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The Impact of Banning “Forever Chemicals”

16 Many products in the flow control industry use PFAS in coatings, seals, gaskets and more. Pending government bans and regulations could cripple industry.

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Innovating to Comply, Our Industry Is at a Crossroads

Depending on who you ask, industrial valves might not be the most exciting aspect of a plant, but they're the unsung heroes that keep operations running smoothly. In today's market, the industrial valve industry finds itself at a pivotal juncture, grappling with evolving regulations, and refining and developing products to account for these changing conditions.



One of the pressing concerns confronting manufacturers and operators alike is the implications to the industry from new regulations regarding per- and poly-fluoroalkyl substances (PFAS). While some types of PFAS have been highly regulated and controlled for quite some time, others have not been subject to the same type of review, oversight and regulation, as there was no link to health effects. However, due to PFAS being found

in drinking water, governments are tightening regulations on all types of PFAS. In fact, on April 10, 2024, the EPA passed a new regulation specific to six PFAS in drinking water.

Many PFAS are used because they provide beneficial properties in critical applications that cannot be matched by other materials — from reducing emissions to meeting clean air requirements, increasing operational efficiency and protecting workers. Keeping abreast of activity surrounding PFAS is crucial for businesses to avoid regulatory penalties and safeguard public health. See our cover story on page 16 to learn more about the current situation and potential impacts on our industry, and what VMA is doing on behalf of its members and industry on page 18.

EPC firms bring together engineering expertise, procurement capabilities and construction management under one umbrella, streamlining the entire project life cycle. This integrated approach can benefit firms by minimizing risks, optimizing costs and accelerating project timelines, all while adhering to regulatory requirements. Collaborating with experienced EPC partners can be the difference between a seamless project and costly delays. Learn more, including specific considerations for valves and actuators in the design and build process, in our story on page 26.

We strive to educate you on this dynamic industry, it's imperative that *Valve* Media and VMA are up to date on these developments, providing you with timely insights and analysis. Our mission is to empower industry professionals with the knowledge and tools you need to navigate the ever evolving landscape. Let us know how you're navigating these challenges at your company.

Cheers!

Heather Gaynor, Editor-in-Chief
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INDUSTRY NEWS

First National Legally Enforceable Drinking Water Standard for PFAS Passed

On April 10, the first ever national, legally enforceable drinking water standard to protect communities from exposure to harmful per- and poly-fluoroalkyl substances (PFAS), also known as “forever chemicals,” was issued. Exposure to some PFAS has been linked to deadly cancers, impacts to the liver and heart, and immune and developmental damage to infants and children.

This final rule represents the most significant step to protect public health under the EPA’s PFAS Strategic Roadmap. The final rule will reduce

PFAS exposure for approximately 100 million people, prevent thousands of deaths and reduce tens of thousands of serious illnesses. The announcement complements President Biden’s governmentwide action plan to combat PFAS pollution.

In addition to this ruling, the EPA is announcing nearly \$1 billion in newly available funding through the Bipartisan Infrastructure Law to help states and territories implement PFAS testing and treatment at public water systems, and to help owners of private wells address PFAS contamination. This is part of a \$9 billion investment through the Bipartisan Infrastructure Law to help communities with drinking water impacted by PFAS and other emerging contaminants — the largest ever investment in tackling PFAS pollution. An additional \$12 billion is available through the Bipartisan Infrastructure Law for general drinking water improvements, including addressing emerging contaminants like PFAS.

For more information on PFAS and its impact on the valve industry, see the feature story on page 16.



IMI Delivers More Than \$18 Million in Orders for Hydrogen Projects

IMI has announced a record year for orders throughout the hydrogen value chain in 2023. Last year, the company doubled its 2022 orders to deliver more than \$18 million USD (£15m) worth of projects to support hydrogen generation.

Key milestones included a successful field test of the company’s IMI Vivo polymer electrolyte membrane (PEM) electrolyzer at its 16,000 m² facility in Sardinia in May 2023.

Available in 100 kW to 5 MW power class skids, the IMI Vivo electrolyzer can be made fully bespoke to end-user requirements thanks to a ‘turnkey’ configuration that includes a high- or low-pressure storage tank, compressor and optional fueling equipment.

Blue Biofuels Announces Commencement of Engineering Study for Ethanol Plan

In a recent development, Blue Biofuels Inc. (BIOF) announced the commencement of a front-end loading (FEL) 1 & 2 engineering study for a 2.4-million-gallon cellulosic ethanol facility. This project is in support of the company’s Cellulose-to-Sugar (CTS) system, which has undergone and is undergoing continuous refinement and optimization for the conversion of cellulosic biomass into ethanol.

The engineering study outlines each process step, technical layout and required equipment for the facility. Even at this initial volume, viability of the CTS process in yielding positive margins. Blue Biofuels is preparing to scale up its engineering design for larger facilities to enhance profitability.

Drawing on the success achieved in its pilot plant, Blue Biofuels



remains committed to further enhancing its processes, focusing on catalyst recycling and lignin separation for potential sale. While lignin sales are not yet factored into the model, ongoing optimizations signify a commitment to maximizing efficiency and sustainability.

Interior Department Finalizes Rule Reducing Oil and Gas Waste on Tribal Lands

The Department of the Interior announced a final rule from the Bureau of Land Management (BLM) that will curb the waste of natural gas during the production of oil and gas on federal and tribal lands. This final rule modernizes regulations that are more than 40 years old, and will hold oil and gas companies accountable by requiring measures to avoid wasteful practices and find and fix leaks, while ensuring that American taxpayers and tribal mineral owners are fairly compensated through royalty payments.

The rule is expected to generate more than \$50 million in additional natural gas royalty payments each year to the federal taxpayer and tribal mineral owners, while conserving billions of cubic feet of gas that might otherwise have been vented, flared or leaked from oil and gas operations. This conserved gas will be available to power American homes and industries.

“This final rule, which updates 40-year-old regulations, furthers the Biden-Harris administration’s goals to prevent waste, protect our environment and ensure a fair return to American taxpayers,” says Secretary Deb Haaland. “By leveraging modern technology and best practices to reduce natural gas waste, we are taking long overdue steps that will increase accountability for oil and gas operators, and benefit energy communities now and for generations to come.”

The final rule responds to a series of U.S. Government Accountability Office reports highlighting revenue lost due to the BLM’s outdated regulations. Several states — including Colorado, New Mexico, Pennsylvania and Wyoming, as well as the U.S. Environmental Protection Agency (EPA) — have taken steps to limit venting, flaring and/or leaks from oil and gas operations either for purposes of preventing waste, as is BLM, or improving air quality. The BLM rule is separate and distinct from the EPA rule and ensures that operators can comply with applicable state, tribal or federal rules while meeting these commonsense requirements.

Metal Processing International and Oklahoma Custom Coating Rebrand as ecoat.us

Metal Processing International and Oklahoma Custom Coating, two leading companies in metal processing and coating services, announced their rebranding as ecoat.us, effective immediately. With this rebranding, ecoat.us aims to better reflect the company’s commitment to sustainable and advanced electrocoating practices, while continuing to provide exceptional service to its customers. The name change aligns with the company’s mission to be at the forefront of advanced electrocoating solutions.

Under this new brand, ecoat.us will continue to provide a comprehensive



range of metal processing and coating services, including but not limited to electrocoating, powder coating, metal cleaning and surface treatment.

Ecoat.us will retain the same ownership and management personnel as its predecessor companies.



First Corporate Green Bond for Nuclear Energy from Constellation

Constellation, the nation’s largest producer of carbon-free energy, issued the first corporate green bond in the United States that can be used to finance nuclear energy projects. Constellation will use proceeds from the \$900-million, 30-year term offering for investments such as maintenance, expansion and life extensions of its clean, reliable nuclear power generation that reduce or avoid carbon emissions, or provide other environmental benefits.

A green bond is a financial instrument that is issued specifically to finance projects or activities that deliver positive environmental or climate impacts. It enables investors to actively support investments that promote sustainability and help address environmental challenges.

“Elected officials on both sides of the aisle, climate and sustainability advocates and the general public are increasingly recognizing the value nuclear energy delivers, not only for its unmatched reliability but for its positive environmental impact as a clean energy resource. The strong market response shows the investment community agrees nuclear energy is a unique clean-energy technology that will play a critical role for decades to come and is a safe, long-term investment,” says Dan Eggers, executive vice president and CFO, Constellation. “With the nation’s first-ever corporate nuclear green bond issuance as part of our long-term financing mix, Constellation and the market have again confirmed: Nuclear investments are long-term sustainability investments.”

Learn more about Constellation’s sustainability performance in its 2023 sustainability report.

Acquisitions/Sales



CDI Acquires Gilmore

Control Devices, a portfolio company of HBM Holdings, has acquired Gilmore. The acquisition expands Control Devices' flow control solutions portfolio while widening its reach in the oil and gas market. The acquisition also broadens HBM Holdings' expertise in the flow control sector.

"Gilmore has a history of excellence in the development of severe service flow control solutions and is known for quality and operational excellence, all supported by the talented Gilmore team," says Jim Norris, president and CEO of Control Devices. "With this acquisition, we are enthusiastic about expanding our products, technology and capabilities."

Headquartered in Houston, Texas, Gilmore designs and manufactures high-performance severe-service valves and other flow control solutions, including custom valves to meet client specifications and pressure relief systems. Its products are designed for demanding applications and harsh environments in the upstream oil and gas industry.

Talos Energy Announces Divestiture of Subsidiary to TotalEnergies

Talos Energy Inc. announced that it has entered into an agreement for the sale of its wholly owned subsidiary, Talos Low Carbon Solutions LLC (TLCS), to TotalEnergies E&P USA Inc. for a purchase price of \$125 million plus customary reimbursements, adjustments and retention of cash, combined totaling approximately \$148 million. Talos intends to use the proceeds from the sale to immediately repay borrowings under its credit facility and for general corporate purposes.

The sale includes Talos' entire carbon capture and sequestration (CCS) business, including its three projects along the U.S. Gulf Coast: Bayou Bend CCS LLC, Harvest Bend CCS LLC and Coastal Bend CCS LLC.

Talos president and chief executive officer Timothy S. Duncan says, "Since TLCS' inception, we have successfully applied our energy expertise as an early mover aimed at developing decarbonization solutions along the U.S. Gulf Coast. The transaction will further enable Talos to prioritize cash flow generation and optimal capital allocation in our core Upstream business. We are also continuing

NSF Acquires PSILab Inc.

NSF, a global public health and safety organization, announced the acquisition of PSILab Inc., a U.S.-based advanced product testing and consulting laboratory specializing in plastic pipe, pipe materials, and other polymeric and composite products.

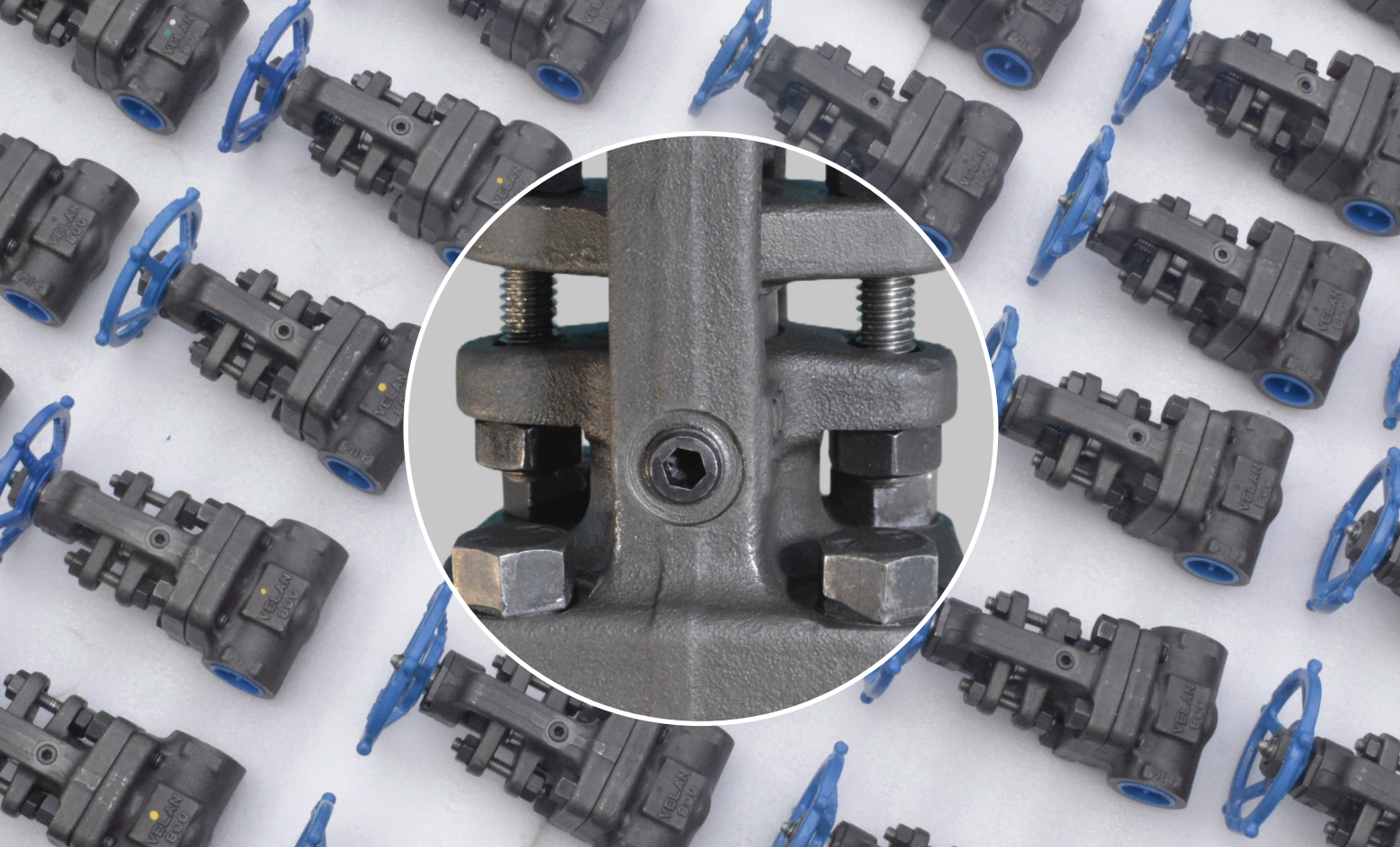
An ISO 17025-accredited, state-of-the-art laboratory, PSILab Inc. is located in Longmont, Colorado, and provides laboratory testing, failure analysis and consulting services. As a result of the acquisition, existing NSF clients will have added access to new testing services, including material properties and large-diameter pipe testing, finished goods hydrostatic pressure and burst testing, extensive product failure analysis and plastic pipe consulting.



Curtiss-Wright Completes Acquisition of WSC Inc.

Curtiss-Wright Corp. has completed the acquisition of WSC Inc. for approximately \$34 million in cash. WSC is a provider of state-of-the-art simulation technology that supports the design, commissioning and reliable operation of commercial nuclear power generation and process plants worldwide with an installed base of over 225 plant simulators. The acquired business will operate within Curtiss-Wright's Naval and Power segment.

WSC's proprietary 3KEYMASTER simulation platform is used in its nuclear full-scope simulators mandated by the Nuclear Regulatory Commission (NRC) and remain integral to reactor operator training and licensing. Simulation-assisted engineering tools optimize the design and commissioning of plants, including Advanced Small Modular Reactors (ASMRs), by creating a digital twin of plant components and systems to reduce risk, accelerate delivery and improve quality at a lower cost.



Velan small forged valves get a BIG design update

Velan has added pre-drilled/tapped field injection ports (FIP) as a standard feature on all API 602 small forged bolted bonnet gate and globe valves NPS ¼–2 (DN 8–50), Class 150–1500. This patent-pending design upgrade adds life to an already high-performance valve by allowing for precise application of Low-E injectable packing should a repair be required as part of a LDAR compliance program. Our FIP valves maintain API 602 wall thickness and comply with API 622, API 624, and ISO 15848-1 for fugitive emissions.

To learn more about how Velan supports end-user ESG initiatives, contact sales@velan.com for more information.

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Standards Spotlight: Shoot the Breeze

The British Valve and Actuator Association, VMA's complement in the UK, is the voice of our industry "across the pond."

BY: ROB BARTLETT, Director & CEO

COMPANY: BVAA

I'm sure every 'Brit' who has travelled to the USA has, due to their accent, an anecdote or two about being mistaken as coming from somewhere else ... I was once asked if I was both Scottish and Australian on the same day, and famously in an Amero-German diner if I was Swedish! My colleagues found this hilarious, and promptly rechristened me 'Bo Bartlettson' for the rest of the trip!

However, the old trope about the U.K. and the U.S. being 'two nations divided by a common language' is, I believe, quite wrong. In over 30 years of foreign travel on association business, I have consistently found completely the opposite to be true. There's a natural affiliation between our two great nations that inevitably leads us to seek out each other's company, to socialise and to work cooperatively together.

Brexit

That natural cordiality really pays off when it comes to finding out what's going on with standards, regulation and governance. The U.K. has formed a bridge between the U.S. and Europe for generations, and I know that 'Brexit' caused real concern up to to the presidential level. In truth, it's been every bit as taxing for us Brits in industry, and badly handled by our government, with legislation often behind rushed policy, with confusion and lack of clarity reigning supreme.

BVAA's technical team applied extensive effort in examining, interpreting and critiquing the proposed UK-centric legislation, which often affected far more deeply than anyone at first realised. After a great deal of lobbying, consultation and government backtracking, we seem to have been largely successful and are limping back to our close alignment with Europe when it comes to legislation and conformity assessment. There is still some risk of divergence, of course, but this may all change again with the next administration.

PFAS

Of interest to both our associations has been the proposed ban on PFAS materials, used widely for sealing purposes. Ill-considered and badly conceived, with no real alternative materials on the horizon for some critical applications,

there's been a huge backlash from industry, with many of the comments coming from the European countries that proposed the ban in the first place. There's been a massive response to the consultation and, with some 5,600 comments delivered by the deadline, the original target dates for 'final opinion' are likely to be missed. While some measures are no doubt required to remove unnecessary and gratuitous use, and to manage end-of-life care, a real fear is that all European legislation on PFAS will do is drive production outside the continent to places with far less concern about damaging the environment.

Standardisation

The membership makeup of the BVAA and VMA are very similar, with branches of the same businesses actively involved with us on both sides of the pond. Historically, ISO and CEN standards were a focus over here for many years, especially when we were aligning ourselves with the EU. Increasingly API, ASM and lately IOGP overlays have become core topics for our technical committees. It's been a delight to work closely with our colleagues in API especially, and indeed the BVAA has been honoured to host API meetings on two occasions at our UK headquarters in recent years, with an open invitation to do so again.

For more information, or if you would like 'shoot the breeze' with BVAA, contact us at +44(0)1295 221270 or enquiry@bvaa.org.uk.

Editor's note: In deference to our esteemed colleague, we have left the author's UK spellings in this article as originally submitted.

Edited for space; full article available online.

ABOUT THE AUTHOR

Rob Bartlett, Director and CEO of BVAA, has over 40 years' experience in engineering/fluid controls, 20 of those as CEO of BVAA.



Serving Industry 1939 - 2024



It Was an Exciting Spring for VMA!

Since the pandemic, VMA has refined its in-person events to three cornerstone events each year, with others offered as needed. In the fall, VMA holds its premier event for industry leaders in our membership, the VMA and VRC Annual Meeting. In the summer, it is the Market Outlook Workshop, perfect for those with marketing, sales and business responsibilities at our member companies. And, in the spring, we hold the Valve Forum: Conference & Exhibits – which is one of the few events that is open to anyone in the industry. This year, we launched a new event alongside the Valve Forum, the Hydrogen Valve Summit.

Thanks to the VMA Committee members who worked hard to find the best speakers on the topics that are of most interest to our industry – both events were very well received and a great success! While the Valve Forum does have an exhibit area, it is the education and speakers that take center stage. The addition of the Hydrogen Valve Summit only reinforced the strength of the content delivered at VMA's events.



VMA's Board of Directors also met this spring to help guide the organization through the myriad issues and opportunities the industry is facing. At both the Board meeting, and the Valve Forum and Hydrogen Valve Summit, conversations on energy, sustainability, technology, innovation and growth, government affairs and PFAS were repeated.

While VMA is working on all those issues, our response to potential PFAS bans is front and center. VMA has been working and will continue to educate lawmakers and other external constituents, and respond on behalf of our members to the attempts to ban and treat all PFAS in the same manner, without regard to their benefits, risk to human health or detriment to the environment. Most recently in March, VMA submitted comments to both Maine and Minnesota on the importance of using some PFAS in the equipment of the manufacturing facilities of so many of our end-use markets. Additional information on this is throughout this issue of *Valve* and is the topic of a workshop this fall.

VMA's role is to also bring our members together to share information and address, together, how best to navigate through many of the headwinds and also the opportunities ahead. Whether PFAS, new markets like hydrogen, meeting sustainability goals or responding to stakeholders on sustainability and other issues, we are better together. I'm grateful to the member companies who are part of VMA and who take advantage of the benefits from VMA's role in convening the industry. If you aren't a part of VMA, please contact me to find out how to get involved and to learn more about what you are missing.

Heather Rhoderick, CAE
President

A Successful Hydrogen Valve Summit and Valve Forum: Conference & Exhibits

This section of Valve will provide readers with a look into some of the key issues and activities VMA is actively addressing. Members can contact VMA for more detailed information. To learn about becoming a VMA or VRC member, contact VMA President Heather Rhoderick at hrhoderick@vma.org

The Valve Manufacturers Association (VMA) recently held its inaugural Hydrogen Valve Summit and annual Valve Forum: Conference & Exhibits in Houston, Texas. More than 150 people gathered for the events, including manufacturers, distributors, suppliers and end users from the flow control industry.

The three days kicked off with the Hydrogen Valve Summit on Tuesday, April 9. This one-day summit featured discussions on topics such as the energy transition and hydrogen gas turbines;

the pathway for decarbonization and hydrogen; hydrogen valve standards; and the intersection of sustainability and hydrogen solutions. The speakers provided information on the overall hydrogen market and landscape, including investments and activities by governments and other non-governmental organizations (NGO), as well as examples of current projects in development by some entrepreneurial and innovative companies. VMA member companies shared some of their testing activities and current approaches to meeting the hydrogen market demand.

Valve Forum attendees joined the keynote, a conversation with Mike Train, SVP and chief sustainability officer of Emerson, moderated by Rachel Hollinger, EVP, industrial and Hilton products at DeZurik. It was an interesting and



Keynote speaker Mike Train, SVP and CSO of Emerson, and Rachel Hollinger, EVP, Industrial and Hilton, DeZurik.



Speaker Lauren Bruns, from Deloitte Consulting, talks about 2024 manufacturing industry trends.

Gasket assembly techniques demonstration from speaker Russ Currie of Flexitallic. Source (all photos): VMA



Market Outlook Workshop Announced

VMA, VRC and Hydraulic Institute (HI) members will convene August 1-2, 2024, in Oakbrook, Illinois, a Chicago suburb, for the 2024 workshop. This workshop is open only to VMA, VRC and Hydraulic Institute members.

VMA's Market Trends and Statistics Committee, chaired by Steven Szpak of Trillium Flow Technologies, will plan the workshop and identify key topics and speakers. The workshop provides economic experts, as well as the experts who research and follow the economic indicators for end-use markets important to the valve and pump industries, including oil and gas, construction, energy chemical, mining, water/wastewater and more.

"Last year we held the event in person for the first time since the pandemic, and all attendees and speakers appreciated the opportunity to be in person and network. A casual networking dinner was held, which really helped to reinforce the networking between the pump and valve industry. We are glad to offer this again this year," says VMA President Heather Rhoderick.



Matt Thiel, president, AUMA Actuators Inc. and VMA immediate past board chairman; Andy Duffy, vice president of sales for discrete automation at Emerson and VMA chairman of the board; and VMA President Heather Rhoderick.

enlightening conversation about the importance of developing a sustainability lens to help meet government, customer and societal sustainability requirements — and to also help protect the planet. The importance of taking small steps and getting employees involved was mentioned throughout the discussion.

The Valve Forum commenced on Wednesday, April 10, and continued through Thursday, April 11, with sessions divided into four tracks: Management & Marketing, Technical, Manufacturing and Valve Fundamentals.

Opening keynote speaker Lauren Bruns, from Deloitte Consulting, addressed five key manufacturing industry trends: consistent talent obstacles; decarbonization and electrification; supply chain; the smart factory; and aftermarket services — and how AI has an impact on each.

Among the four tracks of the forum, there was no shortage of discussions taking place, including PFAS implications, sustainability, energy, workforce, fugitive emissions, interpreting marketing data and much more.

For those who chose to stay, the Valve Forum concluded on Thursday with a tour of United Valve's facilities, providing insights into the valve repair, testing and modification done by the company.

VMA thanks the sponsors and exhibitors of the event for their support in making this event possible. The Hydrogen Valve Summit was sponsored by AUMA Actuators, Baker Hughes and Emerson, and the Valve Forum was sponsored by EFCO USA, Setpoint Integrated Solutions, Trident Systems and VanAire.

Dates and location for the 2025 Hydrogen Valve Summit and Valve Forum will be made this summer.



Student Scholarships Available to Children of VMA Members



The VMA Scholarship Program was established to provide educational opportunities to the children of VMA member company employees. The program provides financial assistance to help offset the rising cost of postsecondary education and promote careers in areas of importance for the valve manufacturing industry. Named after VMA's longest running president and employee, William Sandler, the scholarship was established to honor his dedication, contributions and achievements for the VMA, its employees, member companies and their customers.

This year, VMA is excited to increase the scholarship amounts available! Scholarship Applications for 2024 are now open and will close June 30, 2024. For more information on the VMA Scholarship Program, visit vma.org/sandlerscholar.



VMA Board of Directors Provide Direction and Leadership on Key Issues

Led by Board Chairman Andy Duffy, VMA's board of directors held its first meeting in March with critical issues on the agenda, including the PFAS ban and industry implications and VMA's response; sustainability; government affairs; energy transition; industry education and networking, and general association business issues. The board discussed the implications of a PFAS ban, and agreed to hold a workshop this fall on this topic. It also agreed to hold the Market Outlook Workshop in person in the Chicago area again. Other Association business items such as a review of the organization's financial standing and membership were also discussed.

VMA members can look for a survey on government affairs activities soon, as well as the next economic and business condition pulse survey.

VMA Works to Designate Industry and Member Products as "Currently Unavoidable Use" of PFAS

In March of this year, VMA, as part of a Flow Control Coalition, submitted formal comments to the states of Maine and Minnesota, requesting that industry products which contain intentionally added PFAS be designated as an example of a "currently unavoidable use" of PFAS in their states. Because both states have upcoming bans on selling and/or distributing PFAS-containing materials, it is important that VMA provides the precedent with these states so that other states and the federal government may follow. VMA thanks its member companies who are working on this issue on behalf of the entire membership. As the article on page 16 explains, this is a significant issue for our industry and VMA is glad to support our membership to help explain our industry to lawmakers so that company operations can continue on in the best way possible.



VMA Welcomes New Member



VMA welcomes Dimensional Machine Works as a supplier member! Dimensional Machine Works is a high-precision machine shop that manufactures components and turnkey subassemblies for the valve, process and flow measurement, and oil and gas industries. In business since 1999, the company is based in Houston, Texas. Find out more at dimensional.us.

Buyer's Guide Provides Supplier Information

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 Registration is open.

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PFAS BAN

Banning ‘Forever Chemicals’ Threatens to Disrupt Flow Control Landscape

With no replacement currently available, manufacturers are searching for what’s next.

BY: **HEATHER GAYNOR**, *Editor-in-Chief*
COMPANY: VALVE MEDIA

A longer version of this story — including an additional section with more U.S. regulatory information — can be found at valve-media.com.

If you consume any news, you’ve likely been hearing about “forever chemicals” and microplastics found in water systems and soil samples across the U.S. and around the world, as well as in human bodies. Because of their presence in drinking water, persistence in the environment and adverse health effects of some types of PFAS, researchers from industry, academia and government continue to study potential health effects while legislators and regulators are proposing ways to remove them from drinking water and other consumer goods. However, the focus of PFAS is not limited to consumer goods and drinking water, there have been several governmental proposals to ban all PFAS.

A full PFAS ban would have a profound impact on the modern world because the chemicals are not only found in consumer products from cookware to cosmetics but are also integral to the safe and efficient industrial production of food, pharmaceuticals, energy and much more. Specifically for the flow control industry, they are used to create key components critical to valve coatings, packings, seals and linings.

This article provides background information on PFAS chemicals, why they are important to the flow control industry and many other industries, how they are used in both industrial and consumer industries, and what the flow

control industry needs to know about current regulatory activity — all based on what we have learned at the time of publication. As this is an ever-changing issue and new information is being released daily, it is recommended that your company review past and new developments. For further questions and information, please discuss compliance and other similar issues with legal counsel and other experts. Nothing in this article should be acted upon without further discussion with your own experts.

What Are PFAS?

Per- and poly-fluoroalkyl substances, often abbreviated as PFAS, have extremely strong and stable bonds that don’t degrade in nature, thus the moniker of “forever chemicals.” The EPA has estimated there are more than 14,000 chemicals that are known today to fall into this class. Some of these PFAS compounds such as PFOA (perfluorooctanoic acid) and PFOS (perfluorooctane sulfonic acid), sometimes called C8 chemicals in a nod to their eight carbon molecules, have been used primarily as an ingredient in aqueous film forming foam (AFFF), a firefighting foam developed to extinguish chemical and petroleum fires that water couldn’t sufficiently fight. Some PFOA and PFOS uses which have been found to cause adverse environmental and human health effects have also been banned by various government entities for many years.

The Organization for Economic Cooperation and Development (OECD), an international group that serves as “a global policy forum that promotes policies to preserve individual liberty, and improve the economic and social well-being of people around the world,” has stressed the need to more fully define PFAS into subcategories because of their different properties and risks they pose. In other words, all PFAS chemicals are not created equal. For example, in its effort to standardize discussion of what constitutes the class of materials called PFAS, the OECD stated that PFAS is just a general term describing the type of molecular structure, with no indication of whether the compound is harmful or not. It is this lack of specificity in lumping all PFAS chemicals into one group that is the cause of much confusion and misinformation in the market.

At this time, however, PFAS continue to be referred to as one grouping of 14,000 substances in global, federal and state legislative and regulatory activity.

Regulatory Controls and Rulings

All companies should consult with legal counsel to determine if and how these reporting requirements apply to their company and its products to determine appropriate next steps. More details about EPA programs and regulations on p. 20.

The EPA issued the National Primary Drinking Water Regulation (NPDWR) final rule on April 10, 2024, as the first legally enforceable drinking water standard to address PFAS compounds found in public water systems. It specifically established limits for six individual PFAS. Water facilities must monitor, test and provide mitigation measures to remove these identified PFAS compounds. Funding was also made available to help cover the expense. While the EPA has provided grants and a timeline of around five years to help, this is a complicated and expensive issue. While there has been some success in building

systems that can filter out some microparticles, they are very expensive to build and install.

In addition to the EPA's federal regulations, a number of U.S. states are also enacting strict reporting requirements for PFAS-containing products. Maine is leading the way with requirements for manufacturers to file reports on PFAS-containing products sold in the state by Jan. 1, 2025. Minnesota has a similar law in place.

Under the Maine law, the "manufacturer" of the product is responsible for reporting products defined as: "An item manufactured, assembled, packaged or otherwise prepared for sale to consumers, including its product components, sold or distributed for personal, residential, commercial or industrial use, including for use in making other products." Product components are defined as identifiable components regardless of whether the final manufacturer of the product has manufactured that component.

Globally, the European Union banned PFOS and its derivatives under the Stockholm Convention in 2009 and restricted all use under its Persistent Organic Pollutants Regulation. Other international organizations and regulatory bodies are in various states of similar bans or limits being set on a variety of PFAS compounds.

Impact on Fluid Control Industry

While there are thousands of PFAS, the ones the valve industry relies on are PTFE, FKM and FFKM as well as other high molecular weight fluoroelastomers and fluoropolymers. A complete ban of PFAS would be extremely detrimental.

These products are used in flow control products due to their unique properties that provide sealing, emission barriers and other performance attributes in highly corrosive or high-temperature environments. Highly reliable performance is particularly important when access to the production system is difficult and dangerous, and to provide a safe and reliable production process which protects human life and the environment.

They are used in the production of everyday products used by most all of us, including semiconductors, cell phones, food and beverages, pharmaceuticals, renewable energy systems, transportation, pulp and paper products, and more. They are also integral in the technology used in efforts to achieve zero carbon goals and in the production, transportation and storage of hydrogen. They are used because there is no better choice available that meets all the performance and safety requirements set by standard-setting organizations or to meet regulatory or other compliance requirements.

PTFE (polytetrafluoroethylene), known largely by the trademark name of Teflon (owned by The Chemours Company) was initially discovered in 1938 when scientists at DuPont were working with gases related to refrigerants. The product was commercialized in 1946, and various industries found use for it in their final products.

If banned, the industry would have to find a replacement for it in the applications listed above, as well as most floating ball valve seats. It is also key to components that make fugitive emissions packings effective. Without these packings, much of the progress made in the last 50 years

since the Clean Air Act was enacted could be lost. There are currently no alternative chemicals or compounds that are commercially available as a one-to-one replacement in these products. Some experts have predicted it could take 20 years or more to develop a suitable alternative that is competitively priced and widely available for commercial use — if it is even possible. It is unknown if an alternative could be developed that contains all the same beneficial properties.

Reengineering current products is also not a viable alternative if PFAS are banned. In some cases where this could be possible, the size of any reengineered valve or other part would not be feasible. For example, actuators may need to become larger to overcome the additional friction to control the valves; piping systems would need to be redesigned to accommodate the larger actuators; and there would be increased maintenance and replacements needed in parts of the flow control systems. In other words, facilities and plants would need to be completely redesigned. And, even if that were feasible, current requirements on environmental protection, safety and other performance specifications may not be met. To put this in perspective, there are more than 1,200 natural gas compressor stations alone in the U.S. (found on the roughly 2 million miles of natural gas pipelines in the country) and an average compressor station could contain between 600 and 900 valves; refineries in the U.S. are estimated to have as many as 1 million valves in service.

Valve Manufacturers Weigh In

We spoke with several valve manufacturing companies recently and they are all concerned with the potential impact of a full PFAS ban. From supply chain availability, financial impacts, testing, engineering and more, the lack of a direct replacement available for widely used PFAS is of concern. Companies are testing alternatives to PTFE, but so far there are no solutions.

This is a very complicated issue that impacts not just our industry but nearly every aspect of modern life in some way. It's a complex issue with no one solution to satisfy everyone. Valve will continue to monitor the market and any legislative or regulatory impacts on the fluid control industry. VMA will also continue to work on behalf of its members at the federal and state level, and to provide updates, compliance materials and other resources to help its members address and manage the issues. See the lead-in on page 16 for more information. X



Some valves are lined with PTFE to make their wetted areas resistant to harmful corrosion-causing fluids; others use PTFE in seats and seals.

VMA PFAS RESPONSE

VMA Responds and Looks Forward on PFAS Implications

Raising awareness, the Association continues to work on educating legislators and regulators.

BY: **HEATHER RHODERICK**, *President*
VALVE MANUFACTURERS ASSOCIATION (VMA)

The industrial valve industry provides a vital role in the production of products essential to improving the public’s quality of life and protecting the planet. The current focus on banning all PFAS raises a significant threat to our industry and beyond. Understanding how and why PFAS are used in these applications, the highly beneficial reasons they are used to help protect health and the environment as well as operations, and understanding the differences in the types of PFAS is absolutely critical to avoiding substantial and wide-ranging negative consequences to our way of life.

VMA and *Valve* magazine first started reporting on and tracking governmental activity surrounding PFAS over two years ago, in January 2022, with the winter issue of *Valve*. Throughout the past two years, information on PFAS concerns as well as the benefits of PFAS have become more accessible and commonplace. Information on the approaches that governments may take to regulate PFAS, the different types of PFAS, how the industrial valve industry uses PFAS — and how extremely prevalent it is in so many manufacturing processes, facilities and end-use products — is readily available.

While discussions around the long-term effects of PFAS is not a new issue or topic, it may seem like it. In the early 2000s, the EPA and the chemical industry worked together to phase out the most prominent long-chain PFAS (PFOA and PFOS). Research, testing and a focus on the health and environmental impacts continued, and more information became available about PFAS found in drinking water, as well as other environmental impacts. In April 2021, the EPA Council on PFAS was charged with developing: “A bold, stra-



tegic, whole-of-EPA strategy to protect public health and the environment from the impacts of PFAS.” A PFAS strategy was introduced in October 2021 which included three pillars: research, restrict and remediate. In 2022, 3M announced it would stop manufacturing PFAS by 2025. Further, the European Union, Canadian government, and U.S. government at the federal and state levels, and other countries have increased their focus on PFAS and indicated they would put in place various restrictions (including bans) on using PFAS.

Over the past two years, VMA has been raising awareness to our members and industry about the implications of such PFAS restrictions. We’ve also been educating lawmakers about the different types of PFAS — upward of 14,000 — and how they should be managed and regulated based on their risks and effects. While it is certainly paramount to address PFAS for which there is sound scientific evidence of environmental and human health toxicity, regulating all PFAS in the same manner would have substantial and wide-ranging negative consequences to health and safety, national security, the environment and society at large.

Our industry uses high molecular weight fluoroelastomers and fluoropolymers in the manufacture of gaskets, seals, pumps, coatings, chemical piping and industrial valves — all of which are integral to the production of products core to maintaining modern life. These type of PFAS are used due to their unique properties that provide for effective sealing, creating emission barriers, reducing energy use and meeting performance requirements in highly corrosive or high-temperature environments. This all helps to provide a safe and reliable production process, particularly in scenarios where failure can have catastrophic consequences.

As readers of *Valve* know, highly skilled engineers work to design entire flow control systems to meet detailed specifications required by accepted standards and regulations designed to protect health, safety, the environment and efficient operations. If there were reasonably available alternatives to PFAS that delivered the same level of performance in these critical applications, they would. Unfortunately, this is not the case and the path forward is foggy and may not be direct.

While the preceding article provides more specific additional background and information on some of the recent rulemakings on PFAS, especially with regard to drinking water, following are highlights of the activities that VMA has been and will continue to work on with our members and others in the flow control industry.

The Voice of the Industry – Establishing a Definition and CUU Designation

The importance of educating our lawmakers on the impacts of their proposed legislation, regulatory rulemakings and other activities cannot be understated. Over the past two years, VMA has done this in a few ways:

- Submitted formal comments to the states of Maine and Minnesota on why valve industry products need to be designated as a “currently unavoidable use” for intentionally added PFAS. With both states having upcoming bans on PFAS-containing products in their states,

obtaining this designation is extremely important. Additionally, many other states and the federal government may follow the approaches taken by Maine and Minnesota.

- Created a Flow Control Coalition with the Hydraulic Institute (HI), Fluid Sealing Association (FSA) and the Water and Wastewater Equipment Manufacturers Association (WWEMA) to ensure that those in the flow control system speak with a common voice.
- Met with over 20 members of Congress to discuss and explain our industry and why PFAS are critical.
- Provided formal comments to the EPA on how PFAS are used in critical infrastructure provided by the valve industry.
- Worked with more than 40 associations through coalitions to amplify our voice on the topic and help develop a clear definition of PFAS so that different PFAS can be managed appropriately based on their risk as well as environmental, health and other impacts.

The immediate regulatory focus is primarily driven by concerns about consumer-facing products (cosmetics, clothing, carpets, food packaging and more) as opposed to industrial products used in processing and manufacturing. However, regulators are currently taking a very broad approach that could restrict important industrial uses of PFAS (which is why obtaining “unavoidable use” exemptions is critical for our industry). The regulatory momentum shows no signs of abating and our industry needs to prepare to the greatest extent possible.

Educating Members and Industry

Providing members and the industry with information they can use to make informed business decisions is part of VMA’s mission. VMA recently launched a “PFAS Resources” webpage which provides information on state legislation tracking, federal tracking, compliance requirements, background information and other considerations. As more information is available on testing, research and other innovations, it will be included here. Webinars on understanding the implications and requirements of the EPA and Maine Reporting rules (as noted in the following article) are also included. VMA hosts periodic webinars with new information, and will be holding a workshop this fall.

PFAS Implications for the Flow Control Industry Workshop, Nov. 12-13, 2024, Alexandria, Virginia —

Along with the HI and FSA, VMA is holding a workshop to explore key topics to provide an overview of the landscape, current requirements and future considerations, including: global, federal and state actions and approach; understanding regulatory requirements and compliance; testing and new technologies; risk mitigation and legal considerations; supply chain and end of life; and market segment viewpoints. Find out more at vma.org.

VMA will continue to provide analysis, as well as updates on global, federal and state activities, and resources through the Member portal, as well as information to the general industry through *Valve* and the VMA website. 📌

U.S. Environmental Regulations Relevant to PFAS

There are several statutes the EPA and other agencies are reviewing to regulate and restrict PFAS, with nearly every state considering some type of law or regulation around PFAS. While much of the focus is on consumer materials which use PFAS, there are still implications for industrials. Here are some of the key acts and terms related to PFAS, and some information on reporting requirements that affect the industrial valve and flow control industry which are pending. The information was derived from the EPA website.

STRATEGIC ROADMAP: EPA'S COMMITMENT TO ACTION 2021-2024:

On Oct. 18, 2021, EPA Administrator Michael S. Regan announced the Agency's PFAS Strategic Roadmap which addressed the "whole agency" approach to PFAS. The roadmap sets timelines by which EPA plans to take specific actions and commits to bolder new policies to safeguard public health, protect the environment and hold polluters accountable. The actions described in the PFAS Roadmap each represent important and meaningful steps to safeguard communities from PFAS contamination. Cumulatively, these actions will build upon one another and lead to more enduring and protective solutions.

SAFE DRINKING WATER ACT (SDWA):

Updated on April 10, 2024, to address PFAS found in drinking water, the act requires public water systems to monitor for PFAS by 2027 and report on levels in their drinking water; implement reduction solutions for PFAS by 2029; and starting in 2029, public water systems that find PFAS in their drinking water must take action to reduce levels and provide notification to the public of the violation.

TOXIC SUBSTANCES CONTROL ACT (TSCA):

Enacted in 1976, the TSCA "provides EPA with authority to require reporting, record-keeping and testing requirements and restrictions related to chemical substances and mixtures." As of January 2024, a final rule went into effect that requires companies to notify EPA if they plan to use one of 329 inactive PFAS, and the EPA may restrict this usage at its discretion.

On Oct. 11, 2023, the EPA issued the PFAS Reporting Rule requiring any entity that manufactures/imports or has manufactured/imported PFAS or PFAS-containing articles since January 2011 to report information regarding uses, production volume, disposal, hazards and more to the EPA by May 2025.

EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT (EPCRA)/TOXICS RELEASE INVENTORY (TRI) PROGRAM:

The Toxics Release Inventory (TRI) tracks the waste management of certain toxic chemicals that may pose a threat to human health and the environment. U.S. facilities in different industry sectors must report annually how much of each chemical they release into the environment and/or managed



through recycling, energy recovery and treatment, as well as any practices implemented to prevent or reduce the generation of chemical waste.

Currently, 196 individual PFAS are listed under the TRI program. Facilities that manufacture, process or otherwise use more than 100 pounds of these PFAS must report annually release and waste management information to EPA by July 1 covering the preceding calendar year. The EPA recently rescinded applicability of the de minimis exemption (which allowed companies to ignore concentrations of a substance for reporting purposes if present below 1%, or 0.1% for carcinogens). This change will result in extensive new reporting of PFAS that may be present in materials processed or otherwise used at a facility.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA):

RCRA gives the EPA authority to "control hazardous waste from the 'cradle-to-the-grave,' including transportation, treatment, storage and disposal." In February 2024, the EPA proposed two regulations that would add nine PFAS to the list of RCRA hazardous constituents, and would provide the agency and authorized states authority to require cleanup of these substances.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA):

Commonly known as a Superfund, this was enacted in 1980. The EPA website says: "This law created a tax on the chemical and petroleum industries, and provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment." Superfund cleanup sites have included former battery plants, decommissioned nuclear facilities and hazardous chemical spill sites. On April 19, 2024, the EPA issued a final rule listing PFOA and PFOS as CERCLA "hazardous substances."

CLEAN WATER ACT (CWA):

First enacted in 1948 as the Federal Water Pollution Control Act, the CWA was expanded in 1972 and renamed. It has implemented pollution control standards and limits for wastewater and surface waters, and made it illegal to discharge pollutants into navigable waters without a permit. Currently, PFAS are designated nonconventional pollutants.

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SAFETY VALVES

Operational Basics of Safety Valves

These spring-loaded valves provide overpressure protection for downstream equipment.

BY: WAI LOON CHEONG, *Training Leader*

COMPANY: BAKER HUGHES

Source (all images): Baker Hughes



Figure 1
Side rod construction.

Figure 2
Yoke design

In the past two issues of this publication, we have covered the fundamental operating principles and applications for spring-loaded safety relief valves and pilot-operated safety relief valves (POSRV). In this last installment of the three-part series, we will focus on the fundamental operation of a safety valve and its common applications.

A safety valve (SV) is a spring-loaded pressure relief valve actuated by the static pressure upstream of the valve, characterized by rapid opening or “pop” action. A safety valve is normally used on compressible fluids, primarily steam. These devices are typically certified to protect the system within 3% overpressure, which is the rise in pressure above the maximum allowable working pressure (MAWP) of the equipment being protected.

Typically, the spring is exposed and visible without the need for valve disassembly. Safety valves come in two predominant designs — the robust side-rod construction (Figure 1), suitable for high-pressure and temperature applications, and the versatile yoke design, used for lower pressure and temperature applications (Figure 2).

Operational Basics of a Safety Valve

When operating pressure acting from the inlet of a safety valve is less than the spring force pushing down, the safety valve is closed, as shown in Figure 3. For a safety valve to maintain seat tightness, the operating pressure should typically be equal to or less than 95% of the set pressure.

When operating pressure increases until the simmer point, as shown in Figure 4, steam will move past the seating surfaces into the huddling chamber. Flow restriction in the secondary annular orifice formed between the upper adjusting ring (G) and lower adjusting ring (O) causes pressure to build up and act over a larger area, creating an additional force to overcome the spring force. The disc will then move away from the seat bushing and the valve will “pop” open at set pressure.

Once the safety valve has opened, the position of the upper adjusting ring forces the steam to change direction, creating additional lift. These additional forces cause the disc to achieve full lift. Full lift can be attained by proper location of the upper adjusting ring (G) and lower adjusting ring (O), respectively. When full lift is attained, as shown in Figure 5, the lift stop (M) rests against the cover plate (P) to eliminate hunting, thus adding stability to the valve. When the safety valve is in the open position, steam is bled into chamber (H) through two bleed holes (J) in the roof of the disc holder. Similarly, the spindle overlap collar (K) rises to a fixed position above the floating washer (L). The area between the floating washer and the spindle is thereby increased by the difference in the two diameters on the overlap collar. Under this condition, steam (H) enters into chamber (Q) through the secondary area formed by the floating washer (L) and the overlap collar (K) on the spindle, then through orifice (N) and escapes to atmosphere through the pipe discharge connection (R).

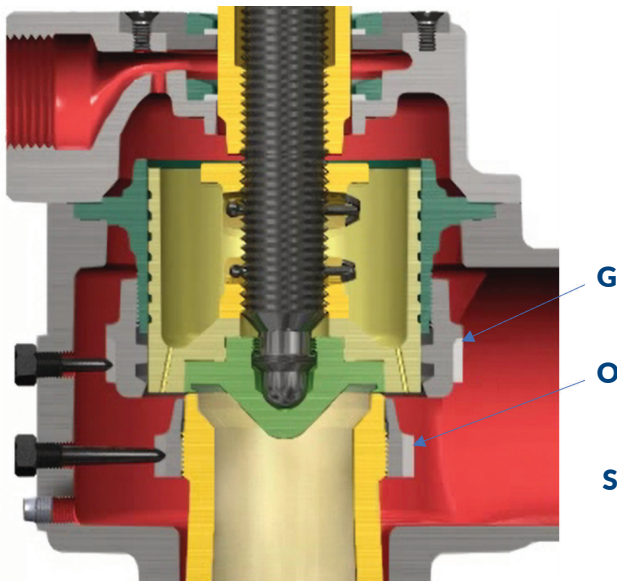


Figure 3
Safety valve
in closed position.

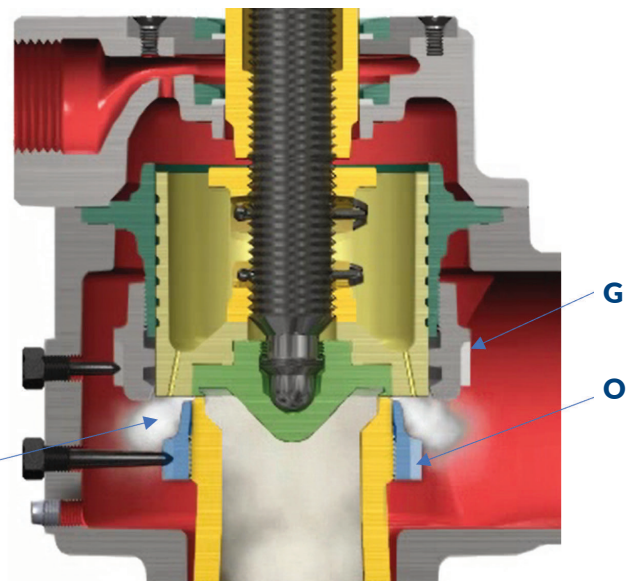


Figure 4
Safety valve
"simmer point."

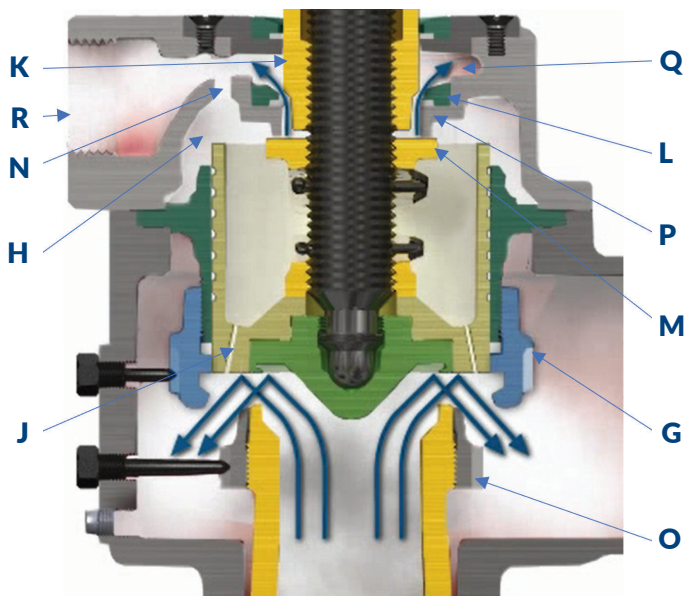


Figure 5
Safety valve at
full lift position.

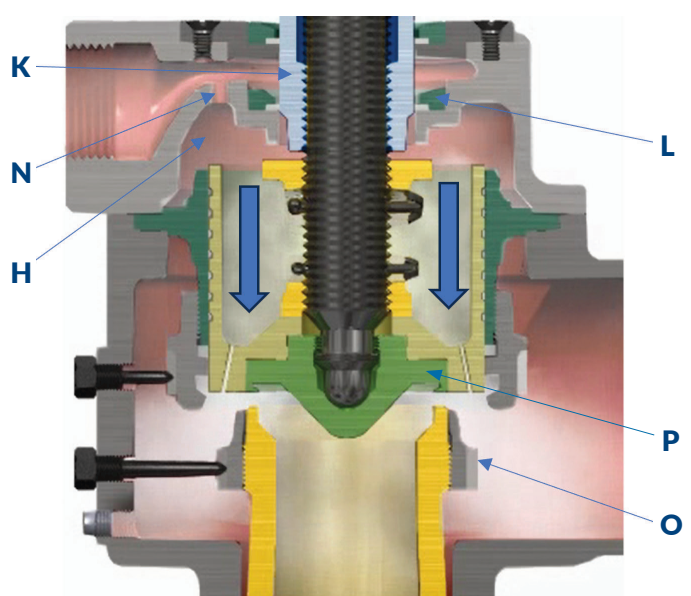


Figure 6
Safety valve closing.

Additional steam will flow through the area between the floating washer (L) and the overlap collar (K).

When closing, as shown in Figure 6, the spindle overlap collar (K) moves down into the floating washer (L), thereby effectively reducing the escape of steam from chamber (H). The resulting momentary pressure building up in chamber (H), at a rate controlled by orifice (N), produces a downward thrust in the direction of the spring loading. The combined thrust of the pressure and

the spring loading results in positive and precise closing. During closing, the force of trapped steam on the upper side of the disc holder is utilized to assist the spring in forcing the disc back down onto the seat. Cushioning of the closing is controlled by the lower adjusting ring (O).

Features of safety valves

Side rod construction

Two side rods are located outside of the safety valve body ▶

away from the high temperature of the boiler where the side rod temperatures remain relatively constant. The two side rods allow the thermal expansion of the safety valve body, caused by the high temperature of the boiler, without having a negative effect on the safety valve performance. Thus, spring-loaded models are relatively constant, and set pressure is predictable and does not vary with changes in the heat flow pattern.

Thermodisc

The thermodisc is often made of Inconel for its superior corrosive resistance. It minimizes distortion to the spindle/disc contact area under temperature, load or impact during safety valve actuation. Thus, the safety valve can achieve a reliable seat tightness of 95% of set pressure. The thermodisc has a unique design with a thin flexible lip which enables the seat to retain flexibility, especially under steam conditions, where it is usually higher in temperature and pressure. The thin flexible lip design enables the disc temperature to quickly equalize with the steam temperature, reducing distortions caused by the steam throttling to atmosphere. This lip design enables the system pressure to assist the mechanical loading. A line contact at the sealing surface of the seat

Safety valves are normally used on compressible fluids, primarily steam.

bushing is created, which improves the seat tightness. The critical seating area remains constant, ensuring a consistent safety valve set pressure. The thermodisc provides a low spindle bearing point for the spring force to transmit below the horizontal seating line of the safety valve. It equalizes spring force distribution to the safety valve seat area and minimizes the natural tendency for the disc to assume a horizontal tilted position. It remains concentric to the bushing centerline which assures reseating to the original position and prevents damage caused by any misalignment.

Cover plate assembly

Full lift at set pressure can be achieved by rapidly venting steam through the cover plate. During discharge of the safety valve, the cover plate redirects the steam to a safe location. Thus, it isolates the spring from the steam temperature, which reduces spring relaxation.

Overlap collar

Blowdown can be achieved by adjusting the upper adjusting ring, along with the lower adjusting ring, to have a short simmer and a good clean pop at set pressure. By properly fine-tuning of the overlap collar, 3% blowdown can be attained through pressure-assisted closing.

Common Industries and Applications

Safety valves are typically provided for the power industry. However, they are also used in other industries such as refining/petrochemical, chemical, pulp and paper, metals and mining, and textiles where boilers are used for power generation. Some common applications for safety valves include boiler drums, superheaters, reheaters, economizers, feedwater heaters and in other plant applications.

As this series concludes, the journey through the basics of pressure relief valves sheds light on the different valve types that are out there safeguarding our industrial landscapes — spring-loaded safety relief, pilot-operated safety relief and safety valves — and their operational and application differences. These devices are a critical last line of defense for the protection of people and property from overpressure events in systems. ❗

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Wai Loon Cheong is the valves training leader for Baker Hughes. He has more than 20 years experience, and has worked in a variety of roles at the company.



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CONSTRUCTION Maximizing Efficiency in EPC Projects

The crucial role
of procurement
in industrial
construction.

BY: DAVID DORMAN, MBA, PMP, CEP

COMPANY: IAC International

Source (all photos): IAC International.

Many EPCs use staging
warehouses to manage
project deliveries.

For large construction projects owner companies often employ an Engineering, Procurement and Construction company (EPC) to manage the project from ideation to commissioning. It is critical to engage with an EPC at the earliest stages to ensure projects have the best chance at being on time and on budget. There are a number of EPCs in the U.S. and internationally to choose from, but finding one with expertise in the client's industry is worthwhile so the EPC can engage with vendors they have established relationships with for better negotiations and terms, where possible. Some clients choose to do their own procurement, which can be advantageous, but there is also risk. This article explores both sides of this proposition.

We will discuss several factors in this article:

- How much will the EPC project's cost risk be reduced?
- How do equipment lead times impact the EPC process?
- How much effort is required to procure large, specialized industrial equipment and ensure timely delivery?
- Does the EPC project client have the staff to handle the procurement or all the items required for the project?

What are the costs associated with delayed deliveries on an EPC construction project?

These costs can include contractor delays and extended direct and indirect costs, as well as lost revenue if the owner company misses contractual obligations from missed deadlines. There may also be challenges to procure certain items if the owner company or client doesn't have relationships with suppliers. This can be an opportunity for an EPC to source already fabricated, undelivered equipment or systems, and determine the actual cost of the purchases.

How much will the EPC procurement cost risk be reduced if the client does purchasing?

We will use the term equipment, interchangeably, to cover material as well. Material is any permanent plant structure, such as a structural steel package. For the most part, the client and EPC contractor should have the information required to order equipment at the same time. In general, costs are locked in at the time of the purchase, and purchase orders include terms and conditions that protect both the

buyer and seller. The sooner a purchase can be made, the better. There is always an outside chance the purchase price could be reduced as time moves on; however, it is more likely to increase than decrease.

EPC Project Procurement Lead Times

A proper schedule is important to every EPC project so the EPC can create the critical path, which includes all predecessor and successor tasks, and lead times for equipment. This master schedule is the critical tool to plan the project and enable stakeholders to track it.

Schedules are used to determine estimates for projects, and should include costs. These costs can be significant and vary depending on the size, speed and manpower required to complete the project. Anytime that a delivery date is missed, and it is on the critical path, it costs the contractor time and money, which is then passed through to the client. Costs can include extended time on the project, incurring indirect costs (site staffing and costs just to be on-site) and variable costs such as cranes and rental equipment.

How much time and effort is required to procure industrial equipment and delivery dates that meet the construction schedule?

Clients may not realize the time commitment required for construction project procurement. Getting quotes, negotiating terms and conditions, and issuing purchase orders is just the beginning. To ensure equipment arrives on time, several things must happen:

- Freight, loading and unloading must be arranged. Typically, the contractor handles the unloading into staging warehouses.
- Freight claims must be handled if something shows up damaged or incomplete, or doesn't meet the PO terms.
- Down payments may be required, and they might need to be pushed through the accounting group.
- Visits to the equipment fabricator's facility might be required for critical equipment.

As you can see, there is more of a commitment than just issuing a purchase order to complete the EPC procurement process.

Does the client or owner have the staff to handle the procurement or all the items required for the project, and at what cost?

This may require dedicated personnel, so clients should ensure they can staff properly. Some owners hire a third-party project management group including procurement, or they may use the engineer of record. Another option is to include it in the contractor's scope of work, which is likely the easiest option for the client. This places sole responsibility for procurement (and follow-up) on the contractor. Many companies are opting for this option in today's unpredictable procurement climate.

What costs are associated with delayed deliveries on an EPC construction project?

There are a variety of costs that can be associated with this,



Equipment is staged in a warehouse before assembly on the job site.

including costs of delays, lost productivity, and direct and indirect costs.

Contractor Delay Costs — When a contractor bids on a project, they typically include a construction schedule as part of their proposal with language that identifies assumptions made for owner-procured delivery dates. To stay competitive, contractors make these assumptions to estimate how much time they will be on the project and what staffing level is needed. These durations and staffing levels are dependent on the delivery dates. Larger projects may have a field office staff of more than 10 people and direct project staff of over 100. Missed dates mean salaries must still be paid for on-site workers which could equate to tens of thousands of dollars per day. This does not account for any other indirect costs such as a job trailer, temporary utilities and more. This does not include costs of rental equipment, including cranes, which could put the cost over \$100,000 a day. If the delays were caused by the owner company, costs would be passed on to them, potentially creating overruns in addition to the time delays.

Contractor Productivity Losses — In addition, if staff are sent home unable to work, they may be reassigned or laid off and/or sent to another project or redirected to another task, with high risk of not getting them reassigned back to this project. The ▶

cost of regrouping, rerigging and starting another task could decrease productivity by as much as 30-40%.

Contractor Extended Indirect Costs — Indirect costs are the costs associated with a project that are usually a function of time and are somewhat fixed costs. Labor costs would include a project manager, site manager, safety, QC, admin and any other field office staff or direct home office staff. Rentals could include a crane, rigging and other required specialty equipment. Other indirect costs might include trailers, copiers and temporary utilities. If the project is extended, these costs can be substantial.

Contractor Extended Direct Costs — Included in the example above, this is primarily the site craftsmen and the

costs associated with their presence on the project. This can be about 70% of the total project costs, and often include daily per diems that are payable even in work stoppages. Task-specific rental equipment is a direct cost as well. If it is utilized for multiple tasks and is kept for the whole project, it may be considered an indirect cost.

Speed-to-Market Costs — Speed to market is key in many industries. Once a client determines that a project is financially viable, it is almost a race to proper completion. This may include complete engineering, procurement, permitting and construction. The time value of money must be considered on every project. Markets change often and it is important for clients to be responsive to market forces

Managing Valves in an EPC Project

Piping systems in industrial plants such as oil and gas facilities, chemical and petrochemical plants, food and beverage manufacturers, and mining or water/wastewater plants all require detailed, application-specific information and engineering drawings before valves can be specified and ordered. This can take 20-25% of total engineering man hours and construction work in projects. Piping systems connect equipment and components all over plants. Below are some of the considerations related to managing valves in an EPC project.

- The type of valves — as well as size, pressure class, material, end connections and other parameters — are selected through cooperation between process and valve engineers who work with piping and instrument diagrams (P&IDs).
- During the detail engineering phases, P&IDs are more mature and developed. At this phase, the list of valves named as first material take-off (MTO) are created and should contain size, pressure class, material, end connections and other special valve requirements such as bore types (full or reduced) for ball valves or any required coatings. General valve requirements such as factory acceptance tests (FAT), packing, pres-

ervation, documentation and more are provided in project specifications.

- The MTO, plus relevant valve specifications and datasheets, are sent to potential valve suppliers or manufacturers for purposes of soliciting technical and commercial quotations.
- Valve and actuator suppliers or manufacturers deliver their products with all relevant valve documents such as drawings, procedures, reports and more. Dimensional drawings are modeled in a software program such as a plant design management system (PDMS), similar to a 3D AutoCAD. This design software is used to make 3D models for piping and valves, equipment and structures. If different vendors are selected for supplying specific valves of the same size and pressure class, dealing with two different sets of drawings and other documents is challenging.
- Multiple valve manufacturers or suppliers as well as subsuppliers for forging or casting, machining, coating and more from different locations adds complexity to the project. Another consideration is actuator manufacturers. The actuator suppliers will make and supply the actuators to the valve manufacturers to complete assembly and test. Lack of communication and coordination between the valves and related actuation suppliers can delay the valve procurement process.

Piping system construction in progress. Source: IAC International



ACTUATOR SUPPLIER SELECTION STRATEGY

Generally, there are two ways of selecting actuator manufacturers. The first is to select directly from the end-user-approved vendor list. The other approach is to authorize valve suppliers to select suitable actuator suppliers from the approved vendor list of the client. While this approach can facilitate the communication and coordination between the valve and actuator manufacturers, it may lead to selecting more and more varied actuator suppliers for the project.

ORDERING SPECIAL VALVES

Special valves may include large-size and high-pressure class valves with special designs, based on the application. These

before the demand wanes. EPCs can add value because they have relationships with their vendors and can expedite materials and equipment easier than a client who is just buying one or two of the same products and won't need another one for years. Many EPC contractors also already have credit accounts set up. This enables better pricing and can avoid the days or weeks for the process of someone setting up a new account.

Client Contractual Obligations and Lost Sales — Let's say a client wants to build a fracking sand plant. A customer has committed to buying the sand for a premium at \$100 per ton if the new plant is up and running in eight months. The company signs a contract with their customer and

experiences delays in getting the wet plant up and running due to a late delivery on a hopper to load product. A month goes by putting the project past the eight-month committed completion date. The customer needs the sand so they find an alternate supplier that may take over the entire project. The project income that would offset the cost for the new plant can go away and the owner company may never recover from this financial setback, with financial repercussions for months or years ahead.

EPC Project Procurement Risks and Challenges in the Current Market

Market conditions continue to foster a feeling of uncer-

Valves and fluid controls may need extra attention in EPC projects. Edited by Heather Gaynor

valves are at higher risk of being delayed during procurement, often requiring longer lead times, sometimes more than a year from order to delivery. The complexity of these valves can be intensified if, for example, they are top entry and double isolation and bleed designs, if the pup and transition pieces are welded, if they will see a high frequency of pigging, if they face special transportation issues or if they have qualification test requirements. The number of subsuppliers for these special valves is high, which means constant monitoring and expediting.

VALVE MANUFACTURER CAPACITY

The quantities of the valves might be high enough that a specific valve manufacturer may not have enough machining equipment, test bench capability or workers available to fulfill the order. Thus, the production capacity, as well as the engineering, procurement and manufacturing scheduling of the valve manufacturers should be checked

Specialty valves, actuators and other components may take extra time to procure. Source: IAC International



before purchase orders are made. In some cases, the selected valve manufacturers might subcontract part or all of the work to other manufacturers, which increases the complexity and speed of valve supply within projects.

EARLY CONSTRUCTION SITE NEED DATES

Normally, larger valves have earlier site need dates because construction takes place on the larger lines before the smaller ones. Larger valves normally have longer procurement and delivery times as well. For instance, an earlier date may be required if the valve is weld-end rather than a flanged connection.

LATE-STAGE VALVE FAILURES AND PROBLEMS

Some valve problems and failures are discovered at a late stage at the construction site, which causes delays. Many issues can occur, such as a wrong direction of the actuator on the valve or insufficient clearance for installing the valves' mating-flange fasteners. When possible, the valves should be returned to the valve supplier for further machining on the body end flanges, which can have a severe impact on the construction work schedule.

ORDERING VALVES WITH EXTRA OPTIONS

Some of the ordered valves will have added options such as coatings, stem extensions, specialty materials and more. Adding these options increases the variety within the project. For example, eight full-bore ball valves of 6 inches in Class 300 in 22 Cr duplex material might remain uncoated but two other ball valves with the same specification might be insulated and coated to avoid corrosion under the insulation. These valves would be differentiated from the other eight only by coating requirements.

There are many valve-related considerations in EPCM projects. Some of these can be tracked and guided through tools such as piping and instrument diagrams. The important point to remember is that, in the end, knowing the challenges enables those who supply and make the equipment to reach the ultimate goal: satisfied end users.

This is derived from a two-part article originally published in Valve in 2019 and authored by Karan Sotoodeh in his role as a lead/senior valve and actuator engineer for Baker Hughes. It has been edited for this republication.

tainty, with ever-changing demand and increasing regulations. Prices and deliveries are not as predictable as they once were. How do project owners or EPC contractors trying to supply everything protect their interests? It is not easy.

Get delivery dates in purchase orders — A P.O. is not effective unless it has an expected delivery date on it. Ship date is important, but the delivery date is critical if the vendor is handling freight. Set a realistic fabrication time frame, and consider tying any liquidated damages to late deliveries.

Communicate frequently and effectively — Regular communication with vendors and suppliers can help ensure there are no surprises with delays or cost overruns.

Buy local — When possible, there can be advantages to

buying from domestic suppliers. It is easier to visit the shop and monitor progress, and it eliminates the added complications of international shipping. Equipment stuck in customs doesn't make anyone money.

New or Used? To save time and money, it can be advantageous to acquire gently used or new yet never assembled equipment. Many EPC contractors have access to used equipment, which may offer cost and delivery time savings. If the owner chooses this route, it is critical to ensure the equipment is complete, fully functioning and that it fits the application with limited or no modifications required. Used products may not come with a warranty. Make sure to have someone with intimate knowledge of the product inspect the equipment prior to purchasing.

The Real Costs of the Procurement Process for an EPC Construction Project

With all this information, what is the best thing for the owner to do? It really depends on how the company is set up. If it has a "Projects" division with enough capacity to administrate the project, keeping some or all of the work in-house may make the most sense.

Eliminating risks is key. Companies can eliminate cost risk and schedule risk by purchasing large pieces of equipment or materials very early in the project. That is what the EPC contractor is going to do and they will follow up on those critical path items on a frequent basis.

The critical components should also be checked during fabrication by sending someone to the fabricator, if possible. Owners who take the least expensive route and go with an inexperienced supplier could cost the project millions of dollars and delays. Hiring the right EPC or project lead can save months or years and possibly millions of dollars before a facility is even operational. ❏

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ABOUT THE AUTHOR

David Dorman has over 27 years of commercial and industrial construction experience. He maintains licenses as a project manager and an estimating professional. He has over 13 years of experience in the oil & gas industry where he has overseen design/build construction for production and storage support facilities.

Cavitation, the downstream effect created by pressure drop as fluid moves through a valve or other restricted area, can have costly and disruptive impacts on fluid systems. In theory, the solution for cavitation is simple: manage the velocity of the fluid such that it never drops below its vapor pressure, which is what causes vapor bubbles to form and then burst when the pressure increases again.

But, in practice, developing and manufacturing valve accessories to prevent cavitation has been difficult and time consuming. Most solutions rely on producing and joining multiple tubes, plates or other components to produce a geometry that breaks up the stream of fluid to fight pressure drop and thus prevent cavitation. The manufacturing process for these devices can become complex, expensive and slow, requiring multiple suppliers, steps and components to come together.

The production of anticavitation devices can be made easier, however, with additive manufacturing (AM). AM is the application of 3D printing technologies to produce functional, end-use production parts within an industrial workflow. Laser powder bed fusion (LPBF), a 3D printing process that melts metal powder using laser energy to build up parts, is the process most commonly applied to valve components today. With this technology, it is possible to produce complex, optimized geometries that can take the place of assemblies. Without the need to produce and join many individual components, anticavitation devices can be manufactured with less manual labor, reduced lead times and even lower cost.

While AM is not yet widely used in valve production, it is beginning to find use cases in anticavitation devices. Two such case studies are outlined below:

Valve Reintroduced due to 3D Printing Efficiencies

Emerson historically offered an anticavitation rotary valve trim that was constructed from many metal tubes brazed together and machined to fit inside a ball valve. Although this device was effective, it was time-consuming and expensive to produce, and the company eventually discontinued it due to manufacturing difficulty.

More recently, however, Emerson has used 3D printing capability to develop and manufacture a new product, the Fisher Cavitrol Hex Trim. This valve trim features a series of parallel, hexagonal tubes that break fluid into multiple streams, slowing the velocity inside the system. The geometry can be 3D printed all in one piece, with a shape that contours to the interior of valve.

“Locating the Cavitrol Hex array within the valve such that it is very close to the entrance of the throttling area limits the fluid momentum that causes the flow stream to contract,” says Brandon Bell, product marketing manager for Emerson’s Fisher Rotary Products brand. “The result is larger vena contracta flow area, reduced fluid velocity and higher vena contracta pressure, thus suppressing the onset of cavitation.”

In addition to preventing cavitation, the division of the fluid into many smaller streams also has the effect of reducing noise and vibration, as well as straightening the flow. The hexagonal cross sections of the tubes, which could only be realized through 3D printing, provide

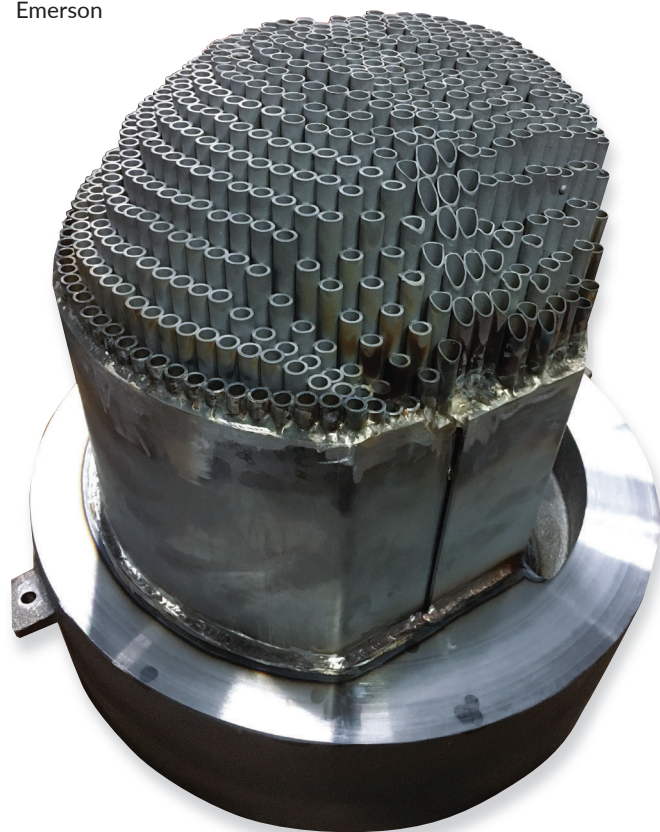
3D PRINTED VALVES

Additive Manufacturing Versus Cavitation

Metal 3D printing is making it faster and easier to produce complex valve components.

BY: STEPHANIE HENDRIXSON, *Executive Editor*
ADDITIVE MANUFACTURING

Emerson's conventionally produced anticavitation device involved many parts and skilled labor, and was difficult and costly to produce. Source: Emerson



strength and optimized flow area for improved performance over the previous solution.

Using LPBF 3D printers from Nikon SLM Solutions, the company now 3D prints the Cavitrol Hex Trim in stainless steel and cobalt chrome at its facility in Singapore. In many cases, the trim can be 3D printed in just one piece, avoiding the brazing operations needed previously and resulting in a more reliable product. (Larger versions that exceed the build volume of the printers are printed in segments and joined.)

Emerson is also realizing the benefits of flexible design through AM. Valve trim can be modified according to customer needs much more easily by simply modifying the digital file. The company says that more than 600 Cavitrol Hex Trim products have been sold thus far.

Variable Resistance Trim Stack

Baker Hughes provides a product line of variable resistance trim stacks which conventionally have been produced by literally stacking together sheets of metal with holes drilled in strategic locations. Fluid is forced through a tortuous path inside the stack, again slowing its velocity and mitigating pressure drop that can otherwise lead to cavitation.

While the variable resistance trim stack design is effective, manufacturing these devices in the variety of sizes and configurations needed has proven to be time-consuming and challenging. Producing these stacks conventionally involves machining each sheet individually, brazing them together and final machining operations on the assembly. The process required coordination with a series of vendors, frequently leading to long lead times and other challenges.

“In each one of those manufacturing steps, you have a risk of something going wrong,” says Rebecca O’Donnell, senior product manager. “When you send parts out to third-party suppliers, even though they’re qualified, there’s still the risk of a quality issue that might occur. The purpose of doing the 3D printing is to make sure that we have total control of the part throughout. We monitor the quality and the lead times quite effectively.”

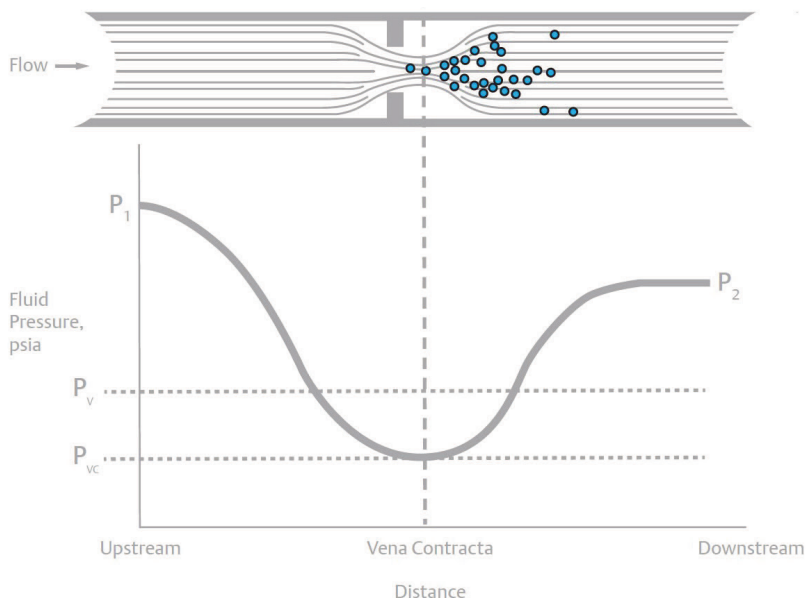
To reduce the number of steps and vendors involved, Baker Hughes now manufactures its trim stacks with its in-house 3D printing capacity located in Houston, Texas. The stacks are produced on machines from Nikon SLM Solutions in Inconel 718, and have been made in a variety of sizes. The 3D printed anticavitation devices are very similar to the conventional design, with only minor adjustments to make the 3D printing and manufacturing process easier.

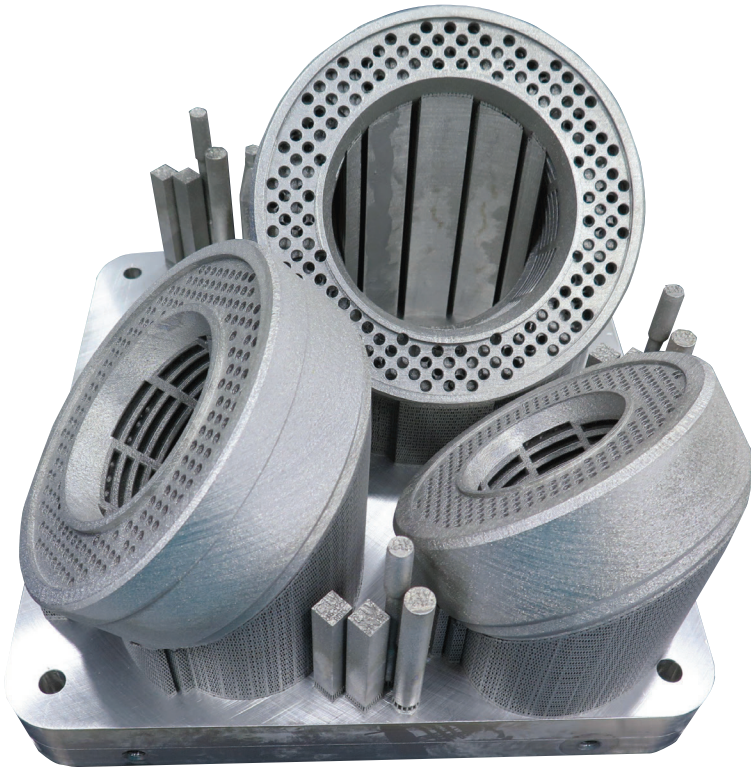
By converting its trim stack designs for AM, Baker Hughes is realizing significant time savings as well



The 3D printed valve trim is available in new valves, and existing valves can be retrofitted with the new trim with minor modifications.

Cavitation occurs because of pressure drop which can be caused by a change in fluid velocity. The vena contracta is the point of minimal flow and maximum velocity, where cavitation is most likely to form. Source for photos and graphics this page: Emerson





The 3D printing process makes it possible to produce multiple trim stacks at the same time, as shown above. Configurations like this can be saved as a “golden” build setup to be reused in the future. Source: Baker Hughes

as other benefits. Instead of relying on outside vendors, the company now performs almost the entire workflow internally. With fewer steps and vendors to manage, and no joining operations, the potential points of failure for each trim are also reduced.

Each design that is converted for AM is also saved within the company’s PLM system to lock it in and prevent unintentional editing; standardized production builds are further designated with a golden icon. Every part released for production has a “Golden Master Manufacturing” router that includes the golden design file, build setup file, post-processing instructions and inspection instructions. This ensures that successful trim stack builds can be recreated at a moment’s notice, and is helping Baker Hughes meet customer needs quickly without needing to store physical parts in inventory.

“We see about a 70% reduction in lead time when it comes to 3D printing versus a traditional manufacturing method,” O’Donnell says. In emergency situations, the company has even delivered 3D printed trim stacks in as little as 2 weeks. ▶



ABOUT THE AUTHOR

Stephanie Hendrixson reports on 3D printing technology and applications as executive editor of Additive Manufacturing Media. She contributes to *Additive Manufacturing* magazine and *The BuildUp* newsletter, and appears on the AM Radio podcast and *The Cool Parts Show*.



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VALVE

Basics

Pinch Valves: An Uncomplicated Valve With an Important Purpose

BY: SHAWN OPFER, Senior Mechanical Engineer
COMPANY: IMI PBM

Pinch valve designs are generally simple, employing an elastomeric tube forced together or pinched to stop the flow of media. This pinching force can be applied in a few ways: compressed air or fluid can be supplied directly into the valve housing to force the elastomeric tubing to close, or a mechanical clamp can be used that is closed via a manual handle or an actuator.

Pinch valves are used in on/off applications as well as throttling services. They are used in applications from clean or sanitary services such as the chemical, food and pharmaceutical industries to more industrial services such as wastewater, the cement industry and systems with a high concentration of bulk solids. Pinch valves are used in sanitary services for their cleanliness and in more industrial services because of their low friction and resistance to clogging. They do well in these services compared to other more common valve types such as butterfly, ball and globe valves because their simplicity and previously named benefits make them cost effective.

PINCH VALVE STYLES

The different types of pinch valves can be described broadly as two types: those where the sleeve is integral to the body and those where a separate clamp is used to pinch a tube or a hose closed.

Actuated pinch valve with limit switch offers complete shutoff and modular safety cover.
Source: IMI PBM

INTEGRAL SLEEVE

A pinch valve with an integral sleeve through the valve body can be actuated by compressed air or hydraulic pressure applied into the valve body between the body and sleeve. As the air or hydraulic pressure fills the body cavity, the pressure closes off the sleeve to restrict or stop the flow of media. These valves may also have a mechanism that closes via a manual operator or actuator integral to the valve. This style of pinch valve can be used as a control valve when a mechanism is used to close the valve.

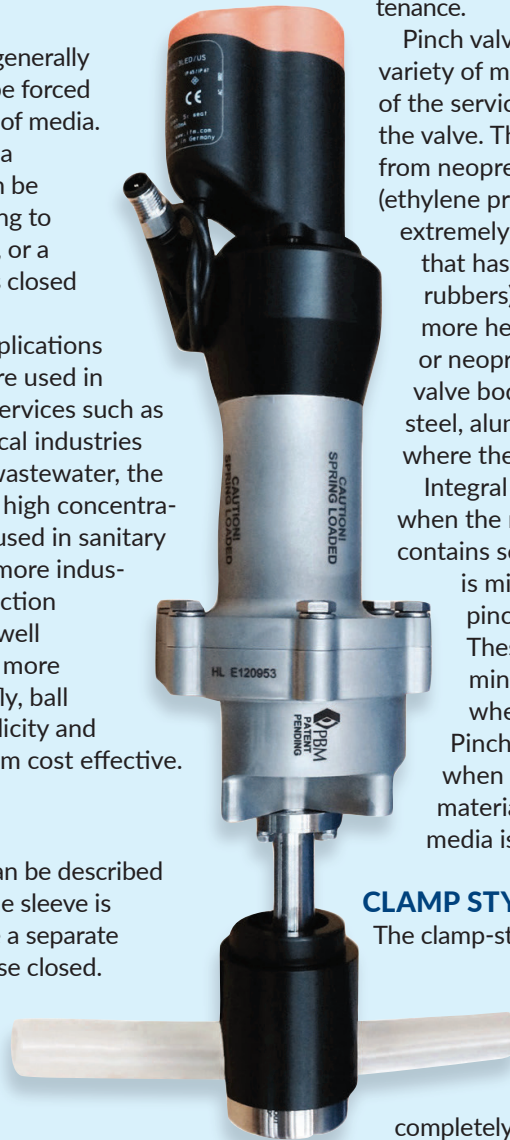
Pinch valves are generally very low maintenance. When maintenance is required, it most often involves the elastomeric tube or hose because that is what is being forced or clamped to restrict or stop flow. When the sleeve, tube or hose becomes worn or damaged from use, it must be replaced. Meanwhile, because the valve body components are isolated from valve media, they require little maintenance.

Pinch valve components can be made from a variety of materials, depending on the severity of the service and the media that flows through the valve. The sleeve, tube and hose can be made from neoprene, natural rubbers, silicone, EPDM (ethylene propylene diene monomer rubber — an extremely durable synthetic rubber membrane that has a higher heat resistance than natural rubbers), FKM (fluoroelastomer, which has more heat and chemical resistance than nitrile or neoprene) and many other elastomers. The valve body can be made of plastics, stainless steel, aluminum and other metals, depending on where the valve will be used.

Integral sleeve-style pinch valves are chosen when the media can be corrosive or when it contains solids or abrasives. This is because there is minimal friction within the sleeve of the pinch valve, so it is resistant to clogging. These valves may also be chosen when minimal turbulence is required or in cases where excellent drainage is necessary. Pinch valves are also an excellent choice when media exposure to nonelastomeric materials can be an issue such as when the media is corrosive to metals.

CLAMP STYLE

The clamp-style pinch valve essentially compresses a separate tube or hose closed using a manual actuator, pneumatic actuator or solenoid actuator which exerts the clamping force to provide shutoff. This style of pinch valve is completely separate from the tube or hose. It can





A variety of pinch valves and accessories.



Manual pinch valve with cover closed (left) and open (right) to show hose compression.

be installed and removed from the system without disassembling the hose system or breaking the line. This type of pinch valve is designed for systems where breaks in the process tubing or hose are not feasible. In most cases, these valves are used as a clamp for single-use tubing.

Because the clamp-style pinch valve is separate from the tubing or hose that it closes off, the valve itself requires minimal maintenance. This style of pinch valve is generally made from metallic materials such as stainless steel or aluminum, with handles made from plastics to help reduce

weight. In some cases, this style of pinch valve can be made entirely from plastic to reduce cost and weight. However, doing so creates a more limited ability and life span.

Clamp-style pinch valves are chosen for services that require a valve to be installed with no process break. They are generally installed on single-use disposable systems, in pharmaceutical manufacturing, and in food and beverage applications that use flexible or braided tubing.

CONCLUSION

Although pinch valves have a simple design and purpose, they are used for a wide variety of applications. Knowing their purpose and how they work enables those who choose them to pick the right type.

This article was published in a previous edition and has been updated. ❏

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Shawn Opfer is a senior mechanical engineer at IMI PBM. He has 27 years of engineering experience, the last 17 being in a variety of roles at IMI PBM.



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LATEST LAUNCHES



Valmet Launches DNAe, Next-Gen Distributed Control System

Valmet introduced its next-generation distributed control system (DCS), the Valmet DNAe. The fully web-based process control system comes with a new cybersecurity system architecture, control software and hardware, engineering and analytics tools, helping customers improve efficiency, productivity, sustainability and safety of their operations.

Designed to support the work of all process automation user groups, Valmet DNAe was developed with a design philosophy to empower people to perform and collaborate better across the organization. The system provides a common user interface for controls, analytics, configuration and maintenance. Advanced analytics tools enable turning real-time and historical data into actionable insights.

The system empowers users to seamlessly run industrial applications on-premises, at the edge server or in the cloud. It features a scalable redundant data platform, granting easy and controlled access to all data. The system architecture is cybersecure by design, with role-based access control, authentication, audit trail and encryption mechanisms for proactive prevention of cyber threats. valmet.com

Self-Calibrating Electric Actuator from Emerson Fisher

Emerson has introduced the Fisher Easy-Drive 200R Electric Actuator for use on Fisher butterfly and ball valves. The actuator performs accurately and reliably under the extreme conditions found in many heavy industries, particularly oil and gas installations in cold remote locations. These actuator/valve assemblies increase uptime, improve performance and reduce the risk of emissions posed by gas-operated systems locations.

The actuator is easy to install and calibrate using the easy-Drive Configurator Software, provided free of charge with the actuator. It operates on 11 to 30 VDC power and consumes less than 0.4 W when in the holding position mode, making it suitable for use in applications without available utility power. Operating in temperatures as low as -40°F (-40°C), it eliminates the need for a space heater in all but the most extreme temperature applications.

The 200R is an extension of the easy-Drive actuator portfolio, which also includes actuator options for both globe and rotary valves. To learn more, please visit the company's website.

emerson.com



Groth Corp. Announces New Pilot-Operated Relief Valve

The Groth Model 16F pilot-operated relief valve offers reliable low-pressure protection in compliance with API 2000 standards for pilot-operated relief valves.

Its design prevents fugitive emissions and conserves stored product.

The Model 16F pilot-operated relief valve employs an optional film seat-sealing technology for superior sealing and offers flexibility regarding snap or modulating action.

Features include a main valve that remains tight to set pressure; full open at 10% overpressure; modulating action conserves product because valve opening is proportional to overpressure; soft seats seal tight to conserve product and minimize valve wear, improving reliability; high flow rates minimize pressure drop during relief events. The valve is suited for cryogenic applications.

grothcorp.com





HART
COMMUNICATION PROTOCOL



Flowserve Receives First FDT 2.0 DTM Certification from FDT Group

FDT Group, an international, nonprofit industry association supporting the evolution of FDT technology for industrial device management, announced certification of its first device-specific DTM based on the latest FDT 3.0 standard supporting the HART protocol from Flowserve Corp. The newest certified Logix 3820 Series DTM is deployable using Flowserve positioners supporting HART 6/7 and tackling flow control challenges designed for modern IIoT architectures.

FDT DTM certification to the FDT 3.0 specification and webUI is a process with rigorous compliance testing using

dtmINSPECTOR5, ensuring the viability of the states of the DTM. It features correct installation, de-installation and multiuser environment capability; mandatory and optional user interface functionality and robustness; network scanning communication performance, and the ability to import and export the topology; and an audit trail capability.

Users can use secure and seamless data exchange/interrogation from the sensor to the cloud, and achieve new levels of information technology (IT) and operational technology (OT) integration. flowserve.com



Comprehensive Automation Platform Empowers Action from Plant to Enterprise

Emerson is evolving its DeltaV brand into the DeltaV Automation Platform. The newly expanded automation platform will include supervisory control and data acquisition (SCADA) systems, manufacturing execution systems (MES) and operations management software alongside the distributed control (DCS) and safety systems (SIS), and other technologies that have been part of the brand for decades. The evolution builds a more comprehensive automation platform to make it easier for users to deliver smarter, safer, more optimized and more sustainable operations.

The comprehensive nature of the new DeltaV Automation Platform will empower users to move away from “plant-by-plant” strategies to “site-by-site” or even enterprise automation solutions — the more advanced, integrated automation strategies that are increasingly necessary to compete in a complex global marketplace.

All solutions in the DeltaV Automation Platform will be seamlessly supported through the Guardian digital customer experience. Users will have a single point of access to Guardian’s digital tools and subscriptions for all their solutions, providing easy access to real-time monitoring, in-depth analytics and actionable insights. Emerson.com

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INDUSTRY

PROFILE

Tim Chicoine



Tim with his homemade "Timmerbago" camper that he and his wife take out whenever they can.

Tim Chicoine is the director of sales, Americas, for WedgeRock Engineered Solutions, and principal of Riverhawk Industrial Sales Inc. He has over 30 years' experience in the valve and actuator industry. His focus is on methane mitigation in valve operations for the oil and gas industry.

I fell into the world of valves and actuators by accident. My first job out of college was with a company that supplied valves, automation, electric heat tracing and high-voltage cable splices and terminations. I was hired because I had a degree in electrical engineering. I thought I would stay in the electrical industry, but my next job was as a valve automation manager for a regional distributor. I loved what I was doing and decided to make a career specifically in valve automation.

I have been peripherally involved with the VMA for years working at member companies and even for multiple VMA Persons of the Year. The value of being involved with the VMA was ingrained in me years ago. As I get older, I realize the importance of giving back to an industry that has been good to me. I am a member of the VMA's Sustainability Committee and enjoy the important work this committee is doing.

My current focus is on the oil and gas industry, and I am highly focused on the changes the EPA is requiring for "process controllers." Methane mitigation and fugitive emission reporting is changing the industry. I enjoy educating customers on the changes being imposed to make the oil and gas industry more sustainable.

What challenges are manufacturers and end users facing? I think the biggest current challenges are the increasing regulations on both the manufacture and use of our products. Whether it be ESG reporting, fugitive emission reductions or the changes regarding "forever chemicals," organizations are having to rethink their operations, reporting requirements and, in some cases, their product offering. This also affects end users if their normal way of operating is changed due to product restrictions.

What are you excited about? Recent trends regarding pipeline electrification and using solar solutions to power electric and hydraulic actuators. New technologies such as spring-return gears, low-powered electrohydraulic actuators and motorized high-efficiency gears make pipeline electrification and methane mitigation more cost effective and efficient.

Advice for someone entering the industry: Become an expert in whatever part of the industry you settle on. I see more and more end users relying on vendors to guide them in the application of their process. I see a lot of suppliers that are great at giving the customer what they ask for, but these days as our customers run their organizations leaner, we need to advise the customers of what they need, not only what they ask for. This includes advising them on new products as well as new regulations that need to be followed and new methods of operation. I would also suggest they get involved with organizations like the VMA early on in their career. The relationships they make in this industry can last a lifetime.

What's the best professional advice you received? The best piece of advice I was given was to develop relationships in the industry. The valve and actuator industry is relatively small and, after many years, you will most likely deal with most people in the industry. I was also advised not to "sell" at industry events but to use them to develop relationships.✕

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