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Tsurumi Pump's AVANT® FM Approved line of products includes the MQ series that features a highly specifiable design for even more added benefits. The AVANT MQ Series has been developed to optimize performance at the needed duty point, with energy savings resulting from the IE3 premium efficiency motors and high-performance hydraulics.

**A NOTE ON THIS ISSUE:**

Welcome to MPT for July! We're highlighting innovative technology in this issue, starting with an article from Atlas Copco's Carol Pignatelli (pg. 16). The construction sector is responsible for around 40 percent of all carbon emissions worldwide, so there is great desire for more sustainable solutions. In this piece, she shares how one building materials producer has incorporated a vacuum system for a profit-friendly way to reduce emissions.

Innovation is always in vogue when it comes to worksite safety. David Montgomery and Paul Gwynne of Survitec provide the rundown on their company's lightweight valve actuator sleeve that contains explosive failure at the source (pg. 22). The Gauntlet truly lives up to its name.

Finally, reliability and efficiency are vital in wastewater management, especially for small communities where municipal budgets are perpetually tight. However, as Amanda Auger of Industrial Flow Solutions reveals, innovation doesn't have to break the bank. See how the OverWatch Direct In-Line Pump System proves its worth for the village of Sherman, New York (pg. 24). Enjoy!



**J. Campbell, Editor**  
*Modern Pumping Today*

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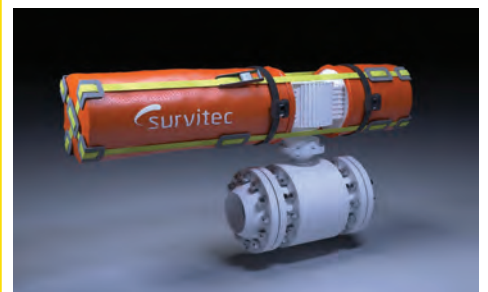
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Meet Brad, one of the technicians building Sulzer's BABA-compliant pumps at its newly expanded production facility in Easley, South Carolina. He's part of a team dedicated to providing US-made pumps of the highest quality and with significantly reduced lead times to support vital water infrastructure in America.

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## NETZSCH EXPANDS WITH NEW ASSEMBLY PLANT IN CALGARY

Netzsch Pumps and Systems is expanding its operations with a new assembly, sales, and service facility located in the foothills industrial area of Calgary, Alberta. This strategic expansion aims to bring Netzsch closer to its customers in Western Canada, enhancing local support and fostering closer collaboration with key industries in the region.

Netzsch Canada, Inc. has been providing exceptional support from Ontario for over fourteen years. The decision to open a new facility in Calgary is driven by the increasing demand from customers and the significant market potential in Western Canada, particularly in Alberta's energy sector. This new facility will enable Netzsch to work more closely with its customers and partners, providing timely and efficient local support.

The new facility is strategically positioned to serve a wide range of industries including oil and gas (upstream, midstream, and downstream), environmental and energy, food and pharmaceutical, chemical, pulp and paper, and mining. The facility spans 11,500 square feet and is equipped with heavy power and weightlifting capacity, ample yard space, and an inventory to support customer needs. This expansion will allow faster shipping of pumps and spare parts, aftersales support, and enhanced training.

## LUCAS OIL OPENS ADVANCED GREASE MANUFACTURING FACILITY

Lucas Oil announces the opening of its expanded grease manufacturing capabilities within its 400,000 square foot production facility in Indiana. The significant enhancement incorporates a new production area dedicated to developing and manufacturing industrial and commercial greases, addressing a national grease shortage that has impacted multiple industries since supply chain disruptions caused by the pandemic.

"Bringing a dedicated grease plant online was a strategic decision to increase our production capabilities and have a specialized space that can help increase our output, efficiency and ability to develop more advanced formulations," says Lucas Oil CEO Morgan Lucas. "By investing in the buildout of this facility, we're not just committing to quality; we're embracing the responsibility to boost the industrial sector and the larger economy. This plant allows us to create and deliver superior, reliable industrial greases that can enhance equipment longevity and efficiency, which is crucial for our industrial customers looking to optimize their operations and reduce downtime. Ultimately, this move is about providing a product that stands up to rigorous use and supports a sustainable economic future by improving overall industrial productivity."

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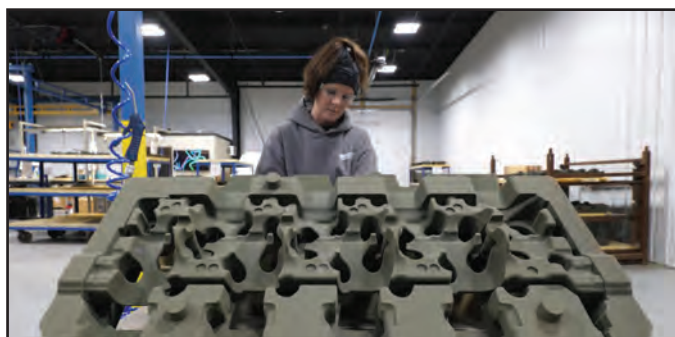
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## MWRD, COOK COUNTY ANNOUNCE \$20 MILLION INVESTMENT IN STORMWATER MANAGEMENT

To unveil a collaborative initiative between the Metropolitan Water Reclamation District of Greater Chicago (MWRD) and Cook County aimed at enhancing stormwater management infrastructure across Cook County, funded through the American Rescue Plan Act (ARPA).

The MWRD and the Cook County Department of Transportation and Highways (DoTH) are poised to announce a transformative investment of \$20 million into twenty-six critical stormwater management projects across Cook County. Supported by ARPA funding, this initiative underscores a commitment to bolstering community resilience, particularly in underserved areas vulnerable to flooding.

MWRD President Kari K. Steele will be joined by members of the MWRD Board of Commissioners, Cook County Board President Toni Preckwinkle, Cook County Commissioners Maggie Trevor (9th District) and Frank Aguilar (16th District). The MWRD treats an average of 1.2 billion gallons of wastewater each day and transforms it into clean water to protect area waterways and the source of drinking water in Lake Michigan. Also, the MWRD continues to work diligently towards flood mitigation.

## CHANGE IN LEADERSHIP AT BOSCH IN NORTH AMERICA

Bosch announces Mike Mansuetti, president of Bosch in North America, will retire on October 1, 2024, after transitioning to an advisory role on September 1. Paul Thomas will assume the role of president of Bosch in North America in addition to his existing position as president for Bosch Mobility in the Americas.

"In his twelve years at the helm of the North American region, Mike Mansuetti established a dynamic culture that focused on high-performance and cooperation across all business areas," says Stefan Hartung, chairman of the board of Robert Bosch GmbH. "We are confident that Paul Thomas will continue to build on this foundation as Bosch seeks to further accelerate profitable, sustainable growth in North America."

During Mansuetti's tenure as president, Bosch in North America third-party sales increased more than 55 percent, from \$10.6 billion in 2012 to \$16.5 billion in 2023. He prioritized regional growth around four success factors: innovation, customer satisfaction, high-performance culture and digital enablement.

He represented Bosch in many industry associations over the years, MEMA, The Vehicle Suppliers Association, and the Consumer Technology Association.



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## WERK-BRAU ADDS INDUSTRY VETERAN AS REGIONAL SALES MANAGER

Werk-Brau has recently added industry veteran Todd Kunding as a regional sales manager for the Southeastern United States. Kunding has amassed over twenty years of experience in the construction equipment industry, most recently as district sales manager for Florida Case Power Equipment.

Prior to joining Florida Case Power Equipment, he excelled in sales and sales management roles at Miller-Bradford and Risberg, Meade Tractor, and Case Power Equipment. In his new role, Kunding is responsible for supporting distributors and customers in the states of Florida, Georgia, and Alabama across the full lineup of Werk-Brau buckets, thumbs, couplers, tiltrotators, attachments, mulchers, landscape rakes, and other specialized attachments and accessories for excavators and loaders of all sizes and types.

"We're excited to welcome Todd to the Werk-Brau family," adds Werk-Brau National Sales Manager Dale DeWeese. "His values, work ethic, and customer-centered approach align well with ours. Todd's deep industry insight coupled with a positive attitude will serve our customers and distributors well in this important territory."

"I'm humbled to join this amazing company," says Kunding.

## MARS ACHIEVES NSF/ANSI 61 CERTIFICATION FOR FABRICATED TEST PORT SPOOLS

Mars Company announces that its Fabricated Test Port Spools have attained NSF/ANSI 61 (NSF61) certification, often referred to as the gold standard for safe and healthy drinking water system components. This significant achievement guarantees that the spools are free from contaminants and harmful substances, ensuring they meet the rigorous standards required for drinking water systems. This certification underscores Mars Company's commitment to providing products that meet the highest standards for water safety and quality.

"Our NSF61 certification for the Fabricated Test Port Spools is a testament to Mars Company's dedication to quality and safety," says Dave Corey, CEO of Mars Company. "We understand the critical importance of maintaining water safety standards, and this certification reflects our ongoing efforts to provide the best products for our customers."

Key Features of Mars NSF61 certified Fabricated Test Port Spools include control epoxy coating, which ensures durability and corrosion resistance; material body that is constructed from Schedule 40 steel pipe for strength; flanges that comply with AWWA C707 Class D specifications; precision-welded seams for leakproof operation, and operating pressure rated for up to 150 PSI. ■

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# FROM CURB TO CUP: FLOJET KEEPS COFFEE CARTS MOVING

*Xylem's technology offers customers more flexibility in mobile coffee applications*

BY ADAM HART AND MATTHEW CAVEY, XYLEM

The last few years have dramatically changed the mobile food and beverage landscape. While food trucks and stalls have been around for some time, the demand for more mobile options has significantly increased over the last decade—particularly with the advent of social media and the need for small vendors to look at alternative ways to jumpstart or diversify their business. The

pandemic also played a part in accelerating growth as the shutdown of restaurants and cafés around the world forced traditional food and beverage experiences outdoors.

As a result, the mobile food services market is growing at a record pace. Globally, the market had an estimated value of \$21 billion in 2022, and this is expected to grow to \$40 billion by 2033. Evolving consumer trends have

also underpinned this new demand, particularly in the coffee industry where there has been a notable rise in mobile coffee carts and vans. In addition to established mobile coffee vendors, the emergence of local roasters and artisan coffee brewers has transformed the landscape even more.

Against this backdrop, mobile coffee vendors are also tasked with keeping up with the pace of change.



The continuing consumer preference for more flavor options, the rising popularity of milk alternatives and the demand for more varied specialty drinks has evolved. Rather than offering a limited menu, mobile coffee vendors must offer an array of choices to maintain a viable presence in the market. This requires a flexible barista style set-up, which can be difficult to achieve in a mobile environment where on board stock, supplies, machinery and equipment need to be limited.

## KEEPING AHEAD OF THE COFFEE CURVE

Established in 2003, and based in New South Wales, Bombora Supplies is Australia's leading supplier of water filtration products, brewing gear, barista tools, and coffee machine spare parts for the specialty coffee industry. With a range of over 4,000 specialty products, Bombora Supplies is dedicated to helping their

customers find the right solution for the job, every time. Having supplied coffee machinery and related equipment to a varied customer base for many years, Bombora Supplies identified a problem: during the busy coffee rush, mobile coffee vendors were struggling to keep up with demand.

With limited space for multiple barista machines, coupled with the

increased expectation to offer more choice, mobile carts are extremely challenged when it comes to offering the same experience as bricks and mortar coffee houses. In a bid to identify a system that would increase capacity and offer greater flexibility within mobile coffee applications, Bombora Supplies turned to leading small pump provider, Flojet, a Xylem brand, to design a bespoke solution.

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As a leading supplier of advanced pumping solutions and related technologies, Xylem has been partnering with customers around the world, helping them solve complex problems across a wide range of industries—including food and beverage. From small cafés to large restaurant chains, Xylem and its Flojet brand, backed by a global network of expert distributors, have set the standard when it comes to the provision of bottled water dispensing equipment and technology.

### ELEVATING EFFICIENCY WITH INNOVATIVE TECHNOLOGY

In response to the problem identified by Bombora Supplies, Xylem's team of expert engineers designed a bespoke pumping solution that combined the renowned Flojet BW5000 Series Bottled Water System with an accumulator tank and supporting pipework to create the Flojet Bottled Water Booster System. The solution ultimately allows mobile coffee vendors to operate a two-group coffee machine—an upgrade that improves efficiency by making up to four coffees at any one time during the busy coffee rush.

Launched in November 2022, the Flojet BW5000 Series Bottled Water Booster System is a single solution engineered to support multiple mobile coffee machines, with numerous groups, in applications where there is no direct access to water mains. Thanks to its unique design, the innovative system maximizes constant water pressure and flow while minimizing noise. Designed to feed both bean-to-cup and traditional machines with only a bottle change over needed, coffee vendors can now enjoy uninterrupted operation while maximizing output.

Maximizing water pressure while maintaining flow is incredibly important in mobile coffee cart applications. If the pressure is too low, or there's not enough water to keep the boiler at its optimal level, it can really impact the quality of the coffee—both in terms of taste and texture.

Xylem is incredibly proud to have designed this innovative solution exclusively for Bombora Coffee Supplies. Not only does this system maximize pressure and flow to retain

the specific flavor profiles of the coffee, but Bombora's customers are now equipped with a system that provides a quality output with increased capacity—all within a small footprint. As a result, their customers can enjoy uninterrupted operation while satisfying ever evolving consumer demands.

Once the system was finalized, Bombora Supplies became the first distributor in the world to trial the solution, selling directly to its expansive customer base. Since then, Bombora has placed an order for more than 100 systems in advance of the busy Australian coffee season.

"During the initial trial period, we had some really positive feedback on the system. One customer in particular noted that, in addition to the exceptional consistency offered by the solution in terms of taste, the ability to maintain pressure while increasing volume has been a real game-changer for their operations," adds Cameron McDonald, sales and technical manager at Bombora Supplies. ■

**ADAM HART** is global product manager and **MATTHEW CAVEY** is business development manager for Xylem's Jabsco, Flojet, and Rule brands. Xylem is a leading global water technology company committed to solving critical water and infrastructure challenges with innovation. Xylem is creating a more sustainable world by enabling its customers to optimize water and resource management, and helping communities in more than 150 countries become water secure. For more information, visit [www.xylem.com](http://www.xylem.com).





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# CUTTING CARBON, BOOSTING PROFITS

## *Vacuum system enables sustainable production of building materials*

BY CAROL PIGNATELLI, ATLAS COPCO

Isola, based in Notodden in the south of Norway, offers environmentally friendly products for the construction industry. The company manufactures insulation materials, roofing membranes, wind protection and sealing products. As the construction sector is responsible for around 40 percent of all carbon emissions worldwide, there is great incentive to reduce harmful emissions with such building materials. However, efficient production is also

an important lever in counteracting climate change.

### **VACUUM SUPPLY HARBORS POTENTIAL FOR SAVINGS**

At Isola the focus is on environmentally friendly production: for this goal, energy efficiency is an important factor that is prioritized in day-to-day production—for example in the vacuum supply. The Norwegians need a sustainable central vacuum system for processes

such as extrusion, thermoforming and injection molding.

"And by choosing the right vacuum pumps, considerable savings potential can be realized in these processes," emphasizes Ulf Strand, factory manager at Isola in Notodden.

### **CONVERSION TO SPEED-CONTROLLED SCREW VACUUM PUMPS**

Until recently two vacuum pumps formed the centerpiece of these



rough vacuum applications. "However, the disadvantage of these roots pumps was their high energy consumption—up to 90 percent of the energy used was lost via the waste heat from the motor," reports Strand.

This was reason enough for Isola to adapt the production process and switch the vacuum supply to two oil-sealed, speed-controlled screw vacuum pumps instead: The GHS 2002 VSD+ including HEX@ control from Atlas Copco. A major advantage of the system for the applications mentioned is the energy recovery that the models have.

### CONTROLLER ENABLES INTELLIGENT RESOURCE MANAGEMENT

"Since the changeover, the manufacturer has been able to recover three quarters of the heat loss via hot water by means of recuperation and utilize it productively in the process," summarizes Roy Mikalsen, the responsible account manager at Atlas Copco.

The pump's HEX@ controller harbors further savings potential: this control system allows the speed to be precisely adjusted to the required vacuum level. And this is particularly useful in applications where the vacuum requirement varies greatly depending on the process and time of day. The bottom line is that there is no unnecessary vacuum

performance and no more wasted energy, which significantly increases efficiency and effectiveness.

### SMART FUNCTIONALITIES VIA USER INTERFACE

Other features are also advantageous for Isola: thanks to the Industry 4.0 capabilities of the GHS VSD+ series, the vacuum system status can be checked at any time via smartphones or PCs. In addition, users can start and stop the setup or adjust the setpoint as required via the configurable user interface.

"This allows the vacuum pumps to be configured even more specifically and sustainably for the respective applications," summarizes Mikalsen. Other optional functions include intelligent scheduling, pump-down optimization and leak detection.

### NOISE LEVEL 30 dB LOWER

The pioneering installation also fulfills modern ergonomic requirements and is 30 dB quieter than the old system. This effect is partly due to the absence of a fan. With the GHS VSD+ series, on the other hand, oil cooling ensures the optimum motor temperature across the entire speed range.

"The noise level was a relevant criterion for us when making the decision because our production facility is located in a residential area," explains Strand.

Overall, the new screw pump allows Isola to utilize important



*The GHS 2002 VSD+ including HEX@ control from Atlas Copco.*

savings potential, ergonomic advantages and a variety of intelligent functions. Based on these vacuum solutions, the manufacturer can organize its operations sustainably in the future and thus contribute to environmentally friendly construction. ■



*A major advantage of the system for the applications mentioned is the energy recovery that the models have.*

**CAROL PIGNATELLI** is product manager at Atlas Copco and can be reached at [carol.pignatelli@atlascopco.com](mailto:carol.pignatelli@atlascopco.com). At Atlas Copco Industrial Vacuum, we have revolutionized vacuum technology. Our state-of-the-art vacuum pumps and systems exemplify today's connected and digitalized industry. Our teams of exceptional and passionate people engineer customer-centric vacuum solutions that offer better energy efficiency, consumer safety, improved productivity and a sustainable future. Our products are the invisible force that drive all industrial applications and manufacturing. We are headquartered in Cologne, Germany with production centers in Germany, France, Belgium, Czech Republic, the United States, and China. For more information, visit [www.atlascopco.com](http://www.atlascopco.com).





# ADDRESSING CYBERSECURITY THREATS AND SAFEGUARDING THE MANUFACTURING SECTOR

*Protection from online attacks requires knowledge and commitment Part 2 of 2*

BY KYLE SALEEBY, GEORGIA TECH MANUFACTURING INSTITUTE, AND REBECCA TAYLOR, NCMS

See  
Part 1  
[www.mptmag.com](http://www.mptmag.com)

## CYBERSECURITY RESOURCE: CMMC

The Cybersecurity Maturity Model Certification (CMMC) program is designed to safeguard sensitive national security information from frequent and increasingly complex cyberattacks. CMMC 2.0 simplifies compliance by allowing self-assessment for some requirements, applies priorities for protecting DOD information, and reinforces cooperation between the DOD and industry in addressing evolving cyber threats.

In the first part of this series, we laid out the importance of cybersecurity for critical infrastructure. Each year, as cyberattacks increase in both frequency and sophistication, the goals of cybersecurity become more difficult to achieve. However, the National Institute of Standards and Technology (NIST)'s cybersecurity framework was developed to improve cybersecurity risk management for critical infrastructure, and it can be



used by organizations in any sector of the economy. Below, we'll assess how to minimize these risks and improve your overall cybersecurity. Although, it may be impossible to eliminate cyberattacks, with proper preparation and committed oversight, the harm from these attacks can be greatly minimized.

## HOW TO REDUCE CYBERATTACKS

Even minor mitigations with secure defenses can dramatically improve resiliency and accelerate the return to normal operations after a cyberattack. The appropriate level of security is highly dependent on the criticality of operations, information, or equipment to be protected, balanced with the cost of measures taken to prevent access and acquisition. Small and medium enterprises should conduct an evaluation of the overall production to understand each subsystem's dependencies, both in operational technology (OT) and information

technology (IT), should it fail. This information can be used to drive security decisions, compared with the cost to implement each protective measure.

Furthermore, security must be separated between IT and OT systems. Many times, these systems are linked at various points within an organization's infrastructure, such that business information can drive operational information and vice versa. While convenient, these connections must be carefully monitored to prevent contamination should one half fail.

Small and medium enterprises should also evaluate points of failure in safety systems, especially when evaluating the security risks of heavy equipment. Breach of digital systems may be powerful in a financial or IP sense, but malicious control of manufacturing systems such as laser-based processing units, motion equipment, or chemical handling pose clear risks to operator health, potentially resulting in fatalities.

Small and medium enterprises should consider these common questions during evaluations, to decide how much risk they are willing to tolerate:

1. Can you accept zero compromised systems? Why?
2. Can you accept a few compromised systems? If so, which ones?
3. How much can you spend to duplicate systems? Which are the top priorities?
4. How long can you withstand reduced access to existing systems?

Additional methods to reduce cyberattacks include:

## EMPLOYEE TRAINING

Use ongoing training and newsletters to reinforce your organization's culture of cybersecurity. Topics should include:

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- Creating strong passwords
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- Secure internet browsing
- Identifying phishing emails
- Protecting sensitive information
- Avoiding suspicious downloads
- What to do if a cybersecurity incident occurs

In addition to these training and newsletter topics, be sure to limit access to your company data; employees should only have access to the systems and specific information they need to perform their jobs. If an employee leaves your company, define a process to delete their passwords and accounts from all systems and collect company ID badges and entry keys.

## SECURE ALL WIRELESS ACCESS POINTS AND NETWORKS

One tip is to change the administrative password on new devices as well as password-protect access to the router. Set the wireless access point so that it does not broadcast its service set identifier (SSID), and set your router to use WiFi Protected Access 2 (WPA-2), with the Advanced Encryption Standard (AES) for encryption. Also, avoid using WEP (Wired-Equivalent Privacy).

If you provide wireless internet access to your customers or visitors, make sure it is separated from your business network. If you have employees working remotely, use a Virtual Private Network (VPN) to allow them to connect to your network securely from out of the office.

## INSTALL, ACTIVATE, AND UPDATE FIREWALLS

Make sure all of your business

computers are equipped with antivirus software and are updated regularly. Install and update firewall systems on every employee computer, smartphone, and networked device. Of equal importance, regularly update software associated with operating systems, web browsers, and other applications.

## PROTECT SENSITIVE BUSINESS INFORMATION

Another key step is to prevent access of business computers by unauthorized individuals. Regularly back up data on all of your computers. If possible, institute data backups to cloud storage on a weekly basis. Frequently audit the data and information your organization is housing in cloud storage repositories such as Dropbox, Google Drive, Box, and Microsoft Services. For cloud storage drives, designate administrators to monitor user permissions and give employees access only to the information they need.

Additionally, use encryption to protect all your computers, tablets, and smartphones. Save a copy of your encryption password in a secure location, separate from your stored backups. When sending an encrypted document, never send the password in the same email. Call the person to give them the password. Work with your bank and card processor to ensure

you are using the most trusted and validated tools and anti-fraud services.

## DISPOSE OF OLD COMPUTERS AND MEDIA SAFELY

Before throwing away or donating old computers, make sure you delete all valuable hard drive information. Delete any sensitive business or personal data on old CDs, flash drives, or other old media. Then destroy these items or take them to a company that will shred them. Destroy sensitive paper information with a shredder.

## CONCLUSION

Organizations new to the problem of protecting information assets will find this paper useful for internal discussions about a growing problem that could have serious impacts. Cybersecurity is especially important for firms that have government contracts. There are a variety of countermeasures that a firm can take, depending on their risk management program as well as their budget for implementation. All firms must be aware of the risks and evaluate their own situations. ■

The National Center for Manufacturing Sciences (NCMS) has been working with our partners for several years to develop appropriate and cost-effective methods to protect information assets. Obtaining the appropriate level of Cybersecurity Maturity Model Certification (CMMC) is increasingly required for government contractors. For more information, visit [www.ncms.org](http://www.ncms.org).

# CYBERSECURITY RESOURCE: CRR

The Cyber Resilience Review (CRR) is a no-cost, voluntary, non-technical assessment to evaluate an organization's operational resilience and cybersecurity practices. The CRR may be conducted as a self-assessment or as an on-site assessment facilitated by DHS cybersecurity professionals.

# CYBERSECURITY RESOURCE: ISO

The International Organization for Standardization (ISO)/International Electrotechnical Commission has the world's best-known standards for information security management systems (ISMS) and their requirements.



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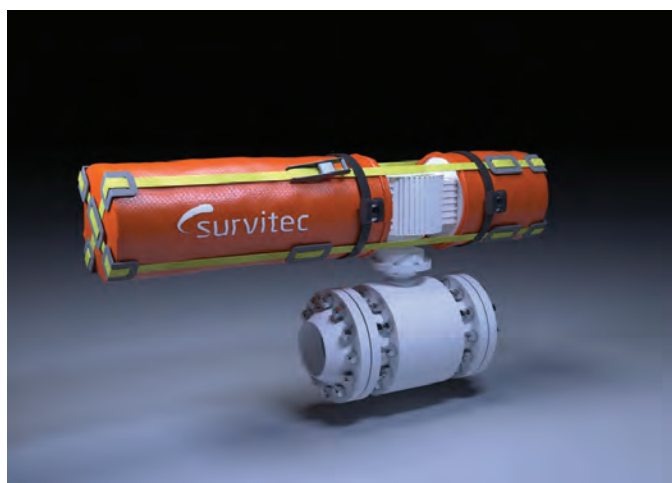
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# PROTECT YOURSELF FROM CATASTROPHIC VALVE ACTUATOR FAILURE

*For crew and asset safety, contain the force at the source*

BY DAVID MONTGOMERY AND PAUL GWYNNE, SURVITEC



Severe injury or death can be caused by the explosive forces released if a high-pressure spring-loaded actuator device fails, along with significant damage to equipment and facilities. However, there is often a lack of regular inspection and maintenance, and the risks have attracted little attention in terms of technology or regulation.

Global survival technology solutions provider Survitec has launched a pioneering new energy containment safety device designed to reduce the risks associated with catastrophic valve actuator failures.

## SHIELDING THE UNPREDICTABLE

Compatible with all valve actuator types, the Survitec Gauntlet is a protective sleeve constructed from lightweight “bullet-proof” para-aramid armoring, ten

times as strong as steel, and designed to contain the unpredictable forces of failure.

Technically qualified by the classification society Lloyd's Register, the Survitec Gauntlet provides immediate containment protection, enhancing safety measures and minimizing potential hazards. It is of minimal weight, placing no additional stress on the actuator, and protects the workings of the actuator from further corrosion and component degradation.

### FIELD TESTED

Survitec has supplied its Gauntlets to a majority of operators, including super-majors in the North Sea, and has recently received an order from a Spanish oil and gas operator.

The introduction of the Gauntlet is a testament to our proactive stance on safety enhancement. The absence of detailed regulatory control pertaining to valve actuator failures or maintenance of this critical component is a pressing issue that demands immediate attention. We urge regulators to initiate further discussions and ask operators to act promptly to safeguard their personnel and critical plants in the event of an uncontained failure of an actuator.

### TIGHT SPACES, TOUGH CONDITIONS

Valve actuator failures offshore are often due to corrosion and the age of the units, with hundreds of actuators in service on each offshore installation. The valve return spring sits in a pre-loaded or loaded condition and is powerful enough to close down the valve even during full operation. However, far too many of these actuators have been left to degrade. We are now seeing hundreds in an unsafe or unknown condition—which may be intensified by pneumatic and/or hydraulic control pressures and, therefore, a huge issue and possible danger to equipment and personnel.

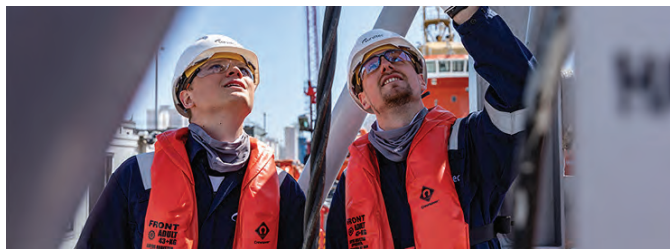
What is known is that many actuators have suffered significant corrosion of the unit's internal workings, not only the exterior weather shield, which is visible. The problem can be compounded when these actuators are tagged as non-operational or decommissioned, no longer serviced but in place, but still containing a pre-load force in the spring, which can be equivalent to several tons depending on the size of the actuator.

There have been a lot of occasions where the spring has eroded to the point of failure, then failed catastrophically, or the retaining bolt and end cap have failed and been ejected. So much so that the UK Health and Safety Executive has advised all operators to enforce action in this area.

### ANYWHERE ACTUATORS ARE NEEDED

The force and impact of an actuator failure can be violent and often potentially fatal, impacting people, critical plants and even pipelines.

The concept of the safety device was developed due to issues identified in the North Sea oil and gas sector, oil



rigs, platforms, and floating installations, such as FPSOs and FSRUs. However, the Survitec Gauntlet can be applied to any facility that operates actuator valves and where risks need to be mitigated. ■

Survitec is a global survival technology leader to the maritime, defense, and government, aerospace and energy sectors. Survitec has over 3,000 employees worldwide, covering eleven manufacturing facilities and over 400 service centers. They are a leading supplier of fire solutions to the maritime industry. Throughout its 168-year history, Survitec has remained at the forefront of innovation, design and application engineering and is the trusted name when it comes to critical safety and survival solutions. For more information, visit [www.survitecgroup.com](http://www.survitecgroup.com).



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# SOLVING SEVERE WASTE PUMPING CHALLENGES

*OverWatch Direct In-Line Pump System proves its worth for rural community in New York*

BY AMANDA AUGER, INDUSTRIAL FLOW SOLUTIONS



Reliability and efficiency are vital in wastewater management, especially for small communities like the village of Sherman in western New York. This case study explores how the OverWatch® Direct In-Line Pump System solved the problems that their wastewater treatment plant was experiencing and how OverWatch significantly enhanced overall performance.

## THE VILLAGE OF SHERMAN'S WASTEWATER CHALLENGES

The village of Sherman operates a forty-year-old package treatment plant designed to handle 140,000 gallons per day. Despite achieving impressive removal rates for biological oxygen demand (BOD) and total suspended solids (TSS), the plant struggled with outdated infrastructure at its lift station, resulting in persistent operational issues:

1

### Frequent pump clogs:

The existing centrifugal pumps were plagued by recurrent clogging, primarily caused by mop rags and other fibrous materials. These blockages disrupted operations and necessitated frequent manual interventions and shutdowns.

2

### Confined-space entry hazards:

Maintaining the 20-foot deep, 36-inch diameter wet well required hazardous confined-space entries, which posed

significant safety risks for maintenance personnel. Specialized gear and protocols were required for every inspection or repair.

**3 Disruptive maintenance shutdowns:** Due to debris accumulation, regular cleaning of bar screens and quarterly need for vacuum trucks to clean out were essential. These tasks incurred additional labor costs, led to operational disruptions, and reduced overall efficiency.

**4 High maintenance costs:** Frequent pump clogs, manual cleaning efforts, and emergency repairs escalated maintenance expenditures. The village faced financial strain from these ongoing operational inefficiencies.

#### OVERWATCH DIRECT IN-LINE PUMPING SOLUTION

Recognizing the critical need for a reliable and efficient pumping solution, the village of Sherman opted for the OverWatch Direct In-Line Pump System.

The OverWatch Direct In-Line Pump System is a breakthrough technology designed to lift influent from the point of entry, eliminating the wet well. Influent is contained, eliminating odors and reducing maintenance. The stainless-steel body is designed to withstand the effects of corrosion from harsh materials and solutions, making OverWatch an ideal solution for the Municipal, Industrial, and Commercial industries.



This advanced technology provided a comprehensive solution to Sherman's wastewater challenges. It revolutionized their infrastructure by eliminating the traditional wet well, instead lifting influent directly from the entry point, thereby reducing odor emissions and

eliminating risks associated with confined-space entries.

Equipped with dual 15 horsepower pumps featuring DIPCut® impellers and variable frequency drives (VFDs), the system adapts dynamically to fluctuating flow conditions. The DIPCut impeller design ensures

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self-cleaning by shredding and expelling debris, thus preventing clogs and minimizing maintenance needs. The quick installation and integration of the OverWatch system, completed in just 11.5 hours, swiftly transitioned the existing wet well to a dry pit configuration, minimizing operational downtime and costs while immediately enhancing operational efficiency.

The installation of the OverWatch system yielded immediate benefits for the village of Sherman:

- **ENHANCED SAFETY:** Eliminating confined space entries eliminated the primary safety hazard associated with maintenance operations, ensuring a safer working environment for personnel.
- **COST SAVINGS:** The village achieved significant labor and operational expenditure savings by reducing the frequency of pump clogs and eliminating the need for weekly bar screen cleaning and quarterly septic tank maintenance.
- **OPERATIONAL EFFICIENCY:** Continuous monitoring and self-cleaning capabilities of the OverWatch® system ensured uninterrupted operation, enhancing the overall efficiency and reliability of wastewater management processes.

The installation of the OverWatch Direct In-Line Pump System marked a pivotal moment in the Village of Sherman's wastewater management practices. By effectively addressing severe operational challenges related to pump clogs, confined space hazards, and high maintenance costs, the community

improved its infrastructure and positively impacted the environment.

This game-changing technology not only eliminates the wet well but also clogs, odors, gases, and Maintenance. Removing the wet well and installing an OverWatch system lifts the influent directly from the gravity invert. Wipes and fat, oil, and grease (FOG) do not have the opportunity to separate from the pumped liquid, keeping the fibrous material in solution and ejecting it as it arrives. Since the influent is contained, it never becomes atmospheric, eliminating odors.

## FUTURE APPLICATIONS AND RECOMMENDATIONS

The success of the OverWatch system in Sherman, New York, illustrates its potential for wider implementation across various applications. It includes upgrading infrastructure by retrofitting existing wet wells to enhance operational efficiency. The system eliminates the need for frequent maintenance tasks: weekly bar screen cleaning and quarterly vacuum truck operations.

Additionally, it facilitates cost-effective installations of pumping stations, addressing excavation challenges and reducing initial construction expenses. OverWatch delivers environmental benefits by eliminating odor issues and minimizing the ecological footprint. ■



Industrial Flow Solutions™ (IFS) is a global company headquartered in New Haven, Connecticut, USA, with facilities in Falkirk, Scotland, and Monselice, Italy. IFS specializes in the design, manufacturing, sales, & service of wastewater pumps and controls, including OverWatch® Direct In-Line Pump Systems, BJM Pumps®, Dreno Pompe, Stancor®, Oil Minder®, and DERAGGER® products ideal for the municipal, industrial, commercial, and residential applications. For more information, visit [www.flowsolutions.com](http://www.flowsolutions.com).

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# THE FUTURE OF REMOTE TANK MONITORING

*How wireless connectivity is driving new efficiencies*

*Part 2 of 2*

BY NORBERT MUHRER, QUECTEL

In part 1 of this series, we looked at some of the inefficiencies inherent to traditional methods of tank monitoring protocols found at facilities, often necessitating sending technicians to visually assess large assets with on-site inspection. Furthermore, some of these tank site house materials hazardous to

human exposure, making a remote monitoring solution desirable from a safety standpoint as well.

However, despite the technology supporting remote monitoring data being relatively simple and widely available, operators have yet to take full advantage of its potential. Below, we'll examine some of the

requirements for bringing accurate data through the gateway as well as the cost benefits remote tank monitoring can provide.

## FROM THE GATEWAY TO THE DATA

Gateways for remote tank monitoring are typically powered by either

mains electricity or batteries, either as a backup or to enable operations where mains power is unavailable or complicated to connect. Gateway devices typically contain a SIM card for cellular connection, a CPU and GPIO input and output ports. They also contain a cellular module and a GPS module—where required—plus an antenna to enable the connection.

Device requirements include robustness and low power consumption as well as the ability to support multiple frequency bands to maximize the number of sites in which a tank can be deployed. The gateway is then able to collect and send tank data to a central database for processing and acting upon. This typically happens via a remote tank monitoring service provider's application that can analyze and process data from all of an organization's tanks to perform trend and predictive analytics and to exchange data with third party

applications, such as maintenance and other functions.

## UNLEASH THE BUSINESS BENEFITS

Remote tank monitoring has now matured to the extent that hardware in the form of sensors and the gateway is now available for less than \$100 per unit with costs for integration and software running at under one dollar per month, per unit. This makes remote tank monitoring increasingly viable for even lower value use cases. If you consider the average cost of a cargo drop is around \$65, having risen substantially due to increased fuel costs, it is clear to see how rapidly remote tank monitoring solutions can generate a return on investment. The figure below details how a fuel delivery truck can optimize its route by utilizing remote tank monitoring data to understand which tanks need filling. The model suggests an increase in efficiency from 45 to 70 percent.

## KEEP CRITICAL INFRASTRUCTURE SECURE

Tanks are not only fundamental to the smooth operations of numerous business processes, in many cases they are also critical infrastructure. Tanks that hold diesel to power generators at hospitals or factories are obvious examples of situations in which continuous power supply is essential but water tanks and heating fuel tanks are also critical to a wide variety of situations. Security is therefore a fundamental consideration for remote tank monitoring and an area that Quectel has focused on intently.

Quectel implements rigorous security measures to ensure the integrity of its products and services alongside customers' privacy and data management. As a member of industry bodies including GSMA, CTIA, CTA, 5GAA, 3GPP, and GSA, Quectel actively participates in working groups to advance the IoT sector and security standards.

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Quectel modules conform to the network access standards of global operators and follow all the necessary network security specifications. Organizations that deploy remote tank monitoring solutions that utilize Quectel modules and antennas can therefore be assured that Quectel understands the security threats this market faces and is working continuously to mitigate these to help keep customers' monitoring solutions secure.

### CASE STUDY: KEEPING PERSONNEL AWAY FROM HAZARDS

LevelCon is a pioneer in the field of monitoring and tracking using advanced low power wide area (LPWA) networks. The company has been in the telemetry business since 2002, when it launched its first remote monitoring application using 2G and SMS, and is a full-service provider IoT company for critical data acquisition. The company focuses on providing monitoring solutions with a tracking feature and has recently introduced its StarPin product series, which utilizes the Quectel BG95-M2 module.

StarPin is a Class I Division 1, group D-certified device capable of satisfying asset monitoring and tracking use case requirements of hazardous and non-hazardous materials at any location. StarPin is completely solar powered and helps industries in reducing their carbon footprint. In addition, the product is easy to use and can work indefinitely without any need for human intervention on solar power. StarPin is capable of bi-directional communication which enables remote provisioning and remote configuration, allowing industrial organizations to configure the unit without having personnel enter a hazardous area.

StarPin can communicate with Bluetooth Low Energy (BLE) sensors with mesh capabilities. This creates a complete industry-ready sensor node capable of being deployed in any use case. Large numbers of StarPin units are deployed in use cases such as propane monitoring and hydrogen monitoring which require hazardous area Class I division 1 certifications.

Facing two challenges, in the form of GNSS implementation and NIDD connectivity, LevelCon was able to turn to Quectel for guidance and, in addition to using the Quectel BG95-M2 module for all connectivity requirements, also uses Quectel GNSS antenna solutions for StarPin. StarPin is now being deployed in India, Australia, Canada, and the United States.

### CONCLUSION

The large number of remote tanks that are already deployed across the globe will benefit enormously from the addition of remote tank monitoring solutions. These will remove over- and under-supply challenges, save wasted transportation costs and time, and help to ensure the condition of tank contents is maintained effectively and safely. Connectivity powers this cost-effective sector that is characterized by a mature retro-fitting market and a newer market in which new tanks are shipped with sensors integrated.

The remote tank monitoring sector will only continue to grow, bringing greater benefits for connected tanks as more and more data is gathered and predictive analytics empowers more precise insights to enable greater optimization on deliveries. ■

Quectel's passion for a smarter world drives us to accelerate IoT innovation. A highly customer-centric organization, we are a global IoT solutions provider backed by outstanding support and services. Our growing global team of 5,900 professionals sets the pace for innovation in cellular, GNSS, Wi-Fi, and Bluetooth modules as well as antennas and services. With regional offices and support across the globe, our international leadership is devoted to advancing IoT and helping build a smarter world. For more information, visit [www.quectel.com](http://www.quectel.com).

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### FUELPRO MULTI-TANK SERIES

FuelPro Trailers introduces their multi-tank line, which allows users to legally transport diesel fuel without a HazMat endorsement. In addition to the 700-gallon version shown, 475-gallon, and 950-gallon models are also available in either skid-mounted or DOT-complaint trailer-mounted configurations. FuelPro multi-tank trailers can be customized with additional compartments for DEF, grease, hydraulic fluid, engine oil, reclaim oil, water, anti-freeze, and gear oil. For more information visit [www.fuelprotrailers.com](http://www.fuelprotrailers.com).



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# PEDAL TO THE METAL

## *IACMI's Joannie Harmon on combatting workforce shortages in U.S. casting and forging industry*



In a concerted effort to address the critical workforce shortages in the U.S. casting and forging industry, IACMI—The Composites Institute, in a multi-million dollar partnership with the Department of Defense's (DoD) Industrial Base

Analysis and Sustainment (IBAS) Program, announced that it has partnered with Pennsylvania State University (PSU), the University of Tennessee, Knoxville (UTK), and Jobs for the Future (JFF) to support a groundbreaking national workforce initiative: the Metallurgical Engineering Trades Apprenticeship and Learning program, or METAL. Below, IACMI's Joannie Harmon discusses the strategic importance of this initiative.

**MPT:** *How did this program come about?*

**JOANNIE HARMON:** The Metallurgical Engineering Trades Apprenticeship and Learning program (METAL) has been established in response to the DoD's identification of a need for an additional 122,000 skilled personnel in essential roles by 2028. This program aims to strengthen national defense through workforce development and technological advancement.

METAL focuses on growing the U.S. industrial base's competitiveness against national security threats. The initiative seeks to develop a resilient domestic workforce to sustain and enhance the nation's casting and forging capabilities through 2050. This effort will address vulnerabilities within the U.S. defense supply chain, which currently relies heavily on foreign sources for critical cast and forged products.

**MPT:** *How did IACMI get involved?*

**JOANNIE HARMON:** IACMI, with its proven track record in technical training through programs like America's Cutting Edge (ACE), will expand educational initiatives focusing on essential base metal processes, including casting, forging, and plate production nationwide. The goal is to cultivate a skilled workforce ready to embark on and sustain careers in these industries. This includes engaging a diverse audience, from K-12 students to adults seeking further training or new career pathways.

**MPT:** *What are some of the goals of this initiative?*

**JOANNIE HARMON:** Fostering the development of an industrial base workforce and ensuring the availability of the right skill sets – from skilled trades on the shop floor to doctoral-level engineering in research – is vital to national security. Our goal for METAL is to ensure that the nation's advanced manufacturing workforce is a source of strategic and competitive advantage for the United States. Supporting the casting and forging sector is a critical role IACMI plays in creating a robust talent pipeline with twenty-first-century capabilities and skills.

**MPT:** *What role do the universities and other groups play in this partnership?*

**JOANNIE HARMON:** PSU and UTK are co-developing online and in-person curricula tailored to various audiences, including outreach events for elementary students, workshops for middle and high school students, five-day boot camps for those aged 18 and over, and advanced metallurgical engineering courses and certificate programs.

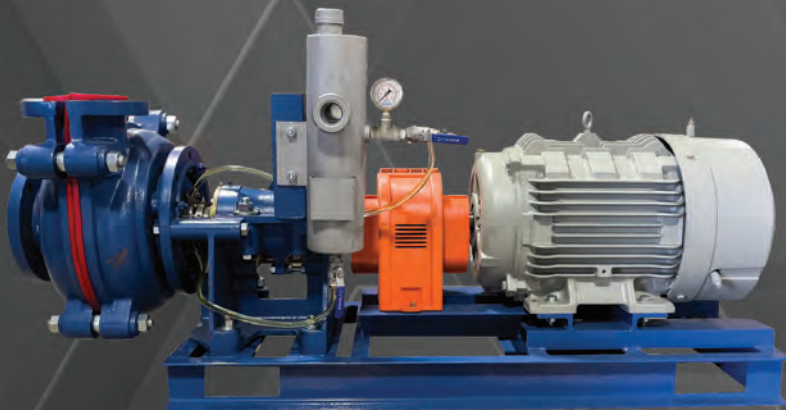
JFF will play a crucial role in developing apprenticeship programs and upskilling workers across the country, helping companies recruit, train, and retain a more loyal and productive workforce. This effort is essential for ensuring national security and economic vitality. ■

IACMI—The Composites Institute is a 150-plus member community of industry, colleges and universities, national laboratories, and government agencies working together to benefit the nation's energy, manufacturing, and economic security. IACMI is managed by the Collaborative Composite Solutions Corporation (CCS), a not-for-profit organization established by the University of Tennessee Research Foundation. A Manufacturing USA institute, IACMI is supported by the U.S. Department of Energy's Advanced Materials Manufacturing Technologies Office, as well as key state and industry partners. For more information, visit [www.iacmi.org](http://www.iacmi.org).

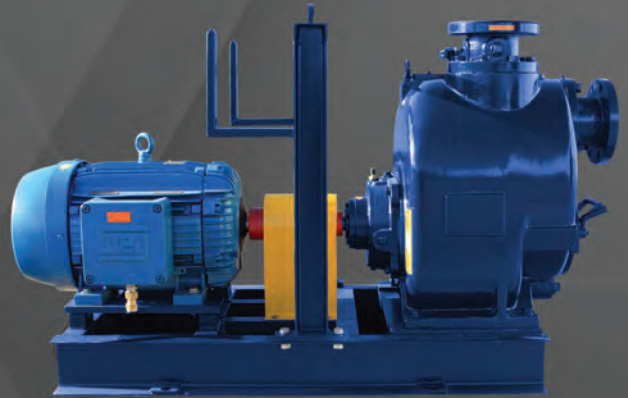


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