compact, real-time oil condition monitoring system.



The FLIR IM75-2 is both an advanced multifunction digital multimeter and a handheld insulation tester with functions for installation, troubleshooting, and maintenance for professionals.

© Teledyne FLIR

Distinctive Applications

On-site monitoring of corrosion in piping and other assets requires a compact and easy-to-operate solution. The optimized redesign of the **HydroFORM scanner** from Evident provides a comprehensive 2D corrosion mapping solution operable even by solo inspectors.

“HydroFORM’s water coupling system is highly efficient and the ScanDeck module’s warning lights alert you if the coupling needs attention or if you’re scanning too fast for the data acquisition rate,” says Simon Alain, director of global product management for scanners and inspection solutions at Evident. “These features, along with its two-axis encoders, enable you to perform precise and reliable



An easy-to-deploy 2-axis encoding phased array solution, the semi-automated HydroFORM scanner enables fast and reliable wall-thickness mapping and midwall damage detection by acquiring high-resolution data of large surfaces in minimal time.

© Evident



ABB Ability Field Information Manager (FIM 3.0) offers increased connectivity, leveraging OPC UA and PA-DIM to transport data from field devices to cloud-based condition monitoring solutions, helping customers achieve smarter maintenance and enhancing their engineering efficiency.

© ABB

corrosion mapping, achieving high-quality phased array imaging that can be recorded and analyzed to properly measure the size, shape, and location of the damage.”

Managing large fleets of legacy field instrumentation and modern measurement sensors is uniquely challenging. **ABB Ability Field Information Manager 3.0 software** from ABB, accessible from tablets in the field or from remote workstations, simplifies the configuring, commissioning, monitoring, diagnostics, and maintenance of fieldbus devices.



FluidInspectIR – Portable, a portable measurement system for oil condition monitoring and fuel analysis, is battery-powered and can be used portably or as a benchtop system.

© Spectrolytic

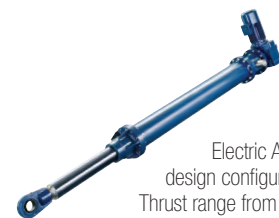
Designed to meet current and future requirements on operational efficiency and sustainability, the software “empowers businesses to embrace digital transformation, ensuring flexibility and efficiency across their ever-increasing fleets of field devices,” says Christian Johansson, global product manager at ABB. “With embedded device diagnostic dashboards and OPC UA with PA-DIM interface, it provides the efficient tools required for successful implementation of predictive maintenance.” **NED**

Technology Toolbox is a monthly feature by **Sheila Kennedy**, CMRP, that appears in our sister publication Plant Services. Email sheila@addcomm.com with products for consideration. The full Tech Toolbox library is available at: <https://www.plantservices.com/voices/technology-toolbox>.

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RACO MA-Series

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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.



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Shalabh Kumar
Founder and Chairman of
AVG Automation.

Next year, AVG Automation, the parent company of EZAutomation, a midwestern U.S. manufacturer and factory-direct purveyor of industrial automation systems and components, will celebrate 50 years since its founding in 1975. The automation technology landscape has changed dramatically since that time, but many of the underlying industry needs remain unchanged. To learn more about what has changed (and what hasn't), New Equipment Digest spoke with Shalabh “Shalli” Kumar, AVG founder and chairman, about the current automation landscape and how his company is creating a path for businesses to easily automate operations.

Shalli, can you take us through how AVG Automation started and how it's grown over the years?

A: Right off the bat, I want to thank NED and your subscribers for giving me a great start in business in 1975, when I founded AVG. I had invented the programmable limit switch, named it the PLS at that time, and I had carried it to a trade show in McCormick Place in Chicago. I didn't have the funds to have a booth at the show, so I was just carrying it in my hands to see if I could get the attention of any visitors. Luckily for me, it caught the attention of the then-chief editor of NED. He was fascinated with the concept and put it on NED's front cover. We still carry that front cover in our lobbies. I got my first 100 orders from this front cover. At that time, these orders were good enough to sustain AVG for six months. Since then we have acquired many companies, invented a lot of new products, and by now we have an installed base of over \$2 billion worldwide.

AVG has a long history of securing many patents for new and innovative equipment, demonstrating a consistent drive to create and develop new products and solutions that enhance productivity and convenience for its customers. Can you share some examples of these patented technologies and discuss how this culture of innovation influences the development of the products?

A: I'm driven by finding solutions to problems. Back in 1974, in a Fisher body,

General Motors stamping plant, I saw how the press set-up guys set up timing of a press after a die changeover, and I said to myself that there has to be a better way to do it.

One guy is on the top of the press where the rotary cam limit switch is mounted, and the other one is down at the press bed. The guy at the press bed says: turn the cam clockwise on the feed and the guy at the top rotates the cam. And the press bed guy says it's a little too much, back it off of it. They go back and forth and back and forth for each cam. There are eight cams. One cam affects the timing of the other cam. It took these two guys two shifts to finally set up all the cams. This is when and where the PLS was born.

Today this whole setup is done in less than five minutes. From EZAutomation's standpoint, it's the same drive to improve plant productivity, reduce downtime, and decrease cost. In 1991, we were the first one to introduce the concept of a graphical human-machine interface (HMI). Learning from my PLS experience, their fine-tuning in motion was critical. We came up with the concept of dual memory in the HMI to be able to make a screen change in a fraction of a second without shutting down the machine at all. This isn't just the changing of the screen itself, but the screen design itself.

This is a patented feature in all of our HMIs. I myself head the design team, even today, and I have over 20 patents. In 2005, we introduced the concept of an HMI integrated with a PLC programmed by the same single software. We made

our programming software so simple that even a CEO can design of a fairly complex screen in less than 10 minutes. Unlike our competition, nobody needs to attend any school to learn how to program our products. Programming software itself has many patented features like a visibility tag for objects to save space on the screen, allowing a smaller, less expensive HMI to do the same job.

We recognize that many OEMs or system integrators do not want to share their intellectual property—that's the HMI screen design itself—with their customers, the end users. So we came up with OEM utility that allows the HMI to be reprogrammed in the field with an exec. file sent over e-mail without the need for programming software.

In an age where a lot of products are manufactured in China, it's impressive that you've been so successful in producing all of these automation products entirely here in the U.S. and even some that provide more features for less cost. Can you elaborate on the strategies or factors that enabled you to achieve these cost efficiencies while still maintaining high-quality standards?

A: It's true and amazing that more than 80% of all automation products in the world are made in China. Think about it—80%. First, we have to have a commitment to design and manufacture products in America.

I was once invited to speak to the faculty of my alma mater, where I got my Masters in electrical engineering. I told the President and the faculty that this Made-in-China problem gets accentuated by our colleges themselves. We teach our students system design and not circuit design. That forces the makers of automation products to design with blocks like CPU blocks, memory blocks, I/O blocks,

and communication blocks. And China makes these blocks in mass volumes with cheap labor. Eventually, the whole product is built in China.

At EZAutomation and AVG, our design team is mandated to do a complete circuit design that can be manufactured cost-effectively in America. Where there's a will, there's a way. We need to challenge the whole automation industry to move away from Made-in-China. Make no mistake, China is an existential threat to American prosperity. It is our number one geopolitical enemy. Sooner or later, Americans are going to recognize this phenomenon and this situation, and it's a serious possibility that there might be a total ban on imports from China.

In a direct conversation with President Trump not too long ago, he did ask me if I would like him to stop Chinese imports cold turkey. That's his term. It's a distinct possibility, regardless of who the president is, that might happen.

New equipment designers need to take this into consideration when they design a new machine. You don't want to have automation control for which there might not be any product supply or support five years from now. And yes, most of our products cost less than those made in China.

One of your newer products is the EZminiTouchPLC which is a compact device that combines an HMI and PLC together. What inspired the development of this specific device and what are the advantages of integration for machine builders and users on the shop floor?

A: The EZminiTouchPLC is a prime example of Made-in-America innovation costing less than Made-in-China. No competitor of ours, none, can come close to this engineering marvel Made-in-America.

One of the five traits of AVG automation is maximum horsepower per cubic inch. Inspiration for this product, as usual, came from talking to our customers. They needed a very compact and thin HMI with a PLC integrated into it.

The EZminiTouchPLC has 27 I/O which is 12 DC inputs and 8 DC outputs with four, 5 amp 1 form C relays, 2 analog in, 1 analog out, and 250 kilohertz encoder input. All I/O is wired through plug-in terminal blocks with LED light indicators. The DC outputs are short-circuit proof. We even put in RC snubbers on all relay

contact outputs so that customers don't have to put external snubbers that cost at least \$20 each in just material, plus labor costs. As a result, our customers save at least \$200 for each PLC.

Besides the fact that the EZminiTouchPLC itself is a very low cost—it's just \$399 for a four-inch 27 I/O model. Even the lowest cost Made-in-China integrated HMI PLC with no relays—forget about snubbers—costs double this price.

Coming back to the PLC, it's a high-end PLC with lots of function blocks with a unique drag-and-drop feature in its PLC programming. You can watch a video of this feature on our website at pdt.ezautomation.net. Go to the intro page for this product and click on product videos and it's the third video.

The product, in its four-inch version and all this I/O, is only 5 x 4 inches and just 1.5 inches thick or deep. The website also has a 360-degree rotational view of the product. The HMI in the EZminiTouchPLC is a top-of-the-line HMI with the easiest-to-program screens. It has at least a dozen features not found anywhere else. Besides real-time data logging, it has remote monitoring and control and can also send text and e-mail alerts.

A big benefit of integration is the panel space and cost. There are a lot of small machines where there's a fight for every micro inch of space, like small packaging machines, air purifiers, air compressors, generators, etc.

In the past, you've stated that owners of new machines typically go through 10 screen changes on their HMIs in the first three months of ownership. How do the new HMIs like the EZminiTouchPLC or EZTouch Series 3 and Series 7 HMIs handle this challenge?

A: This comes from our constant attention to work in the field. I was once in one of Kraft's food plants and I was talking to an operator of a newly installed machine with one of our HMIs. I wanted to get the operator's feedback. The OEM had put in a digital indicator for pressure but the operator was more comfortable with a gauge. Everybody, including the plant manager, control engineers, and operator were amazed. They were there when I was in the plant talking to the operator about how we could change the digital indicator to an analog gauge in the blink of an eye without shutting down the machine. The plant manager termed it a miracle as he had seen nothing like it before.

Several trade magazines have conducted surveys on how many times the screen design needs to be edited in the first three months of a new machine install. That's where the number of 10 comes from. This is a standard feature on all of our HMIs, including the EZ 3 enhanced and EZ 7 detachable HMI. With our HMI online edit feature, users can change the screen design with no downtime at all. Zero

downtime. This feature alone saves thousands of dollars for the user.

The HMI online edit can be done through a mini Wi-Fi in the miniTouch PLC from 50 feet away so that the programmer can make the change without jumping over conveyor lines and opening the control cabinet. It can also be changed remotely with a smartphone.

To clarify, the online edit is an advanced feature to change the HMI program itself. Not just the layout and data sets, which can be programmed inside the HMI. So let's be clear, the HMI online edit allows complete modification of the HMI program.

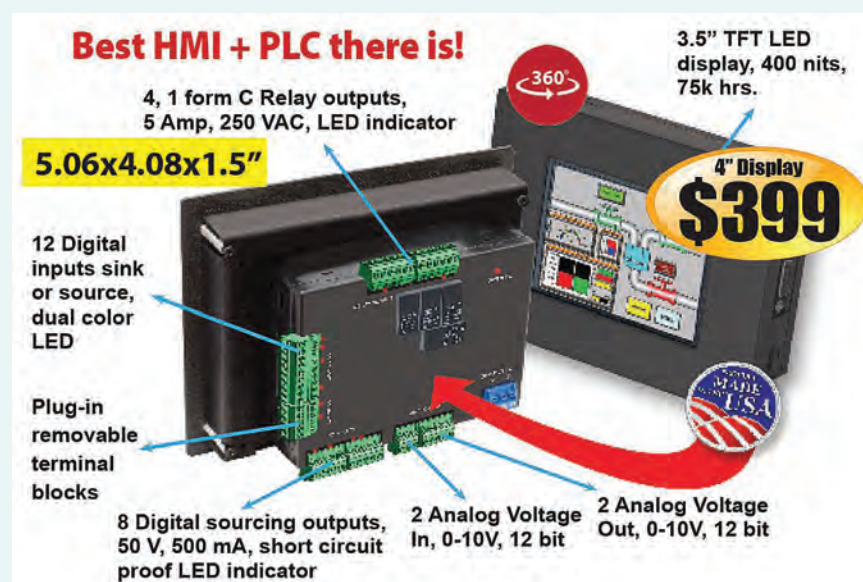
There are more than 50 manufacturers of HMIs in the world, all of them in China. But no other HMI in the world has this feature of program modification online with zero downtime. In fact, it's done through our dual memory system. Even though it costs more where the change design resides in the second memory and the transfer from the second memory to the operating memory is done in microseconds. That's why there's zero downtime.

Downtime has become very important in modern manufacturing. With the EZTouch series 7 HMI, you've taken the challenge of the all-in-one HMI assembly and split it into two separate components, effectively reducing downtime when the HMI needs to be replaced. What's the thought behind this design and how can it change operations on the plant floor for the better?

A: When a component like the touch screen or the display goes out in an HMI, which are the most vulnerable components of the HMI, we want minimum downtime to get the system back up and running.

In our EZ 7 series of HMIs, we went a step further in our quest to reduce downtime for our customers. We split the HMI into two parts: the front panel which has the touchscreen and the display, and the back panel which has the logic and communications. The two are connected by an HDMI cable. This allows for a change over to a new touchscreen and display in less than two minutes. And if it's smaller, like a 7-inch model, it takes less than a minute.

There's no need to rewire or reprogram the HMI. An added benefit is that the control panel doesn't need a large cut-out. All you need is a small, 3/4-inch hole for the HDMI cable. **NED**



The EZminiTouchPLC features advanced capabilities and a robust design seldom seen in such a small form factor.

5-Axis Portal Milling Machine

Introduced to the North American market at IMTS, the **FZU22 5-axis portal milling machine** handles many different types of workpiece shapes, sizes, and materials. The machine can process aluminum, plastic, wood, and other substrates and also finishes carbon fiber reinforced and other composite materials. The top-moving gantry ensures high precision in the production of models and molded parts. The standard version includes the tool changer for 12 tools and a control of the latest generation (Siemens or Heidenhain). The 5-axis milling head with a 15 kW spindle also machines hard-to-reach workpiece locations.

Zimmermann Inc.



More online: newequipment.com/55136471



Flexible, Automated Grinding in a Small Package

Unveiled for the first time at IMTS 2024, the **FLX** is Star Cutter Company's newest generation 5-axis tool grinder for high-efficiency carbide tool manufacturing. With a smaller size, it lets users modify features to exactly match their grinding needs. For unattended machining, FLX features a broad range of automation capabilities, producing large numbers of parts continuously. The FLX handles a wide variety of tool sizes, is supported by up to 15 wheel-changing stations, and can produce up to 1,105 tools before unloading.

Star Cutter Company

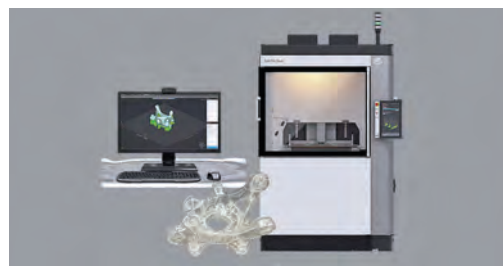
More online: newequipment.com/55136120

Mobile Manipulator Serves Multiple Cobot Tasks

Combining its Rethink Ryder AMR (*below*) with one of its Rethink Reacher cobots (*pg. 9*) and a portable battery box, Rethink Robotics allows mobile manipulation to be performed at new levels of efficiency with the **Rethink Riser**. Both the AMR and cobot have their own battery packs, requiring separate charging. The cobot offers 22 hours of uptime. The AMR can be charged manually or wirelessly through inductive charging. Rethink Riser is a perfect solution for intermittent pick-and-place operations and machine tending applications where cycle times are relatively long, making it difficult to justify the purchase of a dedicated cobot for each station.

Rethink Robotics

More online: newequipment.com/55138989



Save Money on Costs and Materials in Investment Casting

QuickCast Air is an advanced tool that maximizes material removal from the interior of casting patterns, enabling reduced material consumption, lower pattern costs, faster build times, cleaner burnout processes, and improved draining efficiency. End-users in industries such as foundries, aerospace & defense, and energy can reliably deliver large, high-precision investment casting patterns at a fraction of the time and cost of traditional tooling and with no limitation on geometric complexity. QuickCast Air is an add-on for 3D Sprint software, available via an annual subscription that allows customers to design casting patterns with fewer structures within the self-supporting walls.

3D Systems, Inc.

More online: newequipment.com/55141108



Twin-Spindle Precision CNC Multitasking Lathe

The **Nakamura-Tome WY-100V** is a new 2-turret, twin-spindle precision CNC multitasking lathe. New AI software releases, enhanced multiprocessing features, and faster simultaneous operations reduce cycle times. A successor to the WY-100II, the WY-100V provides updated hardware and software for better precision, speed, and operator experience. The WY-100V uses ChronoCut technology for higher spindle speeds and milling speeds. Smart X control provides real-time 3D CAD drawing analysis for program creation for all processes from raw material to finished product.

Methods Machine Tools Inc.

More online: newequipment.com/55141129



Light to Heavy-Duty AMRs

The **Rethink Ryder line of AMRs** includes the light-duty **MRE 550** model that handles payloads of up to 1,212 lb. (550 kg) and the heavy-duty **MRE 1400** model that handles payloads of up to 3,086 lb. (1,400 kg). Both robots come with an integrated lift function. They have multi-detection technologies with 360-degree sensing for analyzing and responding to real-time changes in the environment. They also navigate independently without any additional components. Low-level controllers and sensor data are accessible through open architecture software compatible with third-party applications.

Rethink Robotics

More online: newequipment.com/55138725



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- Andrew Saunders
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SmartScope M-Series family of 3D Multisensor Metrology Systems features the patented IntelliCentric-M Optical System which features fixed optics with a 20-mpx camera and proprietary Virtual Zoom. The systems are truly telecentric with extremely low distortion so users can achieve more accurate measurements, particularly at low magnification with far more part features in the field of view. SmartScope M-Series systems are the ideal choice for manufacturers requiring advanced throughput solutions. The new IntelliCentric-M optical system combined with advanced sensors, illumination, and accessories achieves class-leading optical measurement speeds.

Optical Gaging Products, Inc. (OGP)

More online: [newequipment.com/55138659](https://www.newequipment.com/55138659)

Affordable Educational Robot Platform

Astorino, an affordable educational robotics platform for industrial and technical education providers, lets educators equip students and trainees with the skills needed for modern manufacturing. Astorino uses Kawasaki Robotics' hardware, firmware, control system, application software, and training. The platform also supplies STL files so students can rapidly print 3D replacement parts for 99% of the robot. The 2 lb. (1 kg) payload, 6-axis robot has a structure and programming environment nearly identical to a Kawasaki industrial robot.

Kawasaki Robotics, Inc.



More online: [newequipment.com/55135241](https://www.newequipment.com/55135241)



AI Robotic Bagging Solution

Canon U.S.A., Inc. and OSARO, Inc. collaborated on a **Robotic Bagging System** that uses an optical-encoder-based force-torque sensor. The sensor measures the magnitude and direction of load along 3 axes and rotational forces. When attached to a robotic arm, the sensor helps the arm sense the strength needed to handle objects. The bagging system automates SKU bagging with advanced pick-and-place software that integrates with packaging equipment. Powered by OSARO's AI and machine-learning algorithms, OSARO SightWorks automatically adds thousands of new SKUs without downtime. It also offers dynamic object detection and the ability to adapt to changing inventory in real time.

Canon U.S.A., Inc.

More online: [newequipment.com/55137228](https://www.newequipment.com/55137228)



Precise, Safe, and Easy Cobots

The **Rethink Reacher (RE) line of cobots** includes 7 cobot models handling payloads ranging from 15 to 66 lb. (7 to 30 kg). With an improved design, the cobot family offers hardware that delivers increased precision, speed, and durability, supported by an IP65 rating. RE cobots offer high precision with ± 0.03 mm pose repeatability and maximum speed ranges from 120 to 200 degrees per second. Reacher cobots feature collision detection, an intuitive interface, and come with a wide range of accessories, such as grippers, vision systems, rails, and other end-of-arm and peripheral tools.

Rethink Robotics

More online: [newequipment.com/55138979](https://www.newequipment.com/55138979)



Smart 3D Printing for Large-Scale Components

Introduced for the first time at a major U.S. manufacturing trade show, the **Heron AM** robotic large format additive manufacturing (LFAM) platform produces industrial large-scale 3D printed parts with more efficiency, flexibility, and sustainability. It's a modular hardware-software robotic system that works on 6+ axes to enable manufacturers to produce thermoplastic composite parts with complex geometries and with no scale or shape limits. The modular components that make up this solution are extruders, robotic arms, printing beds, software, feeding systems, and enclosures.

Caracol

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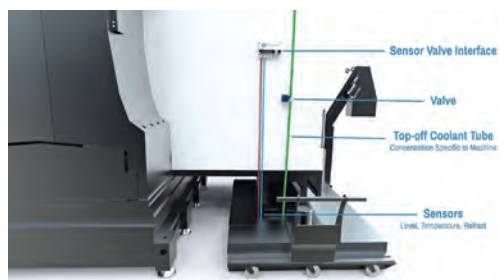
Smart Measuring Camera for Easy Tool Evaluation

The **VT 122 measuring camera** is an all-in-one system that combines tool presetting, microscopy, and visual inspection. Obtained straight from the machine's work envelope, its images enable detailed inspection of the tool's cutting edge and deliver the information needed for holistic tool evaluation. The smart camera and software automatically measure a tool's length, diameter, and wear width. Tools can be inspected without a trip to the metrology lab, allowing users to work faster while providing automated tool-wear documentation.

HEIDENHAIN

More online: [newequipment.com/55136406](https://www.newequipment.com/55136406)

FROM THE COVER



Affordable Coolant Automation

Reengineered **FullShop Gen 3 solutions** make coolant automation more affordable and easier to install. Gen 3 uses modern software and electronics, plus a new fluid architecture, to deliver best-in-class performance and simplicity. FullShop Gen 3 features a small wireless sensor valve interface that connects to sensors in the machine sump to monitor coolant temperature, level, and concentration. Data is transmitted back and forth to a digital feed unit to monitor water and pump coolant at precise flow rates so any top-off ratio from 0.5 to 20% can be sent into the CNC sumps to hit target concentrations.

Mixing manifolds near each machine combine the coolant with water from a supply line that runs parallel with the coolant line. Coolant leaves the manifold and arrives at each sump at the machine-specific top-off concentration. From there, users can use the FullShop App as a hub for coolant trends, notifications, and more.

The simplified fluid architecture makes system expansion easy, enhances dosing precision, and is easy to install for plant personnel. Users can easily scale by adding more manifolds and piping to extend throughout the plant.

168 Manufacturing

More online: newequipment.com/55139495



Compressor Valve Steel Enhances Energy Efficiency

Compressor valve steel **Freeflex Versa** is a new material that contributes to designing smaller, more sustainable, and more energy-efficient compressors for refrigerators and freezers. This martensitic stainless steel is engineered with a focus on catering to the requirements of reciprocating and linear technologies. Features include exceptional fatigue resistance, outstanding wear resistance, and the ability to contribute to noise reduction and downsizing. The steel can be used for a variety of applications, including air conditioning equipment, heat pumps, refrigerators, freezers, and clothes dryers.

Alleima

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Abrasive Belts for Low-Pressure Applications

NORaX N889 Micro-Structured Abrasive Belts offer a flexible design for producing consistent, fine finishes across a range of industries. The belts have a high, consistent cut rate throughout their life while conforming to contoured surfaces. The micron-grade aluminum oxide grain is structured in a fine 3D pyramid pattern which is suited for lower pressure applications where belt flexibility is needed. The engineered abrasive slowly erodes during grinding, exposing new, sharp abrasive grains resulting in longer belt life, higher quality finishes, faster cutting rates, and an ability to reduce finishing/polishing steps.

Norton | Saint-Gobain Abrasives

More online: newequipment.com/55139280



Advanced Cutting and Grinding Wheels for Fabrication

Two upgrades in the lineup of Tiger 2.0 cutting, grinding, and combination wheels address the challenges of demanding metal fabrication industries. **Tiger Ceramic 2.0 cutting, grinding and combo wheels** offer a long life and cut rate for better productivity. The design uses new ceramic grain technology that cuts extremely cool and removes material effortlessly while providing better control. Wheel life has been improved by increasing grain retention and ensuring precise product wear. The **INOX 2.0 wheels** are designed for high performance when cutting and grinding high-value stainless steel parts. Premium aluminum oxide grains provide a smooth cut rate and consistent performance. Both wheels are contaminant-free, so they're safe to use on high-value stainless steel parts.

Weiler Abrasives

More online: newequipment.com/55139256

100% Maintenance-Free Casters

The **Spinfinity Super Endurance Caster Series (ZFSEC)** is the next generation of Hamilton Caster's Super Endurance Caster (SEC) series. Most notably, a heavy-duty V-Seal was added to the swivel raceway, rendering the rig resistant against dirt, debris, and moisture. This sealing creates smooth performance and extends the life of the caster. All ZFSEC casters are now 100% maintenance-free. Hamilton has also added a dual-wheel option—the **Spinfinity Super Endurance Dual Wheel Caster (ZFSEC2) Series**. These dual wheel casters also feature the new sealed V-Seal swivel construction, providing zero-fix, 100% maintenance-free performance. The dual wheels offer extra stability and a lower overall height, offering strength and maneuverability.

Hamilton Caster & Mfg. Co.

More online: newequipment.com/55137792



Mini M8 12-pin Circular Connector

An **M8 12-pin circular connector** offers miniaturization and flexibility, requiring less space for adjacent connectors. The new edition of the design specification for M8 circular connectors with screw or snap-in locking DIN EN 61076-2-104 also includes the C-coding, laying the foundation for continuous plug compatibility in the connector market. With IP67 protection, it's well-suited for harsh industrial environments.

Binder USA, LP

More online: newequipment.com/55139303





HOW TO RETAIN WAREHOUSE WORKERS

Companies must create a culture where employees feel valued.

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Global Quality
Management for
Logistics
p. 14



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How to Retain Warehouse Workers

by John O’Kelly

Attracting and retaining warehouse workers has been a growing challenge for manufacturers and business leaders for more than a decade. While technological innovations such as automation and artificial intelligence (AI) are rapidly transforming the logistics industry, the human element remains irreplaceable in warehouse operations.

And while automation holds promise, it is currently not the silver bullet many believe it to be. It’s especially difficult to automate every process in warehousing, where the flow of goods and the shapes of packages vary, underscoring a critical realization: no matter how advanced technology becomes, warehouses will always require human labor for specific tasks.

In today’s landscape, where labor shortages are felt across multiple sectors, the importance of creating a positive work environment and retaining employees cannot be overstated.

Companies must move beyond surface-level solutions like increasing wages and focus on fostering deeper engagement, providing technological tools that enhance productivity and worker satisfaction, and cultivating a culture that makes employees feel valued. Without these elements, the already challenging labor market will become even more difficult to navigate.

Why Warehouses Struggle to Retain Workers

One of the most pressing issues in today’s warehousing industry is the struggle to fill positions and hold onto employees. The difficulty, particularly when attracting younger workers, stems from various factors. Warehouse work is often physically taxing, sometimes monotonous, and can involve harsh working conditions, such as extreme temperatures and manual labor.

The key question for business leaders isn’t just how to attract workers but how to retain them in an industry often perceived as physically demanding and less appealing. Warehouse jobs can be dirty and hard work. For younger workers, there are simply other lines of work that they find more appealing, less physically demanding, and offer more immediate satisfaction. This means that the industry needs to focus on attracting and retaining workers by addressing the factors contributing to job dissatisfaction and high turnover.

Secrets to a Successful Warehouse

Some of the most successful warehouses have one thing in common: they prioritize creating a positive workplace culture. While wages are important, they are not the sole factor keeping employees satisfied. There’s a formula in place at companies where workers stay for many years—with one of the key components being respect. You can see it when you walk in, feeling an immediate sense of comradery—everyone knows the score, celebrates victories together, and works towards a common goal.





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According to recent data from **Gartner**, 82% of employees say it's important for their organization to see them as a person, not just an employee, but only 45% of employees believe their organization sees them this way. Daily huddles, clear communication, and visible leadership presence make a big difference in how workers feel about their supervisors and their roles. Supervisors need to engage with their employees and see each other as teammates. In contrast, companies that struggle with high turnover often have disengaged leadership that doesn't actively support employees. Workers feel isolated when management is disconnected and hides in offices; in turn, you see high turnover rates.

It's not just culture that matters—tools and technology play a crucial role, too. Today's younger workforce is accustomed to technology in their daily lives and expects to use it in the workplace. Younger workers don't want to deal with outdated systems like pen and paper. Providing them with modern technology—like barcode scanners, AI, robotics, and RFID systems—makes their work easier and shows them that the company is investing in their future.

Engaging Means Retaining

A culture of engagement is more than just a trend—it's a proven strategy for retaining employees. Engagement starts with leadership and involves treating employees as valuable contributors to the company's success. Another key factor in keeping workers engaged is ensuring they feel involved in the decision-making process, particularly regarding their daily tasks.

Companies that include employees in the design of their jobs allow them to suggest improvements to make their work easier and more efficient. Employees who feel like their voices are heard tend to stick around longer and put in more effort. It's not just about the job itself—it's about how well they're treated and how integral they feel in the company's overall growth.

Flexible work arrangements can also be game-changing in terms of retaining employees. For example, high school students might be ideal candidates for part-time work but can only work a few hours a day. Companies offering flexible schedules affirm a sense of compassion and are more likely to attract workers who might otherwise be unable to commit to full-time hours.

The Importance of Health and Wellness

Because warehouse work is so physically demanding, health and wellness are also

critical aspects of employee retention. Think of warehouse workers as athletes: they are key players in the company's success, and their health directly impacts productivity. Companies that take the health and safety of their employees seriously are more likely to retain them over the long term.

In some warehouses, conditions can be extreme—hot in the summer and cold in the winter. Companies must ensure workers stay hydrated in hot environments and are provided with the appropriate attire in cold ones.

Additionally, ergonomics plays a significant role in preventing injuries. For example, mobile-powered workstations are designed to minimize strain by ensuring screens and keyboards are at the right level and reducing unnecessary walking in large warehouse spaces. These minor adjustments can make a big difference in worker comfort, satisfaction, and productivity.

Providing ergonomic solutions and proper safety protocols ensures workers are less fatigued and can focus on tasks. Employees who are healthy and comfortable are more productive and likely to remain with the company.

Why Retention is Key to Warehouse Success

The cost of employee turnover is high in terms of recruitment and training, lost productivity, and institutional knowledge. High turnover can be particularly challenging during peak seasons when companies need to ramp up their workforce quickly. By focusing on retention, businesses can reduce the need for constant recruitment and build a more experienced, reliable workforce.

Employee retention isn't just about keeping people on the payroll—it's about creating an environment where they can thrive. Regardless of pay grade, workers genuinely want to do a good job, but it's up to management to give them the right tools, culture, and respect. When companies do this, the rewards are substantial—both in terms of productivity and employee satisfaction.

Investing in People for Long-Term Success

While automation is undoubtedly changing the warehousing landscape, human labor will remain an essential component of the industry. It's estimated that only a third to half of warehouses are doing all the right things regarding employee retention. However, that number is improving as companies realize that workers are critical to their future success.

Human resource departments also play a significant role in this transformation, especially when finding creative solutions for attracting and retaining talent. While raising wages can help in the short term, it's not a sustainable solution in an industry that often operates on tight margins.

The message for manufacturers and logistics companies is clear: investing in your workforce is necessary for long-term success. This can lead to fewer errors, faster order fulfillment, and improved customer satisfaction—outcomes directly impacting a company's bottom line.

Additionally, companies that invest in their workforce often see a ripple effect, with employees becoming advocates for the organization, helping to attract new talent and enhancing the company's reputation as a desirable workplace. These advantages can provide a significant edge over competitors in an industry as competitive as logistics and warehousing.

Ultimately, businesses that view their workers as long-term partners rather than expendable resources position

themselves for sustainable growth. Investing in training, providing opportunities for career advancement, and maintaining a culture of respect strengthens retention. It also builds a more skilled, motivated workforce capable of driving innovation and navigating future challenges. **MH&L**

John O'Kelly is founder and CEO of Newcastle Systems, a provider of workplace mobility solutions.

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5 Tips for Adopting a Global Quality Management System for Logistics

by John Alden

Achieving uniformity and consistency across regions is no minor undertaking for a multinational company. Management often faces the daunting task of integrating a diversity of systems—often multiple approaches within the same region—that have been optimized for local operations.

As senior director of quality assurance for Avnet Logistics, I've been there. I led a global team in the globalization of the company's quality management system (QMS) that ensures the entire company is registered to the same standards while allowing flexibility at the local level for defining process specifics and helping customers meet local regulations.

The transition to developing a global QMS standard began about six years ago just as we noticed customer perspectives were changing. Standards already existed regionally. But customers were becoming more global and expected the same from their logistics partners. Customers expected formal, documented processes to simplify and improve the day-to-day operations. We do that for them within our 12 International Organization for Standardization (ISO)-certified global distribution centers worldwide.

Here are some tips for building a global QMS successfully.

1. Obtain Senior Leadership Commitment

Senior leadership commitment is paramount to the success of any QMS implementation. This support ensures the needed personnel and expertise are available to drive organizational change globally and enforce regional compliance. Senior leaders also set the tone and help ensure that the QMS aligns with the overall company strategy.

To obtain buy-in, contact the global leadership team and explain the value of a global QMS and how it will simplify business processes for customers. Point out how a global plan will improve relationships with customers, and in our case, improve the handling of their orders.

To demonstrate the quality of our operations, we host more than 150 site audits a year with customers, suppliers, regulatory agencies and registrars.

2. Secure Regional Stakeholder Buy-in

Logistics operations span regions with varied regulatory requirements, cultural differences and operational challenges.

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Work to build a global QMS typically begins with a documentation structure consisting of a Level 1 document (the overall quality management plan). Then, Level 2 documents talk about the specific requirements of a QMS that have been defined in the Level 1 document, and finally, Level 3 documents are the specifics for how to manage processes regionally.

The Level 1 and Level 2 documents should be written in such a way that they're generic. At Level 3 and beyond, explain the business processes and the regional specifics. By developing standardized Level 1 and Level 2 documents, they should never need to be modified.

The structure of the Level 1 and Level 2 documents allows regional flexibility within the Level 3 documents.

3. Establish a Strong Team

Ask leadership to recommend QMS team members they deem to be the most experienced in regional QMS work. Ask who within the organization has developed Level 1 and Level 2 documents as part of previous assignments.

Building a competent team is critical for successful global execution. Select individuals with diverse skills, expertise and cultural understanding to ensure comprehensive coverage of all aspects of the QMS. Empower the team with adequate training, resources and

authority to drive the implementation process effectively. Foster a collaborative environment where team members can openly communicate, share best practices, and address challenges collectively. A strong team serves as the backbone of the QMS implementation and drives long-term sustainability.

Include the registrar on that team and engage with them periodically to share what you're doing. There's been a dynamic change in the audit community over the years, with registrars now realizing they can add value by providing this type of support.

Make sure all team members feel welcome, meet regularly, and make it clear that there are no bad ideas.

4. Define Targets Clearly

Use the SMART (specific, measurable, achievable, relevant, time-bound) approach to setting targets. Evaluate the needs and priorities of each region. Establish targets within a particular fiscal year, and then work backward to set up a project plan that includes major milestones.

Set clear objectives to guide the implementation process and measure success. Communicate these targets to all stakeholders, emphasizing the importance to the overall success of the organization. Regularly monitor progress against these targets and adjust as necessary to stay on track.

5. Structure Execution to Avoid Unnecessary Delays

Diligent follow-up is critical in this step. To execute effectively, create a plan with milestones, timelines and responsibilities that are communicated frequently. Anticipate roadblocks and address them.

Adopting a global QMS for logistics operations requires careful planning, strong leadership, stakeholder engagement, team collaboration, and disciplined execution.

By following these five essential tips, organizations can navigate the complexities of implementing a QMS across diverse regions and drive continuous improvement in quality and efficiency.

Importantly for customers and suppliers alike, a global QMS sets the tone for consistency across products and services, and consistency helps build customer trust and satisfaction. It sets the tone for how a multi-national organization operates and is foundational to demonstrating that quality is a global priority when going to market. **MH&L**

John Alden is senior director of quality assurance for Avnet, responsible for ISO9001, AS9100 and ISO14001 certified quality management systems. Avnet serves tier 1 and tier 2 automotive suppliers as well as medical, military, aerospace, and commercial suppliers and products.



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Best Practices in Cybersecurity Supply Chain Risk Management

While the numbers aren't in yet for the largest supply chain cybersecurity attacks in 2024, a report by Data Theorem showed that 91% of organizations experienced a software supply chain attack last year.

Here are the top five attacks of 2023, according to Cisco.

1. Okta (October 2023):

Okta, a leading provider of identity and authentication management services, disclosed a significant breach where threat actors gained unauthorized access to private customer data through its support management system. Despite security alerts, the breach went undetected for weeks, highlighting the vulnerability of widely used services like Okta to third-party supply chain risks.

2. JetBrains (September/October 2023):

In a concerning development, the SolarWinds hackers exploited a critical vulnerability in JetBrains TeamCity servers, potentially enabling remote code execution and administrative control. This incident underscores the severity of supply chain attacks, as even trusted tools like JetBrains can be compromised, posing significant risks to organizations relying on their software.

3. MOVEit (June 2023):

The MOVEit Transfer tool, renowned for securely transferring sensitive files, was targeted in a supply chain attack affecting over 620 organizations, including major entities like BBC and British Airways. Linked to the ransomware group Cl0p, this attack underscores the urgency of promptly patching vulnerabilities and securing web-facing applications to mitigate supply chain risks effectively.

4. 3CX (March 2023):

The desktop apps of 3CX, a widely-used communications software provider, fell victim to a supply chain attack, enabling attackers to execute malicious activities within victims' environments. The fact that the attack was signed with valid 3CX certificates suggests a compromised build environment, highlighting the importance of stringent security measures in software supply chains.

5. Applied Materials (Feb 2023):

A cyber-attack targeting a business partner of semiconductor giant Applied Materials disrupted shipments, potentially resulting in losses of up to \$250 million. This incident underscores the far-reaching consequences of supply chain attacks, impacting critical industries and causing significant financial harm.

To help companies address this growing issue, the National Institute of Standards and Technology issued a best practices paper. The agency notes that "cyber supply chain risks touch sourcing, vendor management, supply chain continuity and quality, transportation security and many other functions across the enterprise."

What follows is an excerpt from the NIST report:

Cyber Supply Chain Security Principles

1. Develop your defenses based on the principle that your systems will be breached. When one starts from the premise that a breach is inevitable, it changes the decision matrix on next steps. The question becomes not just how to prevent a breach, but how to mitigate an attacker's ability to exploit the information they have accessed and how to recover from the breach.
2. Cybersecurity is never just a technology problem, it's a people, processes and knowledge problem. Breaches tend to be less about a technology failure and more about human error. IT security systems won't secure critical information and intellectual property unless employees throughout the supply chain use secure cybersecurity practices.
3. Security is security. There should be no gap between physical and cybersecurity. Sometimes the bad guys exploit lapses in physical security in order to launch a cyber attack. By the same token, an attacker looking for ways into a physical location might exploit cyber vulnerabilities to get access.

Key Cyber Supply Chain Risks

Cyber supply chain risks covers a lot of territory. Some of the concerns include risks from:

- Third-party service providers or vendors – from janitorial services to software engineering -- with physical or virtual access to information systems, software code, or IP.
- Poor information security practices by lower-tier suppliers.
- Compromised software or hardware purchased from suppliers.
- Software security vulnerabilities in supply chain management or supplier systems.
- Counterfeit hardware or hardware with embedded malware.
- Third-party data storage or data aggregators. **MH&L**

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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:

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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.

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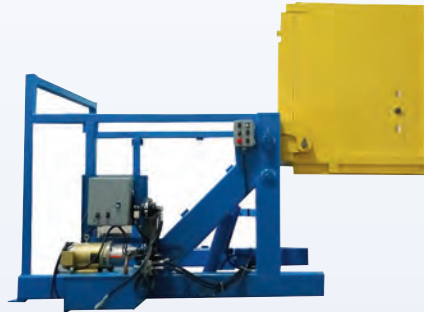


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LEADERS PROFILE

HAMILTON CASTER



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Hamilton Caster, a 117-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 lbs. to the "Ultra Maxi-Duty" line rated up to 43,000 lbs. Hamilton provides 24-48 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 in-plant trailers and platform trucks can also be custom-engineered to handle loads up to 50 tons. Consider Hamilton for all your material handling needs.

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 lbs. capacity casters for a federal contractor. Fully assembled, each caster towers 52 inches above the factory floor and weighs more than 8,000 lbs. 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-inch and 18-inch diameter raceways; flame hardened to 55-60 HRC with a total of (96) 1.5-inch diameter ball bearings. Each caster featured an eight-position swivel lock for

directional control, a huge 7-inch diameter oscillating axle to accommodate uneven surfaces and a foot-operated braking system. The massive payload required 36-inch diameter by 20-inch-wide extreme duty press-on tires with 4.5-inch diameter tapered roller bearings. Hamilton's Carts & Trailer Division designed and fabricated the integrated towing system weighing over 4,500 lbs. for the two front casters.

Wheels for Ergonomic & AGV Applications Deliver More Push & Staying Power

Hamilton offers an extensive lineup of ergonomic casters, wheels, and related accessories. The UltraGlide® wheel series is designed to reduce the energy needed to move loads in manual or powered applications. It features independent swivel surfaces that eliminate scrubbing, making turning much easier. It also has split outer raceways to minimize friction, resulting in low startup and maintenance forces.

The upgraded precision ball bearings in the UltraGlide® series, enhanced in both size and quality, more than double their lifespan. The die-cast aluminum center was designed with a concave face that concentrates the urethane's compression toward the tread's centerline. This design simulates the cushioning benefits of a thicker, softer tread, but provides the same durability and longevity as other more conventional heavy-duty wheels.

UltraGlide® features a modular design whereby the 1" wide wheels are assembled separately like a true multi-wheel arrangement, allowing for many product configurations. UltraGlide® assemblies are offered in three different polyurethane types and two tread profiles.



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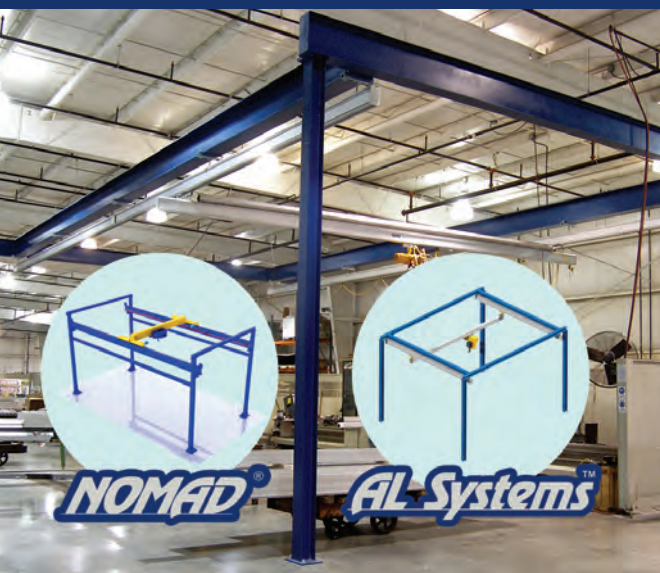
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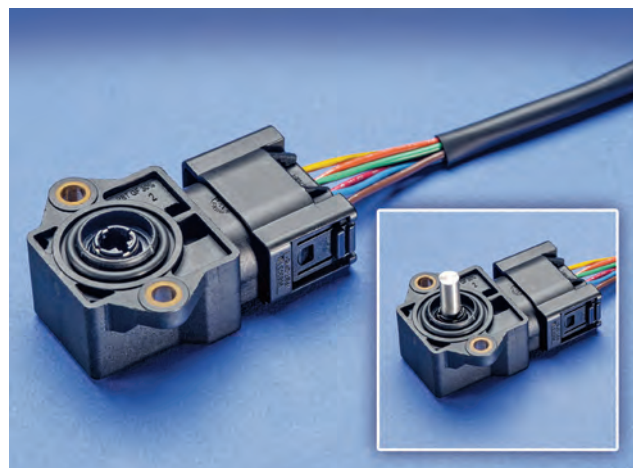
Strongest Land-Based Crane

Mammoet has launched the world's strongest land-based crane, the **SK6000**. The SK6000 allows large energy and infrastructure projects to build from bigger pieces, in parallel. The crane has a maximum capacity of 6,000 tons, using 4,200 tons of ballast to lift with a maximum ground bearing pressure of 3 tons/ft² (30 tons/m²). The crane design uses containerization techniques for ease of deployment and can be transported using shipping containers to any location worldwide. It also offers full electric power capability from battery or supply from the grid, allowing customers to reduce the carbon impact of projects significantly.

Mammoet



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The **RSK-3200 Series** of angle sensors are designed for harsh automotive and off-highway applications. The series has a measurement range of 0 to 360 degrees and a temperature range of -40 to 257°F (-40 to 125°C). The built-in coupling accepts D-shaft and the sensors are sealed to IP67 or IP69k depending on the version. RSK-3200 Series sensors have an MTTF of 285 years for each of the two channels. Repeatability is 0.5 degrees, resolution is 12-bit, and absolute linearity is within ±1.0% FS at 360 degrees.

Novotechnik

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AZCO Corp.

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Track, Analyze, and Identify Gas Leaks and Consumption

You can now track gas process parameters, analyze gas consumption, and identify gas leaks and over-consumption through the cloud with **FloCloud**. The gas manifold has Mesh Wi-Fi-enabled pressure and flow sensors that communicate data to the FloCloud online application. FloCloud reports every end user point and sends notifications if gas pressure drops or if gas flow is outside of weld procedure specification parameters, improving real-time data and reducing the need for manual checks. Additionally, complete gas consumption per welding job, per welding operator, and per overall project is tracked.

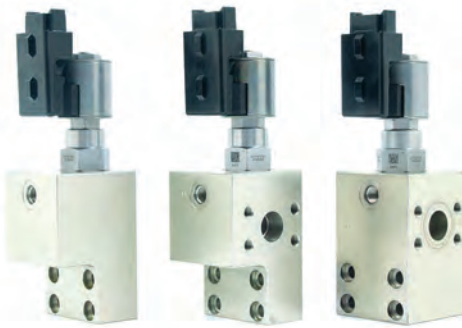
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FROM THE COVER

Electro-Proportional Relief Valve for Hydraulic Systems

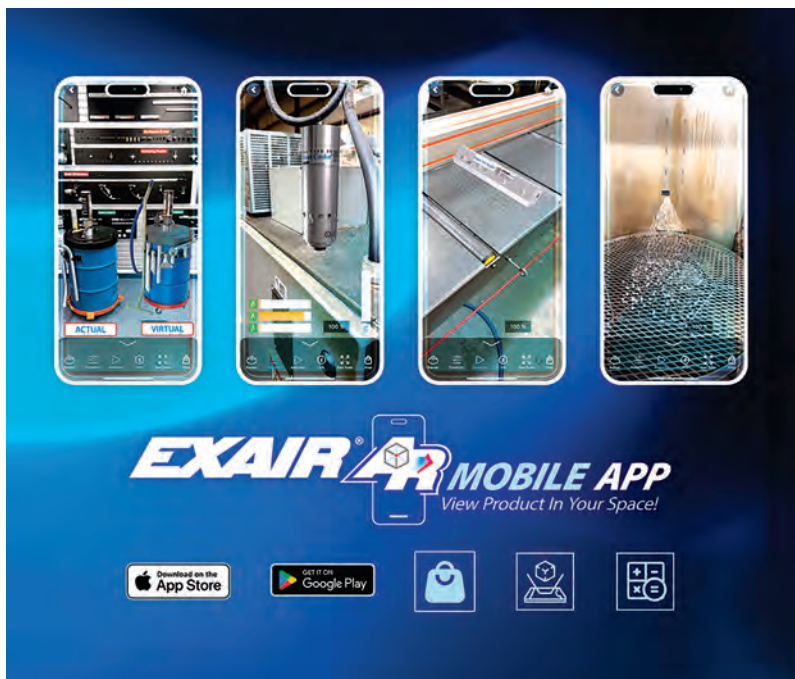
The patented **EHBL Digital Boom Control** is a pressure control valve with an electro-proportional relief valve that improves operator productivity and reduces energy consumption. An integral pressure control valve closes in the event of a hose rupture or burst. It controls the load at the base by electronically monitoring the resistance to movement of the incoming fluid on the rod side of the cylinder with a pressure sensor and adjusts the ratio to maintain stability. It also adjusts the pressure setting proportionally for optimal efficiency. This can all be controlled via onboard electronics through HydraForce's EVDR plug-on controller.



The valve has a poppet seat for low leakage and spool-type metering for improved control. The pressure control valve is designed to fit within the existing space of a pilot-operated device with an integrated housing that also contains a built-in check valve for free reverse flow. The Digital Boom Control can be used for a sequence or relief function, depending on how it's plumbed. The EHBL has a flow rating of 120 gpm (454 lpm) and can accommodate pressures up to 5,500 psi (379 bar).

HydraForce, Inc.

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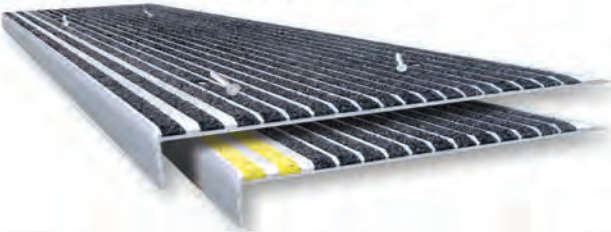
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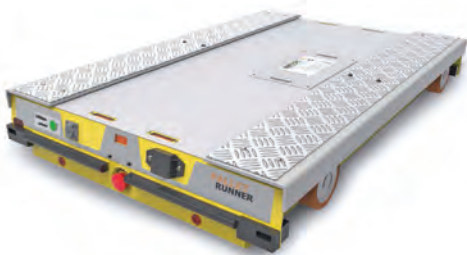


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FROM THE COVER

Chinstrap Helmet Created for Athletes Enters the Trades

STUDSON introduced a new concept version of its SHK-1, the **STUDSON by HighBar Type II Safety Helmet**, featuring the buckle-free HighBar mono-chinstrap safety system. Initially developed for action sports athletes, the HighBar strap creates a more proper and safer fit of the SHK-1 Type II safety helmet and full-brim version for workers within construction, oil & gas, manufacturing, utilities, and industrial maintenance industries.



Compared to the traditional 4-point, y-shaped nylon harness, the HighBar polymer strap arms offer a better fit system that can be easily rotated up for storage and then quickly rotated down below the chin when in use. The HighBar system can also be easily adjusted with a twist dial on the bottom to tighten or loosen the mono-strap with one hand, even when wearing heavy gloves.

The helmets feature embedded Twiceme technology, machine washable ionic+ padding, and Koroyd welded polymer tubes for shock impact. The STUDSON by HighBar helmet is expected to be available in 2025.

Studson

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Ultra-low-ESR KGU Series C0G RF multilayer ceramic chip capacitors pack multiple performance advantages optimized for communications applications into four miniature EIA chip sizes ranging from 01005 to 0805. The series features Class I C0G ceramic dielectric materials and base metal electrodes made of copper plated with a tin/nickel alloy delivering high capacitance-voltage in small case sizes. They also exhibit ultra-low equivalent series resistance, high power, high Q, high self-resonant frequencies, and tight tolerances. Rated for 16 to 250V and operating temperatures from -40 to 257°F (-40 to 125°C), they can be used for filter networks, matching networks, high-Q frequency sources, tuning, coupling, bypass, DC blocking circuits, Wi-Fi networks, and more.

KYOCERA AVX

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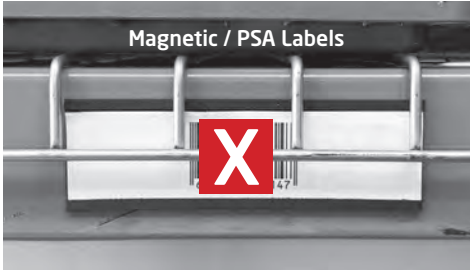
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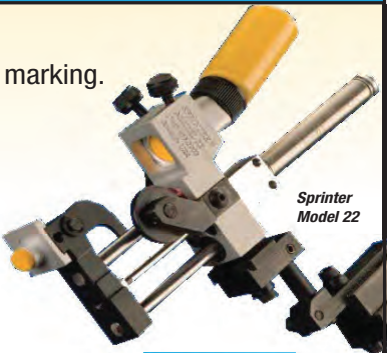
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Conta-Clip

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To Buy or Not to Buy

Let's chat about something that's been on all our minds lately—those interest rate cuts from the Fed. You know, the ones that have us all scratching our heads, wondering if now's the time to finally pull the trigger on that new equipment or facility upgrade.

So, the Fed recently trimmed rates by half a percent. Not terrible. At least it's something, right? But word is they're likely to slice off another half percent later this year, leaving most people with purchasing plans to sit tight and see what happens.

For smaller players especially, every penny counts. The thought of snagging an even better deal down the road is tempting. But here's the million-dollar question: Is waiting worth it?

Now, don't get me wrong—cheaper loans sound great on paper. But let's not forget why the Fed's doing this in the first place. They're not just being nice; they're trying to give the economy a little boost due to the inflated prices of, well, everything.

Some might say to look at the bigger picture. Are customers still buying what you're selling? Is the economy looking sunny or stormy? And these questions might be helpful but no one is going to be able to give you a definitive answer, especially for the economic outlook.

It's like buying a house. I bought my first house in late 2019. Guess what happened not 6 months later? I got lucky by buying when I did. The interest rate on my mortgage is so low that even though my husband and I are looking to move next year, it's painful to think about that higher interest rate we'll take on. I also thank my lucky stars every day we bought when we did because the housing prices are insane.

Point is, there's no crystal ball.

And let's face it, not all of us are in the same boat. If you're making cars or airplanes, you might be more willing to play the waiting game. But if you're in a fast-moving industry where last year's tech is already old news, waiting might not be a luxury you can afford.

At the end of the day, interest rates are just one piece of the puzzle. We've still got to think about things like trade policies, finding good workers, and keeping up with tech changes (that's another discussion that needs to be had).

So, what's the bottom line? Well, there isn't a one-size-fits-all answer. Maybe for you, waiting makes sense. Or maybe you're ready to strike while the iron is hot. The key is to really think it through. Ask yourself: Can I afford to wait for a slightly better deal? Or would jumping in now give me an edge over my competitors?

Here's what I think: Don't let the promise of future savings paralyze you (this coming from a self-proclaimed paralysis-by-analysis junkie). If you need that new equipment to stay competitive, go for it. But if you can hold off without losing ground, waiting might pay off.

Who knows? None of us do! But hey, aren't you glad you spent the last five minutes reading this column only to discover we're all equally clueless about the economic crystal ball? At least we're in good company! **NED**

— **Laura Davis**, Editor-in-Chief

How to Specify Additive Manufacturing for Severe Service Control Valve Applications

by Steve Freitas, R&D Director — IMI Critical Engineering

The transformative potential of metal additive manufacturing (AM) is now well established. Engineers at IMI Critical Engineering have been exploring the role of 3D-printed valve parts since 2008, and the technology has gathered pace within the business since the completion of an in-house Design for Additive Manufacturing project in 2017, enabling the use of AM across a wide range of applications.

If AM continues to develop as expected, businesses will have faster access to high-performance components that cost much less. Plant operators will no longer be beholden to long lead times or need to hold extra inventory because local printers will eliminate the physical distances between OEMs and their end users.

Beyond procurement and logistics, AM also allows manufacturers to implement and scale new valve design features for improved performance. AM can be used to make multi-stage flow control devices, including valve cages or disk stacks, flow distributors or diffusers, and multi-stage high-turndown control ball valves.

Tools Only as Good as the Hands That Wield Them

AM must be applied with care, particularly within critical applications across the power, oil & gas, and petrochemical sectors. While anyone with a 3D scanner and printer can develop components, achieving results that improve reliability and efficiency will depend on working with qualified and experienced suppliers, ensuring the technology is correctly applied for the part's chosen application.

Responsible AM application needs a clear specification process, especially for those that are still unfamiliar with its use in severe service. IMI Critical Engineering has been working on this issue for several years and we are now seeing more customers ask important questions about valve design options, materials, build qualification, and certification.

Effective application of AM will always begin with a clear understanding of the problem. This may seem like

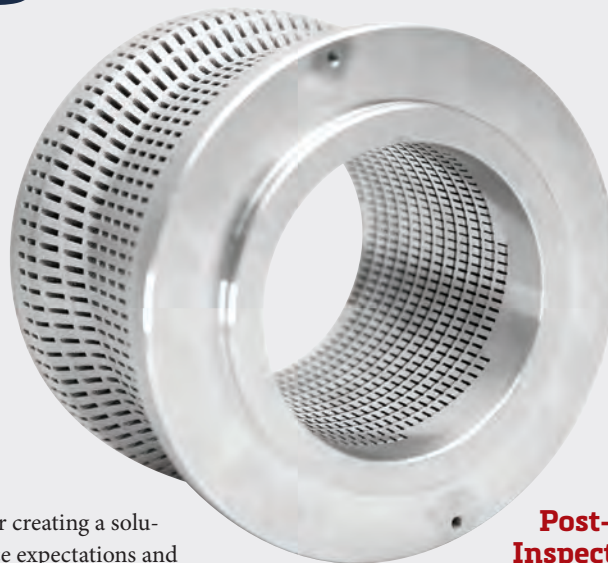
a trite point but it's essential for creating a solution that fulfills its performance expectations and is compliant with industry standards. This is especially true for an oil & gas or petrochemical plant. The operating conditions and application requirements within each are unique and often evolve over time with changes in plant output and fluid characteristics.

The AM part development effort should include a thorough assessment of the valve application. This will typically include a review of the original valve specification but also operating data, turndown requirements, duty cycle, and fluid conditions. It's also useful to examine service history since frequent repair is a clear indication of severe service and the need for a new solution.

Corrosive Service Limitations

As it stands, AM parts cannot be certified for applications adhering to NACE MR0175/ISO15156. While there has been extensive research being conducted into the performance of AM materials in corrosive service, the situation is complicated by the metallurgical characteristics of laser powder bed fusion (LPBF) materials, the variety of post-processing options, and the novelty of AM processes. Because of this, plant operators should always be made aware when the valve supplier intends to offer an AM-made part.

IMI has found some plant operators installing AM parts in corrosive service, but only on a case-by-case basis after completing a risk assessment. This assessment should determine the potential consequences of failure both up and downstream of the valve. Will the AM part be used in pressure containment or safety function, or will it be used for an internal flow control component? Are there any pipe elements or processes that could be adversely affected by loss of operation? What contingencies exist in the system? Are there parallel or standby valves available? Does the facility require critical spares on site? This isn't an exhaustive list but gives some idea of the questions posed by the introduction of AM in risk-averse environments.



Post-Processing and Inspection Options

Learnings from the assessment will be useful for establishing post-processing and inspection requirements for AM parts. There are several heat treatment options for certain materials, such as UNS N07718. Hot isostatic processing can be used to minimize porosity. Components with complex geometric features can also be scanned and compared to the original CAD design to determine if the warp has distorted during manufacturing, and flow control components can be flow tested to assess the accuracy of the build features. There are many options for qualifying the AM build and measuring component properties including mechanical testing, metallurgical inspection, impact, and corrosion testing. Each process needs to be reviewed and documented in the build specification, inspection, and test plan.

The Key to Finding the Right Solution: Strong Partnership

Unlike traditional manufacturing techniques, such as casting and forging, metal AM is developing rapidly. The build size of commercially available LPBF has jumped from 300 to almost 600 mm in recent years. Dual and quad-laser LPBF machines run faster and produce parts at lower cost. New materials have become available and industry codes and standards have progressed.

The continuous development of AM technology requires collaboration between the plant owner or operator, the valve supplier, and the AM manufacturer. This should begin with a review of the application by the plant owner and valve supplier, as described above. Consultancy should also extend to the review of the design concepts, build constraints, post-processing and inspection, and test plan with the AM manufacturer. The issues that can arise from AM can be complex, and the industry is still defining best practices, which is why it's essential to work with specialists who have a deep knowledge of control valves in severe service and AM in these environments. **NED**

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