

WALWEE

MAGAZINE

FALL 2022
VOL. 34, NO. 4



Water/Wastewater Projects Loom Large

- WORKFORCE
- ENGAGEMENT
- AND RETENTION
-
- VALVE
- SELECTION:
- GLOBE VALVES
-
- COMPARISON
- OF FUGITIVE
- EMISSIONS
- STANDARDS
-
- MEET
- VMA'S NEW
- CHAIRMAN
-



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14

Market Outlook Speakers Mostly Positive for 2023

While there are a number of variables facing the valve and pump industry going into 2023, experts are confident that some sectors are going to continue to grow, but there is still uncertainty. COVER IMAGE CREDIT: GETTY IMAGES
BY HEATHER GAYNOR

20

ALIGNING WITH PURPOSE: PROMOTING ENGAGEMENT AND RETENTION IN A CHANGING WORKFORCE

Companies need to prepare for the changing desires and demands of the workforce.

BY SCOTT PILKINGTON

24

UNDEFINED AND OVERLOOKED VALVE SELECTION CONSIDERATIONS

Selecting and specifying the proper valves during system design requires knowledge of piping arrangement and defined operating conditions, as well as preparing for unexpected variations.

BY LEA CLAUSON

36

AN INTERVIEW WITH VMA'S NEW BOARD CHAIRMAN

During VMA's 84th Annual Meeting, Matt Thiel of AUMA Actuators, slated to become the board chairman for the next year. Learn more about Matt's career and what he wants to accomplish during his tenure.

PRODUCTS

40 Editor's Picks



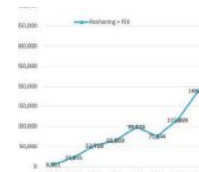
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In the Air:
Wireless Trends in Smart Pneumatics



Multiple Supply Chain Risks Accelerate Reshoring Initiatives



Dealing with sand erosion in control and choke valves



From the Archives: Ancient Roman Valves

COLUMNS

4 Perspectives

The energy and excitement for our industry is palpable.

BY HEATHER RHODERICK

28 Valve Basics

Globe valves
BY GREG JOHNSON

32 Standards

Fugitive emissions requirements from ISO, API and TA Luft.

BY TRIPP LOWERY

DEPARTMENTS

Industry Capsules ... 6

VMA Calendar ... 7

VMA News ... 10

VMA and VRC Member Roster ... 38

Index of Advertisers ... 40

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The Energy and Excitement for Our Industry is Palpable



Over the past six weeks, VMA held its Market Outlook Workshop, 84th Annual Meeting and had a presence, along with VALVE Magazine, at the International Manufacturing Technology Show (IMTS). I was fortunate to attend all three events, and enjoyed connecting in person with VMA's manufacturer, distributor, and service provider members, as well as members from the Valve Repair Council. Through conversations with attendees and the speakers, the events provided a good snapshot of the current business climate of the industry and the markets served by it, as well as trends to watch for.

While the industry remains strong, there are certainly concerns on the horizon. However, those challenges have come with increased orders and a strong backlog. Check out the article on page 14 for a closer look at predictions for some of the markets served by the valve industry.

I've been a part of many discussions around the workforce over the past months from implementing a hybrid work environment, ideas to retain workers, and strategies for finding new hires. The article on page 20 continues that focus.

VALVE Magazine and VMA's continued goal to help increase knowledge is evident again with the article on globe valves on page 28. And if you enjoy articles like this, I encourage you to attend VMA's Valve Basics Seminar and Petting Zoo in-person this fall, an event like no other that provides the breadth and expert knowledge on valves, actuators and controls — all in a nonproprietary approach. A full VMA calendar of events is on page 7.

At the VMA meetings and at IMTS, discussions around automation and digitization, workforce and sustainability could be heard in the hallways and on the stage. Thanks to the leadership of the VMA Board and VMA's past Board Chairman, VMA is poised to help lead the industry and our members through these issues. I'd like to thank Ron Warren, President, Bray International, for his past year serving as Chairman of the VMA Board of Directors, and also welcome Matt Thiel, President, AUMA Actuators, as the new VMA Chairman of the Board. Find out more about Matt on page 36.

Lastly, VMA welcomes Heather Gaynor as the new editor for VALVE Magazine. Heather comes to VALVE with a number of years of industry experience, and plenty of communications, marketing and publication experience.

If you'd like to find out more about VMA, please contact me at hrhoderick@vma.org.

Heather Rhoderick, CAE
President

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ACQUISITIONS

Baker Hughes Acquires Quest Integrity

Baker Hughes announced an agreement to acquire Quest Integrity, a subsidiary of Team Inc. Quest Integrity is a manufacturer and provider in the development and delivery of technology-enabled asset inspection and reliability management solutions across the pipeline, refining, petrochemical and power generation sectors.



This complements Baker Hughes' existing asset integrity offerings and additionally supports customers with the delivery of actionable solutions on a broader range of industrial infrastructure.

Emerson Expands Portfolio With Acquisition of Fluxa

Emerson has acquired Fluxa, a leader in the life sciences industry that uses software and modern technology architectures to accelerate the speed to market for new therapies, drugs and vaccines. The acquisition builds on Emerson's leading software and solutions portfolio and life sciences expertise. Fluxa accelerates the speed to market for new therapies by helping drug development and manufacturing organizations harness the power of collaboration and data across sites, functions and processes. Fluxa's PKM

software will be integrated with Emerson's industry leading DeltaV control system and life sciences automation software, creating the potential to accelerate the development of new drug therapies into production.

Clearlake Capital-Backed FloWorks Acquires Flotech

FloWorks International LLC, a specialty flow control distribution platform backed by Clearlake Capital Group L.P., acquired Flotech, Inc., a value-added distributor and servicer of industrial valves.

Founded in 1961, Flotech services the southeastern United States.

Located in Florida, South Carolina and Alabama, the company's family of products includes industrial and isolation valves, gate valves, globe valves, check valves, actuation and controls, and safety and relief valves, among others. Flotech also provides a full range of service offerings, including valve maintenance, automation and actuation, heat exchanger maintenance, and testing and certification. The Flotech management team, including CEO Caleb Goelz and President John Allen, are staying with the company.

Eastern Controls Acquires Pittsburgh-Based Andrews Industrial Controls

Eastern Controls, Inc. has announced the acquisition of Andrews Industrial Controls, expanding its products, solutions and ser-

vices throughout Western Pennsylvania, West Virginia and Ohio. This comes shortly after Eastern Controls expanded into Western Pennsylvania and West Virginia with partners Baker Hughes Masoneilan and REXA, Inc.

For 45 years, Andrews Industrial Controls has provided instrumentation, gas and flame detection, valves, actuators and services to a broad range of industries from oil and gas, power generation, chemical and petrochemical, water and wastewater, food and beverage, and pulp and paper.

PVI Holdings, Inc. Acquired by MiddleGround Capital

MiddleGround Capital has acquired PVI Holdings, Inc. MiddleGround is an operationally focused private equity firm that makes control investments in the North American middle market primarily focused on B2B industrial and specialty distribution companies. Included in this transaction are Setpoint Integrated Solutions Inc., W&O Supply and A-T Controls, Inc.

AWARDS AND HONORS

Don Bowers Receives Distinguished Service Award from ASME

During the ASME Code meetings held at the National Board of Boiler and Pressure Vessel Inspectors (NBBI) campus Aug. 8-9, 2022, Don Bowers received the ASME Section IX Distinguished Service Award. This award is presented to individuals who have made significant contributions to ASME Standards Committee IX and the overall joining (welding, brazing and plastic fusing)



arts community.

Bowers has overseen significant developments to ASME Section IX, including the management of committee activities during COVID. He has been involved in Section IX activities since the mid-1980s and has held various leadership positions on the ASME BPV IX committees for over 25 years.

Bowers currently serves as the vice president of sales and marketing at Conval, Inc. He has been a member of VALVE Magazine's Advisory Board for nearly a decade.

Curtiss-Wright Receives Multiple Awards from Suppliers

Curtiss-Wright's FAMOS (Fleet Asset Management and Optimization Solutions) software received the Premier Vendor Award from Entergy Corp. after the successful implementation throughout Entergy's nuclear power fleet. Entergy Nuclear's Monitoring & Diagnostics (M&D) Center collects and analyzes data from the fleet's five nuclear units to enhance performance, efficiency and reliability. It selected Curtiss-Wright's FAMOS condition monitoring software to eliminate inefficiencies, improve worker utilization and streamline plant operations.

In addition, Curtiss-Wright's Nuclear Division has received two Supplier of the Year awards from the Utilities Service Alliance

in the Materials and Technology award categories. This achievement marks the second consecutive year Curtiss-Wright received awards in both categories.

CONTRACTS AND COLLABORATIONS

MRC Global Selected as PVF Products Provider for Renewable Diesel Project

MRC Global Inc. announced that Chalmette Refining has selected MRC Global (U.S.) Inc. as the primary pipe, valves and fittings (PVF) products provider for Chalmette's Renewable Diesel Project in St. Bernard Parish, Louisiana. Chalmette Refining is a subsidiary of PBF Energy Inc., one of the largest independent refiners in North America.

The renewable diesel plant will include a pretreatment unit at the manufacturing site that will enable Chalmette Refining to process renewable materials such as soybean and corn oil, as well as other bio-based fats and oils, into feedstocks for the primary unit. When completed, the production unit will have a nameplate capacity of 20,000 barrels per day of renewable fuel, with start-up expected in the first half of 2023.

MRC Global is also the primary agreement provider of PVF products and services to PBF's six U.S. refineries, which includes all project and maintenance, repair and operations (MRO) needs.

Emerson Helping Albioma Become a Fully Renewable Energy Provider

Global technology and software company Emerson has been selected by Albioma, a

French independent energy provider, to help transition its coal-fired Bois Rouge plant to 100% renewable energy. As part of Albioma's wider mission to transition all its existing fossil fuel plants to renewable energy, Emerson's automation systems and software will enable the coal-fired power station to convert to biomass feedstock.

Work on the transition project was scheduled to begin during a planned outage in June 2022 and is expected to be completed within five months.

Curtiss-Wright Awarded Contracts to Support Critical U.S. Naval Defense Platforms

Curtiss-Wright Corporation was awarded contracts valued at more than \$220 million to provide propulsion valves, pumps and advanced instrumentation and control systems for the U.S. Navy's Virginia-class nuclear powered attack submarine, Columbia-class submarine and Ford-class aircraft carrier programs. The awards were received from Bechtel Plant Machinery, Inc. (BPMI) and General Dynamics Electric Boat to support ship construction, spare parts and submarine back-fit procurements.

Curtiss-Wright is performing this work at its facilities

in New York and Pennsylvania within the Company's Defense Electronics and Naval & Power Segments. Engineering and manufacturing have commenced and will continue through 2026.

Siemens Has New R&D Collaboration With Oak Ridge National Laboratory

Siemens announced it has engaged in early-stage research and development projects with multiple partners including National Laboratories. The Department of Energy's (DOE) Manufacturing Demonstration Facility (MDF) at Oak Ridge National Laboratory (ORNL) is a pioneering institution focusing on manufacturing analysis and simulation, materials development, large-scale metal systems, robotics and automation. The collaboration between Siemens and ORNL on multiple DOE-funded projects has enabled the cooperative investigation of multiple methods of advanced manufacturing and materials solutions.

Flowserve Expands Educational Service Capabilities in Partnership with Lamar University

Flowserve Corporation recently announced the opening of a new Learning Resource Center (LRC) on the Lamar University cam-



2022 YEAR-LONG

VMA Valve Basics 101 and 201

Virtual
www.vma.org/valvebasics

OCTOBER

8-12 WEFTEC 2022 Conference & Expo

New Orleans, LA
weftec.org

NOVEMBER

9-11 2022 Valve Basics & "Petting Zoo"

Pasadena, TX
vma.org/events

29-Dec 1 Valve World Expo & Conference

Düsseldorf, Germany
valve-world-conference.com

2023

APRIL

17-19 Valve Forum Conference & Exhibits

San Antonio, TX
vma.org/events

SEPTEMBER

27-29 2023 VMA Annual Meeting*

(members only)
Savannah, GA

OTHER VMA EVENTS

Please visit vma.org/calendar for additional programs as they are scheduled.

*Open to VMA/VRC members only. Visit www.VMA.org to learn if your company qualifies for membership.

VALVE MAGAZINE

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welcomes articles, proposals, manuscripts, photographs and ideas from our readers. For a copy of the magazine's Author's Guidelines, contact Heather Gaynor, Editor-in-Chief, at hgaynor@gardnerweb.com

pus in Beaumont, TX. The new LRC will provide Flowserve customers and Lamar University students with the opportunity to engage with Flowserve's products and technology through hands-on, lab-based learning. Flowserve's team of certified trainers will facilitate product demonstrations and simulations, as well as leverage other training tools, to deepen participants' understanding of Flowserve's flow control systems. Based on the level of training, participants may be eligible to receive professional development or educational credits following completion.

DISTRIBUTORS AND CHANNEL PARTNERS

Total Valve Systems Joins ValvTechnologies Channel Partner Network

ValvTechnologies recently announced that Total Valve Systems (TVS) is now part of the company's valued channel partner network. TVS is celebrating 30 years of strong history and growth in servicing customers around the globe. Since 1983, its corporate headquarters has been in Broken Arrow, OK, with a 70,000 square-foot-plant facility on a 10-acre site. In addition to distribution, TVS is a certified authorized repair center in

Kansas, Nebraska, Oklahoma, Wyoming and the Texas Panhandle.

AUMA Selects Vandevanter as New Rep

Vandevanter Engineering is AUMA's new representative in the eastern Missouri, and southern Illinois territory with offices in Fenton, Missouri, and Decatur, Illinois. Vandevanter has provided high quality products and services in the water and wastewater treatment industry since 1944. Their commitment to meeting customer's needs, reliability and efficiency make Vandevanter a great choice in municipal service. **VM**

PEOPLE IN THE NEWS



Trey Rothenberger

Continental Disc Corporation (CDC) has named **Trey Rothenberger** as vice president of global sales. He has more than 25 years of experience managing global businesses and has served in a variety of roles that have prepared him to successfully lead CDC's Global Sales team.

MRC Global has appointed **Emily Shields** as senior vice president – sustainability and assistant general counsel. Shields began her career with MRC Global in 2013. Prior to taking responsibility for the company's ESG program, she led the company's litigation and compliance efforts as well as other corporate matters including labor and employment, and health, safety and environment as the assistant general counsel and compliance officer since 2020.



Emily Shields



Jim Storing

Allied Valve has a new president: **Jim Storing**. He has worked at Allied Valve for the past eight years, starting as general manager and then progressing to the role of vice president of operations.

Richards Industrials has appointed **Matt Thomas** as vice president of manufacturing.



Matt Thomas



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Networking during awards dinner

High Turnout at 2022 Annual Meeting Signals Strength of Industrial Valve Industry

The 2022 VMA/VRC Annual Meeting welcomed VMA and VRC members for three days of networking and programming that tackled today's issues and offered opportunities designed to create meaningful partnerships. The event in Santa Barbara boasted the highest number of paid attendees in seven years, with close to 150 participants overall and more than 20 new attendees.

TACKLING TODAY'S ISSUES

Attendees took part in education sessions and discussions that focused on a variety of topics that are on the forefront of the collective industry's minds now, including workforce development, the 2022 U.S. midterm elections, and China's influence and impact on the U.S., Canadian and global economies. While the industry continues to have a strong backlog of orders, there are plenty of concerns from global issues, inflation, to labor shortages and more, that temper the optimism. As always, the networking at the event was enjoyed by all.

U.S., CANADIAN AND GLOBAL POLITICAL AND ECONOMIC OUTLOOK

Christina Bellantoni, a leading political editor and award-winning journalist, discussed the media's role in reporting on the 2022 midterm elections and how it could do better when it comes to reporting the facts.

Scott McKnight, PhD, an academic and expert on China, provided a deep dive into all things China, discussing areas such as Taiwan, its support of Russia, how the Chinese economy has been impacted by COVID shutdowns, and how the country is adopting an innovation strategy specific to sustainable energy.

Turning to economics, attendees were presented with two slightly different perspectives on the U.S. economy and where it's headed in 2023 during a lively Q&A with two leading experts — an industry stock analyst, Michael Halloran, who's also a managing director with Robert W. Baird and Company, and a macroeconomist, Ken Matheny, PhD, executive director, and senior economist with S&P Global Market Intelligence. This led to great interaction between the speakers and the audience as they debated whether a recession was likely, and the impact of the current inflationary environment. Despite the economic headwinds, some potential breakaway industries that could do well next year are auto-



Return speaker Michael Halloran of Baird sharing his outlook for the process controls market.

motive, commercial construction, energy and utilities.

There was also a deeper dive into specialized markets including oil and gas, and water/wastewater, and more attendee discussion and sharing of ideas on returning to work and employee engagement.

EMPLOYEE MANAGEMENT

Attracting and retaining talent continues to be a challenge across the entire manufacturing segment, and our industry is not immune.

Speaker Lisa Ryan is the president and founder of Grategy, a consultancy that focuses on employee retention and engagement. Ryan gave ideas that C-suite and leadership executives could implement into their organizations as the shift to a post-pandemic workplace and workforce continues. This included best practices for connecting with remote employees, attracting and retaining the industry's best people, and ideas to help capture and transfer knowledge between employees while building engagement across multigenerational teams. Ryan provided seven specific tactics that leaders could start to implement now to help with retention. These included ways in which leaders could connect with employees, as well as the importance of instilling pride in the products produced by showcasing how they are used and for what purpose.



Lisa Ryan of Grategy

Stuart Ducoffe, a seasoned employment and labor lawyer, founder of e2r, and partner and co-founder of Woolgar, Van-Wiechen, Cosgriffe, & Ducoffe LLP, touched on recommended approaches to attracting and retaining talent in the manufacturing sector including areas in production, administration, sales and marketing. He also provided several examples of legal cases and potential concerns for companies to consider when drafting new telework or remote policies.

VMA RECOGNIZES MEMBERS WITH AWARDS

During the annual meeting, the Valve Manufacturers honored two of its members who have consistently gone above and above with the 2022 Person of the Year Award and the VMA 2022 Service Award. VMA is honored and proud to recognize the two individuals below for their support of VMA

and their leadership in the industry. We are grateful to have them as leaders in our organization! For a listing of past award winners, visit www.vma.org/awards.

VMA PERSON OF THE YEAR

The Person of the Year Award is VMA's highest honor and given to one individual each year. The winner truly possesses a passion for the industry and sharing their knowledge with others to help advance VMA and the industry at large.

Bryan Burns, President/CEO at DeZURIK, Inc., was named the 2022 Person of the Year. Burns has been influential in many aspects of the association over the past few years. His peers recognized him for his leadership, volunteering and stepping up when asked, as well as supporting others at DeZURICK to be involved with VMA. He also served as VMA Board Chairman in 2019-2020, playing a key role in developing the five-year association strategy.



VMA SERVICE AWARD

The Service Award recognizes individuals who have provided outstanding service, expertise and guidance while participating on a committee.

Kyndle McMurry, marketing manager, Richards Industrials, received the 2022 VMA Service Award for having gone above and beyond in supporting VMA, contributing to committee efforts and working with committees and staff to deliver value. Specifically, this past year she stepped in to fill the VMA Marketing & Communications Committee chair role quickly and took charge of the Committee's role at the Valve Forum this past April. She also served on the Strategic Planning Committee.



NEW LEADERS FOR VMA

As part of the Annual Meeting, Ron Warren, president of Bray International and VMA Chairman of the Board announced the 2022/23 slate of nominees for the VMA Board of Directors. This includes the following:

- Board chair: Matt Thiel, president, AUMA Actuators Incorporated
- Vice chair/treasurer: Andy Duffy, vice president of sales, Emerson/ASCO
- Nathan Brunell, product line general manager, Baker Hughes
- Kirk Wilson, president, flow control division, Flowserve
- Immediate past chair: Ron Warren, president/COO of Bray International Inc.

BOARD OF DIRECTORS MEMBERS

- Alejandro (Alex) Alcalá, senior vice president, Crane Co.
- Mark Claffey, president, Trillium Valves USA
- Danilo Garcia, president, RF Valves, Inc.
- Seth Guterman, CEO, American Valve
- David Loula, director, global products and markets, ITT Engineered Valves
- Andrew Masullo, senior general manager, Valves Division, Curtiss Wright (new board member for a three-year term)
- Kevin McKown, general manager, Curtiss-Wright Nuclear
- Kevin J. Tinsley, SVP, global operations, Neles
- Rob Velan, executive vice president, MRO & aftermarket and vice chairman of the board, Velan Valve Corporation
- Brian Wright, president/CEO, A-T Controls



Outgoing chair Ron Warren passes the gavel to new chair Matt Thiel.

VMA Awards William “Bill” Sandler Scholarship to Four Students

Now entering its fourth year, the VMA William “Bill” Sandler Scholarship Program was established to provide educational opportunities to the chil-

dren of VMA and VRC member company employees. Sandler was with the VMA for 42 years, the longest serving employee in VMA history. He rose to

become VMA’s president, leading and guiding the association through the ever-changing industry. Sandler’s unwavering commitment to his family, fellow employees and all association members was unparalleled. VMA endows scholarships in Sandler’s name for college and trade school students in the fields of engineering and manufacturing.

VMA awarded the 2022 William Sandler Scholarship award to four outstanding recipients: Stephen Bayreuther, Brooklyn Dixon, Colleen Foster and Jacob Mizer.

The program provides financial assistance to help offset the rising cost of post-secondary education — both in technical schools and four-year universities and colleges — and promotes career pursuit in areas of importance for the valve manufacturing industry.

Stephen Bayreuther is attending West Virginia University. His father, David Bayreuther, works at Valmet.

Brooklyn Dixon is attending Texas A&M. Her father, Jimmy Dixon, works at Emerson Automation.

Colleen Foster is attending the University of Texas. Her father, Roy Foster, works at Oklahoma Custom Coating.

Jacob Mizer is attending Ohio University. His father, Craig Mizer, works at AUMA Actuators.

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Stephen Bayreuther



Brooklyn Dixon



Colleen Foster



Jacob Mizer

The 2023 William Sandler Scholarship program is now accepting applications for the 2023-2024 school year. For more information on the program and to apply for the 2023

scholarship, visit www.vma.org/sandlerscholar. The deadline to apply is June 30, 2023.

VMA Welcomes New Members

Valve Accessories and Controls

Valve Accessories and Controls (VAC) markets quality valve positioner products for modulating control valves in various flow control markets. The simple, but rugged products incorporate many years of direct industry experience, coupled with a genuine interest in customer feedback and satisfaction. The company's simple straightforward approach to its product carries over to how it deals with customers and their employees. Quality matters, service matters, a positive attitude matters,



and character matters. Learn more about VAC at vacaccessories.com.

and character matters. Learn more about VAC at vacaccessories.com.

AWC, Inc.

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Valve Basics Seminar and Petting Zoo

The Valve Basics program is hitting the road later this fall, and it's the perfect opportunity to gain hands-on education on the fundamentals of valves and actuators, as well as increase your knowledge of standards, trends, best practices, applications and troubleshooting techniques with new or maintenance operations.

The Valve Basics Seminar and Petting Zoo is coming to the Houston Area Safety Council in Pasadena, Texas. The event provides three days of in-person learning and training, perfect for those who are new to using, installing, maintaining or specifying valves, or those who are new to the industry or want to expand their knowledge on different types of valves and actuators.

The highlight of the event is the Petting Zoo. The Pet-

ting Zoo provides a hands-on opportunity to touch and operate valves and actuators, and their parts and components. This part of the event provides a real-world learning experience that complements the classroom setting.

Attendees will also hear non-proprietary lessons on various types of valves, and electric actuators. Selecting the right valve for the application, standards, start-up/shut-down operations and trends such as IIoT are also reviewed.

With content taught by a variety of experts in their field, this is the most unique education and training event in the industrial valve industry. Registration is now open for the in-person Valve Basics Seminar and Petting Zoo. Learn more and register at www.vma.org/valvebasics

VM

Market Outlook 2023



Market Outlook Workshop Speakers Offer Insight Into Possible Recession, Ongoing Supply Chain Issues and Political Impacts for 2023

From the positive impacts of the Infrastructure Investment and Jobs Act (IIJA) to the negative repercussions from the war in Ukraine, external forces continue to shape an uncertain future.

BY HEATHER GAYNOR

VMA held its annual Market Outlook

Workshop in conjunction with the Hydraulic Institute (HI) in August, reviewing what's happened with the global market since the 2021 event. The focus again was how the United States and Canadian end users served by the industrial valve and pump

industries have been impacted and may be going forward. Joined by a slate of experts from end use market industries and financial and economic consulting firms, the two-day event, open to VMA and HI members only, covered pending and new legislation, Covid-19 rebounds to the supply chain and overall economy, and dove into some predictions for

the next few years.

The main themes from the speakers were the huge impact Covid-19 had and continues to have. Output is slowing in the U.S. and globally as backorders are fulfilled from disruptions of the past two years. Geopolitical issues in Ukraine and Russia, as well as tensions between China and Taiwan, will contin-

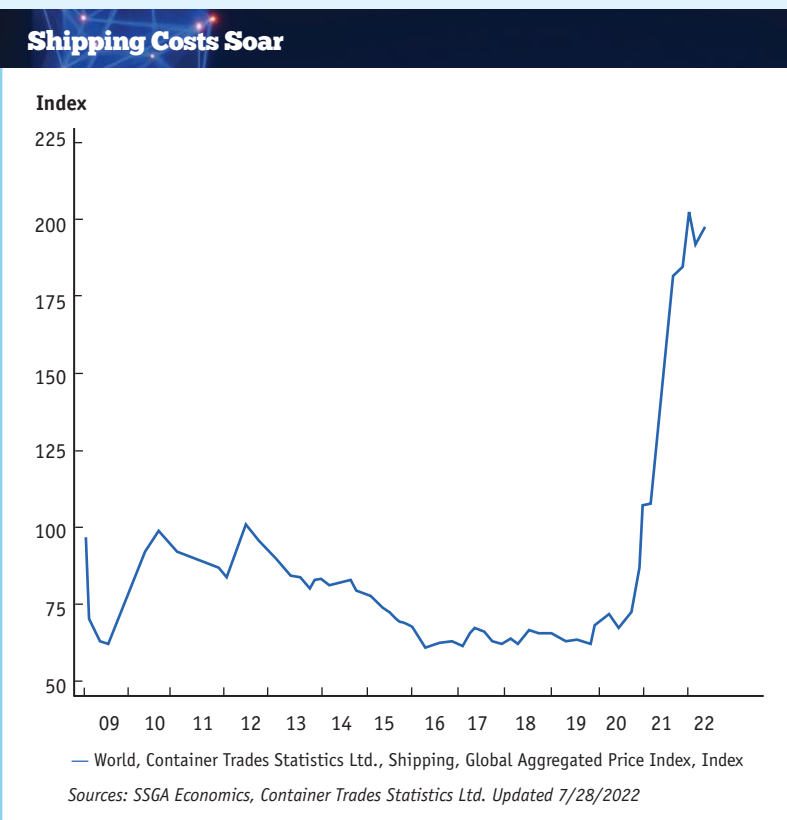
ue to impact the global economy. VALVE Magazine was able to attend and found the following key takeaways from the speakers during the recent workshop.

GLOBAL ECONOMIC TRENDS & OUTLOOK

Returning speakers Simona Mocuta (State Street Global Advisors chief economist), Michael Halloran (Robert W. Baird associate director of research) and Connor Lokar (ITR Economics speaker and senior forecaster) all presented their perspectives and predictions for the coming year. Overall, they were very much aligned on their predictions that 2023 is likely going to be mixed for many industries. Lokar described the labor market as “shades of gray,” with a slowdown in job postings and turnover as well. But, he expects labor cost pressure to improve next year. “It’s a lagging economic indicator, and I don’t think you’re going to feel great, but you won’t be as strained as the last couple of years,” he said.

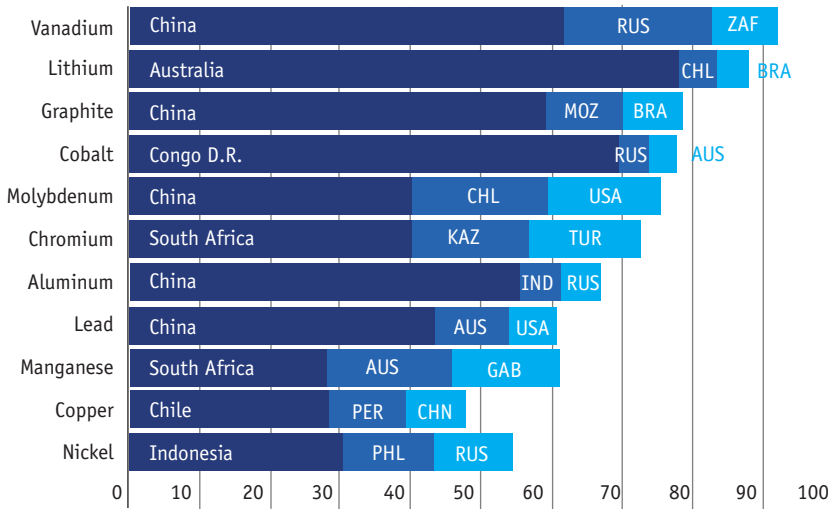
Mocuta mostly agreed with Lokar, and she believes that a disinflationary episode of goods manufacturing is coming, with prices declining in some areas but not all. “Shipping is one area where I see genuine correction because it’s been too out of the norm,” she said. “Now that inventory building is happening again, things should start normalizing, but (lower prices) isn’t something I’d expect to see broadly speaking.”

When asked how unusual it is to be entering a recessionary period when companies have had historic backlogs, Halloran said this is very industry dependent. “In 2008, it happened in the back half of the year, but energy companies had record years in 2009,” he replied. “Any time you come out of a recession you have people overcorrect on the capacity side or the workforce side, so as you come out you have supply chain challenges and labor constraints. In the past couple of years, you’ve had this on steroids because of how quick the pullback was and how quickly industry responded.” When you add in geopolitical concerns, “You get to backlog levels and inflationary concerns you’ve never had before,” he said.



Biggest suppliers of green energy minerals

Share of total production



*Figures are subject to significant fluctuation due to ongoing resource exploration. U.S. lithium mine production is proprietary and unavailable.

Halloran believes industries that could grow next year include energy, automotive, commercial construction, and utilities with heavy infrastructure ties — location dependent — with the passing of the Infrastructure Investment and Jobs Act (IIJA).

Mocuta expects automotive growth due to long backlogs from chip shortages throughout the pandemic. “I expect some of the backlogs to completely clear from other industries next year, but auto manufacturing backlogs could continue.

The conversation turned to the chip shortage that impacted a wide swath of electronic manufacturers but hit the automotive market particularly hard. Political tension between China and Taiwan can only exacerbate this. Halloran said: “I look at the CHIPS Act, and while it’s a good step, it’s a drop in the bucket for what it costs for one foundry to be built — and they only have a 5-6 year typical useful life. I think there’s some reshoring potential, but it’s gradual.”

He said as companies think about the economics of building capacity here in the U.S., they may hold to cheaper offshore options until they are forced to move production here. And, even with \$50 billion in addi-

tional investments in American semiconductor manufacturing, the capacity this would create will only increase U.S. market share of chips from less than 2% to up to 10% in the next decade.

The IIJA will certainly help local utilities and construction companies that focus on projects like these, but there is still much to be learned about where the dollars will be allocated. Lokar pointed out that even if the dollars are awarded to local projects, there may still be an imbalance in the required labor and equipment to execute the projects. What follows are short summaries of specific industry outlooks from the speakers.

PROCESS CONTROLS

Mike Halloran’s session focused on process industries. Sectors such as oil and gas and chemical companies, infrastructure and municipal water and wastewater agencies and mining should see growth volume continuing in 2023. The power market will likely have small growth to slight decline, particularly in wind and solar, as well as coal and nuclear. That said, Halloran seemed a little bullish on the return of nuclear energy.

“Nuclear provides that baseload and is the cleanest of the alternatives (but

the public’s) perception is to look at big disasters and what it could mean. Yes, there is some risk, but today’s nuclear power plants are so much more sophisticated. There’s a viable opportunity for that to be coming to the forefront.” He continued, “New power plants take a long time to build so I don’t think that’s a near-term benefit, but (could be) on the five- to 10-year horizon.” As the world sees warming temperatures and the power grid is more stressed every day, nuclear could have another small renaissance.

Halloran’s predictions for short-cycle industrial show healthy demand but the outlook is challenging due to deceleration curves. He sees stronger market dynamics in the oil and gas sector than in more than a decade for midstream and upstream, and for downstream and chemical plants due to market disruption and underinvestment in new infrastructure and MRO business. Water and wastewater municipal budgets are healthy, and with the passage of IIJA, this should continue into the near term future.

MINING

As the world grapples with the extent to which it can transition to clean energy and how quickly, the demands on critical materials like copper, lithium, cobalt and nickel continue to rise, said Doug Anderson of PwC. There has been underinvestment, leading to supply shortfalls that put the energy transition to these alternatives at near-term risk. And by 2040, he predicts that critical minerals for clean energy will surpass \$400 billion — equivalent to the coal market today.

“Demand projections to meet net-zero energy shows demand exceeding both operating capacity and what is currently under construction by a significant amount,” said Anderson. “Combined with the fact that production of many of the minerals concentrated in just a few countries, there is significant risk from not just capacity but geopolitical risks and economic resource scarcity among others.” See chart on p. 16.

According to the USGS, cobalt, graphite, lithium and manganese are the most important mineral commod-

ities in battery technology. Resource scarcity is key here because in 2019 the U.S. relied on foreign sources for 100% of its graphite and manganese needs, 61% of cobalt, and more than 50% of lithium. Countries with the biggest concentration of these minerals are China, Australia, South Africa, Indonesia and the Congo. Mexico, with the tenth largest global reserve of lithium recently nationalized its lithium resources and outlined the possibility for the state to take over other strategic mineral reserves — forcing out private investment in the country's mining industry of these critical products.

The shift to net zero will require even more mining, particularly to support the battery needs for solar and wind power, electric vehicles and grid-scale batteries for energy storage. The electric vehicle market alone today requires 209 kg per vehicle of critical minerals content, while conventional vehicles require just 35 kg. That disparity means opportunity for miners across the globe. The key takeaways from Anderson for the valve and pump industry were:

- Mining companies with a position in critical minerals should outperform their peers. They should also look to own more of the supply chain, partner more with their OEM customers.
- Mergers and acquisitions (M&A) will reshape the current top 40 companies, with high volatility in the short- to medium-term based largely on geopolitical risk.
- As mining strengthens its environmental, social and governmental (ESG) commitments, companies will ask more of suppliers.

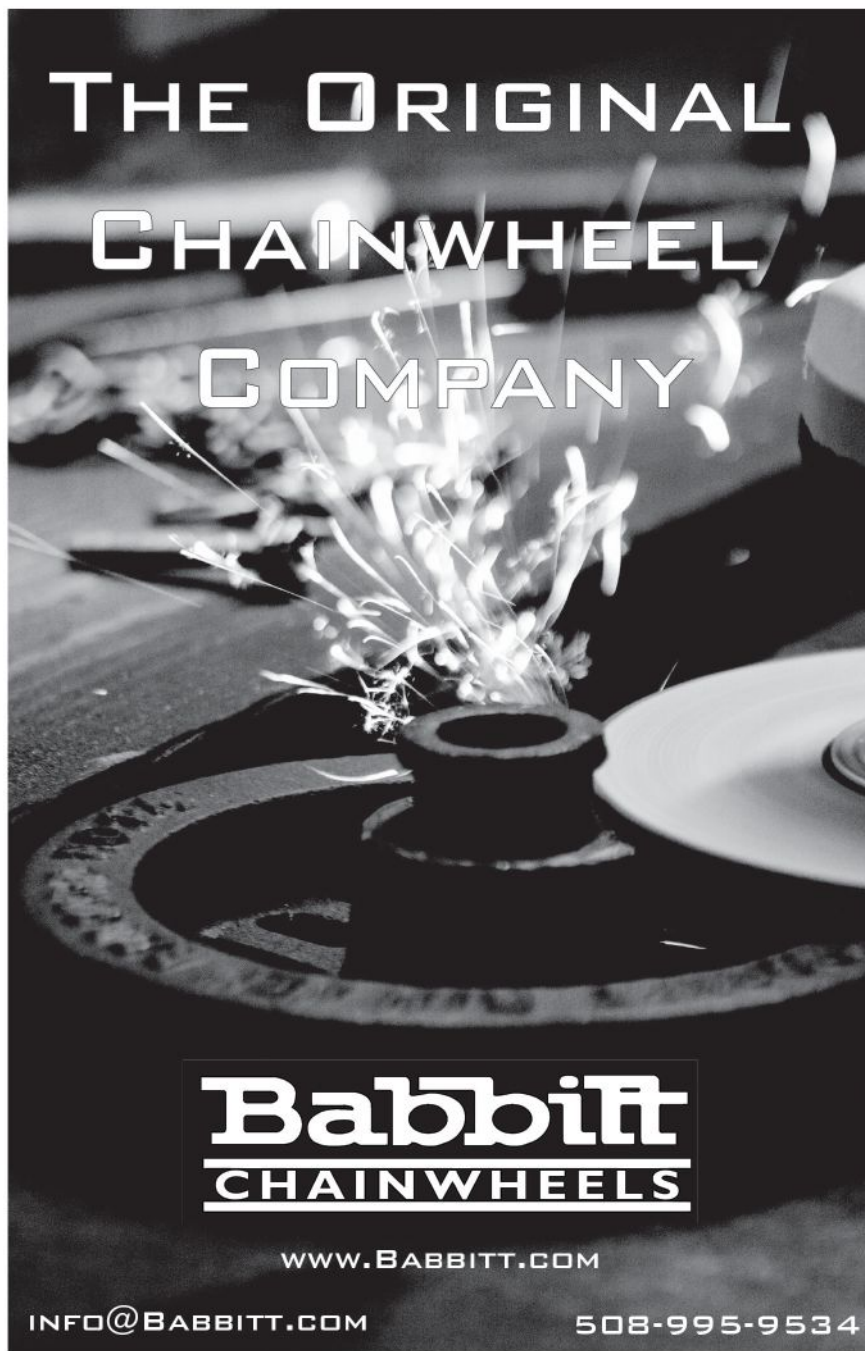
Anderson concluded by saying while the outlook for mining is strong, there is a significant transition occurring which presents the industry an opportunity to continue to support mining customers and take advantage of the sector's growth, coming out stronger in the long term.

WATER & WASTEWATER

The IIJA passage will have a substantive impact on our country's water and sewer system infrastructure, with \$55

billion allocated for water infrastructure. Funds for systems resiliency, ports and waterways of nearly \$20 billion will also positively impact the industry. And there is still money being allocated from the American Rescue Plan that was signed in March 2021, with \$350 billion dispersed to state and local governments over five years. But according to speaker Tom Decker, the American Society of Civil Engineers calculates an investment need of \$109 billion a year, so there is still a gap in what's required.

Restrictions put into place over the previous decades to preserve water haven't been effective due to ongoing drought conditions and the driest two decades in more than 1200 years in California. Two reservoirs on the Colorado River that feed water to much of the western U.S. will not be able to generate power if the water levels drop by another 32 feet. To help combat this, reclamation projects are taking off. A goal was set in Los Angeles to retrofit the Hyperion wastewater treatment plant to a reclamation and reuse facility



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to supply up to 35% of the city's water needs in the future. There are dozens of other projects like this in various stages of development, as well as desalination plants and other groundwater treatment systems.

Other challenges for this sector include long lead times for equipment, pipe prices being up as much as 48%, and labor challenges indicate that this sector has great opportunity but also many challenges not just for 2023 but potentially for many years ahead. But the news for pump and valve companies is positive — 15% of utilities indicated in a recent poll they will be purchasing equipment in the coming year.

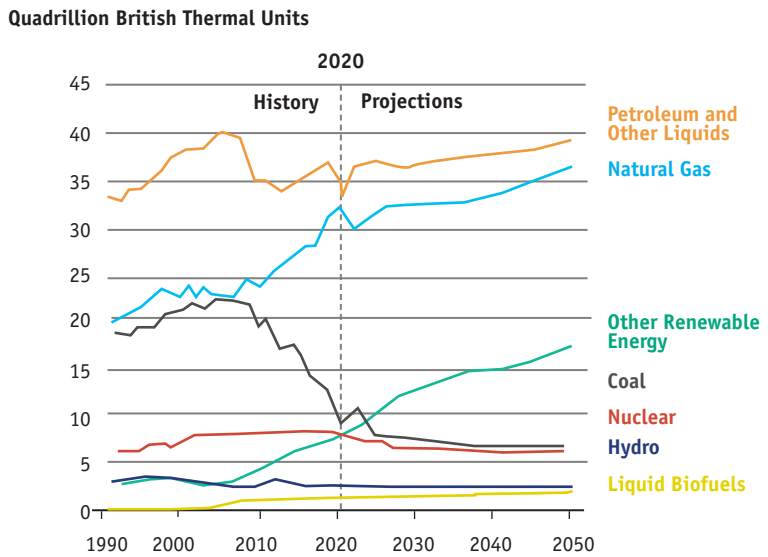
HYDROPOWER

Only 80 gigawatts (GW) of today's U.S. power generation capacity comes from hydropower, but this is approximately 40% of U.S. renewables according to Tim Oakes of Kleinschmidt Associates. In Canada, that number rises to 60% of electricity output. And pumped storage represents over 90% of grid storage in the U.S. today, with another 50 GW currently in development. Below are key findings from a poll produced by Kleinschmidt Associates in partnership with the Hydropower Foundation and Ontario Waterpower Association.

- In the next three years, there will be increase in value for hydropower.
- Investment will continue into existing projects including generators, turbines and gates.
- Expect an increase in direct power purchase agreements and increased bundling and collocating with other renewables, and in greenfield pumped storage development.
- While an increase in incentive programs is expected, there will also be an increase in decommissioning activity: projections increased substantially from 12.5% to 37.5% in the U.S. and 28.6% to 57.2% in Canada.

When asked about the biggest threats or challenges the hydropower industry faces today, respondents said low energy prices, climate change, regulatory burdens, high development

U.S. Energy Consumption by Fuel AEO2021 Reference Case



costs and the perception of hydropower relative to other renewables were their biggest concerns.

OVERALL PREDICTIONS

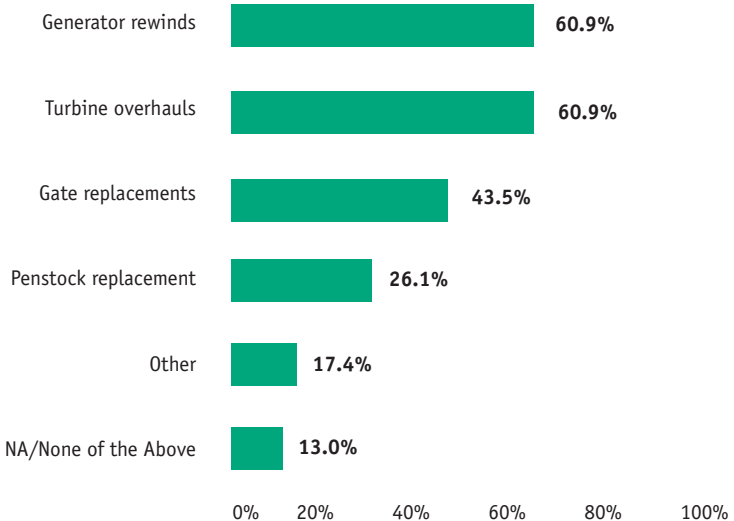
The coronavirus pandemic is still affecting the outlook for market conditions for 2023 and beyond. There are bright spots in the near term for

the valve and pumps market, but also many unknowns remain. The fear of a recession lingers, but the overriding outlook for the industries covered looks more positive than negative. WM

HEATHER GAYNOR is editor-in-chief of VALVE Magazine. She can be reached at hgaynor@gardnerweb.com.

Investments in Hydropower

Question: "Is your organization planning any of the following facility changes or upgrades over the next 3 years? Select all that apply."



Source: Ear to the River Survey of Hydropower Foundation and Ontario Waterpower Association members.

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Image Credit: Getty Images

Aligning With Purpose: Promoting Engagement and Retention in a Changing Workforce

How companies are considering the employee life cycle and transforming the work experience to better support their people

BY SCOTT PILKINGTON

According to a recent global survey by Deloitte, employee engagement and retention are among the leading challenges faced by organizations today. In February 2022, more than 4.4 million people left their jobs, many moving on to find better pay and greater work-life balance.

While compensation and remote opportunities continue to be important to jobseekers, so too is working for an employer who aligns with their personal goals and values. Jobseekers are looking for an employer who fosters a modern work culture of diversity, equity and inclusion. For today's workforce,

this means seeking companies with higher purpose and values that support their people.

Companies who are deeply listening to what matters most to today's workforce are modernizing, revitalizing and transforming their cultures and leading with purpose. Some, including Emerson, have even developed intentional frameworks to reimagine their organizations and commit to meaningful employee experiences. When it comes to engagement and retention, the employee experience is more important than ever before. How we choose to engage and work with our people in their first year can determine how long they choose to stay.

Here are five ways that companies can lead with purpose to better support their people, transform the employee experience and promote engagement and retention.

ABOVE

Regular communication and reviewing corporate goals and objectives aligns and engages a company's workforce.

PROVIDING FLEXIBILITY

Today's job candidates, specifically those looking to fill roles beyond the factory floor, often will not engage with an employer who doesn't offer a hybrid work option. Since the onset of the COVID-19 pandemic in 2020, traditionally on-site roles have become increasingly remote. As a result, employers are having to rethink how they engage and work with new employees — both remote and hybrid — especially during the first year. Many companies see their highest volume of turnover in years zero through three, which means they must focus more attention on onboarding strategies and support for remote and hybrid employees.

To stay competitive and attract new talent, companies may also need to assess individual roles within their organizations and identify which are appropriate for hybrid or remote performance. This new work policy must factor in an employee's physical environment as well as the scheduling, tools and processes required to do the job both on- and off-site. The goal is to find the common ground between what employees define as essential to their well-being and what their employer defines as successfully fulfilling the responsibilities of the role.

INVESTING IN MEANINGFUL EDUCATION AND TRAINING

With the continuing exodus of retiring engineers, industrial and manufacturing companies are getting smarter about capturing and transferring the expertise preparing to walk out the door. Providing in-house training and taking advantage of available resources, such as vendor training materials, application-based web tools, and live online support, are some of the tools that are helping to bridge the gap between knowledge and experience. Two new education and training strategies are also proving fruitful in the effort to frontload

the skills and readiness of new hires: hiring for competencies and designing intentional internships.

In the past, employers frequently hired engineers based largely on their years of experience. But as seasoned engineers retire and the numbers left behind who are poised to take their place have dwindled, a new approach to hiring emerged that better leverages the talents of less experienced engineers. Instead of evaluating engineers based on years under the belt, employers are now shifting attention to candidate competencies and are enhancing those key skills and attributes with training and mentoring to make up for the shortfall of experience.

Another tactic that shifted to focus on engagement and retention is the internship. The old internship stereotype involved companies hiring students, typically for a summer or a semester, and "keeping them busy." Now, in the midst of a pandemic and continuing competition for skilled labor, companies are becoming much more intentional about their internship programs because they see them for what they really are: an opportunity to attract, engage and potentially hire the next generation of employees.

PREPARING FUTURE LEADERS

Developing the next generation of leaders within a company means engaging and retaining potential candidates from inside company ranks as well as from outside sources like educational institutions. For current employees, leadership development means establishing a career path that includes opportunities for professional development, mentorship and advancement, which are critical factors in long-term retention rates. For students and recent graduates, company-sponsored education and training opportunities are the precursors to leadership development at the beginning of the career path.

Engaging with higher education is essential for the modern manufacturer to ensure each new generation of the workforce is keeping up with technological advances. Working with nearby colleges and trade schools allows companies to inform and guide higher education programs in selecting the best equipment and training techniques to prepare their students to enter the workforce with relevant and immediately applicable skill sets.

An example of this training is preparing students for careers as

Leadership development programs help establish a career path that includes opportunities for professional development, mentorship and advancement, all critical factors in long-term retention rates.



Image Credit: Shutterstock



Image Credit: Emerson

Engineering students from colleges around the US competed in the Amazing Packaging Race presented by Emerson. The contest encourages teachable moments, creates teamwork and a positive networking opportunity.

maintenance technicians or electrical and instrumentation technicians. These students now have opportunities to train using hybrid hands-on/video/VR platforms in which devices, fully functional processes, distribution control systems and asset management systems are all part of the equation. They can watch a video and learn how to calibrate a device for flow, measurement or control while practicing on the device. These training scenarios allow students to see the big picture of how data flows from the process into other higher levels of manufacturing, such as distributed control systems and manufacturing execution systems. Platforms such as this have proven highly successful in preparing students to be future leaders in their fields.

PRIORITIZING WELL-BEING AND DIVERSITY, EQUITY AND INCLUSION INITIATIVES

Work flexibility isn't the only way employers are expected to care for their people, and the expectation of caring goes well beyond the needs of the employees.

The past two years have shined a spotlight on many issues related to individual and collective well-being. Dealing with mental health crises and the stress of the pandemic, plus confronting larger social issues such as racism and inequality, have caused people at all levels of the workforce to reevaluate how and where they spend their time and energy. These issues are producing a generation of workers that expects their employers to recognize their needs as a whole person within society, not just as an employee within a building. For employers, this means providing support and resources for individual wellness and family needs, as well as committing to larger initiatives that promote diversity, equity and inclusion.

SUPPORTING OUR COMMUNITIES

Supporting collective wellbeing extends into the local community. Companies that support social services, charities and community improvement projects through donations, scholarships, fundraisers and volunteer time are often viewed more favorably by job candidates. Involvement and investment in the local community also builds relationships and attracts members of the local workforce who are more

likely to align with company values and culture. For large companies, local community outreach can help humanize their brand as well.

Communities also includes the physical places themselves. With a heightened awareness of climate change, depleting natural resources and other environmental issues of our time, current generations of workers are increasingly looking to their employers as an extension of their own ideals and practices of responsible environmental stewardship. This expectation is particularly high for manufacturing and industrial companies, which are often the focus of negative news about waste, pollution and environmental misdeeds.

To embrace corporate responsibility in ways that better align with the expectations of potential job candidates, companies are making more observable, measurable efforts toward sustainability. These sustainability efforts happen both in their own operations and by aiding customers with personal sustainability goals as they relate to the products and services their companies supply. Workers also expect evidence of sustainability beyond the company itself. This prompts companies to evaluate sustainability in other areas of their business such as supply chains and material sourcing. In addition, companies can look for opportunities for local and global partnerships with other companies and organizations that can help advance their sustainability efforts.

BREAKING NEW GROUND

Amid great waves of hiring and quitting, candidate expectations are changing, and it's up to employers to change along with them if they want to keep the workers they have today and secure a stronger workforce tomorrow. Companies that are serious about engaging and retaining talent are making sweeping changes to the ways that they hire, train and support employees and to the ways they engage with their local and global communities to promote sustainability, diversity, equity and inclusion.

Ultimately, it's up to employers to find ways to lead with purpose and support employees both on the job and in their lives outside of work. Company leadership must lead with empathy and create a space where employees feel safe expressing how they are doing, even when it appears to have nothing to do with their role at work. Listening to and caring for employees in this way can be a major contributor to overall job satisfaction and the single most important factor in long-term employee retention. **VM**

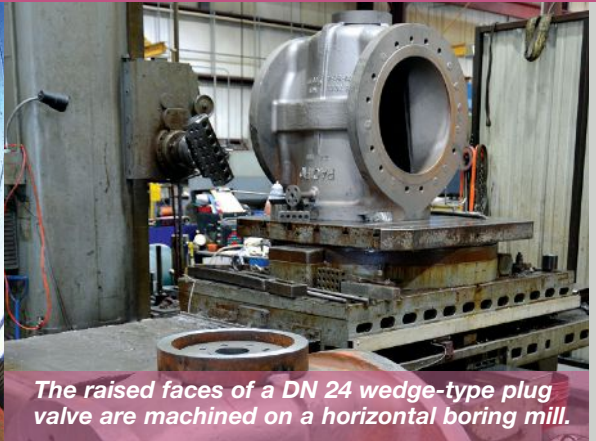


SCOTT PILKINGTON is vice president of human resources, discrete and industrial, for Emerson, a global technology and engineering company providing innovative solutions for customers in industrial, commercial and residential markets. Visit www.emerson.com.

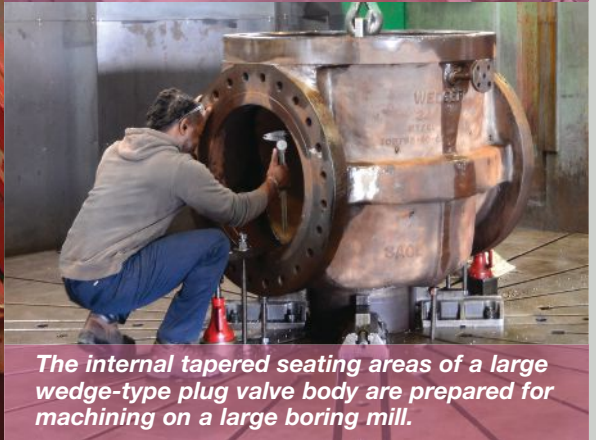
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Undefined and Overlooked Valve Selection Considerations

Startup and shutdown, cleaning and emergency upset conditions should be accounted for when selecting valves for your system.

BY LEA CLAUSON

Valve specification and selection is an important element in the success of a new process system. A considerable amount of time is invested and dedicated to specifying the correct valves for the defined operating conditions and piping arrangement. Unfortunately, the same amount of time and attention is usually not given in considering capacity changes, product changes and operational variations. These undefined variations often cause problems in the system that require detailed analysis and may require a production shutdown to resolve the issue.

The undefined operating variations may relate to startup and shutdown processes, cleaning process, and emergency and upset conditions, and are typically more severe than the actual defined operating conditions. Additionally, there are expectation variations between isolation and control valves that should be considered, as well as process growth capabilities. As a result, the following undefined and overlooked considerations should be assessed in valve selection for optimum valve performance and future growth adaptability.

STARTUP/SHUTDOWN

Many valve sizing programs can predict damaging situations such as cavitation, flashing and noise under various flow conditions. A misleading assumption is that startup and shutdown conditions are rare events and will not harm the valve. If startup and shutdown flow conditions are excluded from the valve sizing, then the selected valve may fall out of the capability range during startup and shutdown and perform poorly.

It is common for startup and shutdown concerns to be addressed with a control scheme during initial system commissioning. The specification process usually does not account for short-term, potentially damaging, service condi-

tions such as pump control, which is typically not addressed in the control scheme. For example, a low-concentrate slurry may have little effect on standard control valve surfaces under normal operating conditions, but during startup, the control valve may be intentionally left slightly open to prevent piping damage from filling the system too quickly. During this startup, the increased velocity across the seat of the valve causes the slurry to erode the internal surfaces of the valve, thereby prematurely degrading the valve and impacting its performance and longevity.

CLEANING

Cleaning processes are often overlooked and can have a dramatic impact on valve performance. This is especially true with valves using elastomeric components for sealing. As cleaning processes typically incorporate steam or chemicals (or both) to clean the lines, care must be taken in selecting materials that are compatible with the cleaning media and process conditions. It is best practice to ask about the cleaning process during valve selection to avoid compromising valve performance.

Figure 1. A specialized tapered body knife gate valve with a fabricated displacement pocket in the body which enables the valve to close against a standing column of dry, packed material.

Photo Credit: DeZURIK





Figure 2. Four interchangeable seat trim sizes for a rotary control valve allowed a mine to increase capacity and maintain accurate control without replacing the valve body.

EMERGENCY & UPSET CONDITIONS

Loss of power and emergency shutdown procedures also impact valve operation. In the case of isolation valves, manual overrides may be required for critical applications when solenoid valves are inoperable due to power failure. Control valves are often equipped with spring-diaphragm-style actuators that have a mechanical fail position. However, control valves can also utilize double-acting cylinders or electric motor actuators. These actuators will fail in “last position” upon air or power failure. Because terminology and understanding are not universal, it is important to clearly define what should happen during air or power failure. For example, during power failure the valve positioner will lose signal, thus driving the output to fully open or close the valve depending on designation. Although the air compressor will also lose power, residual supply pressure in the system can continue to cycle the valve to an undesirable position.

Conditions including pressure, temperature and media abnormalities that may occur during an upset event need to be considered and reviewed. Surge protection may be required for pressure upsets. Elastomer selection may be affected by temperature spikes. Slurries may settle and plug piping, potentially causing a variety of issues from spills to dangerous exposure.

ISOLATION VALVES

Valve manufacturers reference applicable standards in their documentation but do not typically publish the actual test criteria from the standard. Rather, they state whether the valve meets or exceeds the standard. The standards are published by organizations such as the American Petroleum Institute (API) and they define the test procedures and acceptable leakage rates for various valve types. It is up to



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Figure 3. A copper mine installed a 2-inch rotary control valve body in its acid raffinate control on heap leach pads. When the mine was ready to increase flow capacity, it changed the valve seat trim size thereby eliminating labor-intensive and expensive piping changes.

the specifying engineer to understand the application criteria and apply the correct valve type based on the isolation capability requirement for the system. If a testing standard clearly meets the application criteria such as API 598 for the oil and gas industry, the selection may be as easy as choosing a valve that meets that standard.

However, when considering a knife gate valve for isolation in pulp and paper, the decision may not be as clear. Under Manufacturers Standardization Society of the Valve and Fittings Industry (MSS), the MSS-SP81 standard states that a unidirectional metal seated knife gate valve is allowed to leak 40 milliliter/minute (ml/min) per inch of valve diameter with 40 pounds per square inch (psi) line pressure against the gate. With an elastomer seated, unidirectional valve, the leakage rate must be specified or may refer to MSS-SP61, which has a lower leakage rate. If the system has only minimal line pressure available to assist in seating the valve (less than 40 psi), this should be communicated to the valve manufacturer so that testing to actual service conditions can be conducted or a bidirectional elastomer seated valve may be considered.

A clear understanding of the isolation requirement is necessary when specifying a valve since requirements can vary greatly. For example, a metal-seated valve with an allowable leakage rate may be suitable for 4% pulp stock slurry but would not be suitable for isolating a sodium hypochlorite pump for maintenance by a technician.

SPECIALIZED ISOLATION

A valve used for isolating a bulk feeder from a hopper under normally flowing conditions will not be able to shut-off under a static condition or through a standing column of

media. Under normal flowing conditions, a standard knife gate would slice through the flowing column and isolate. However, if the bulk feeder stalls and the column fills, the standard knife gate will not be able to successfully cut through the column of material to adequately isolate the feeder from the hopper for maintenance. Other possible valve solutions would be an O-port knife gate or specialized, tapered body knife gate with space fabricated into the valve body to displace the column of material as shown in Figure 1.

Double block and bleed or double isolation and bleed valves are often specified for increased safety in many industries and are common in the oil and gas industry. These valves provide a detection port to verify acceptable shutoff from the isolation valves. It is important to consult the valve manufacturer who is familiar with this style of valve and application since terminology, understanding and expectations can vary greatly.

CONTROL VALVES

Control valves, with a few exceptions, should not be expected to perform double duty as a control valve and an isolation valve. Control valves are available with various seat options for different media and application requirements. For example, soft seats such as polytetrafluoroethylene (PTFE) for food service, metal seats for scraping the ball or plug in scaling services, and other special seats for critical or unique capabilities such as fire-safe requirements are available. In some applications such as slurry control, the flow control component may never contact the seat and is referred to as a "clearance seat." These variations in seat requirements may make the control valve unsuitable for isolation.

FUTURE FLOW REQUIREMENTS

Occasionally a control valve is sized for current conditions with the idea that it will also work for future planned expansions and alternate product runs. The assumption that the selected valve will work for future expansion may produce unsatisfactory results as actual service conditions may be outside the ideal control range. A better solution is to specify a control valve with multiple internal, replaceable control components to accommodate the current application as well as future expansion. Recently, a South American copper mine selected a rotary control valve that could be equipped with four interchangeable flow capacity range seat designs as shown in Figure 2. This allowed the mine to install a 2-inch rotary control valve body in its raffinate control on heap leach pads as shown in Figure 3. When the mine was ready to increase flow capacity, it simply changed the valve seat trim size. This simple component change eliminated an additional valve purchase, labor costs and expensive piping changes.

CONCLUSION

When specifying and selecting a valve for a new process system, it is essential that as much time and attention be given to the undefined or overlooked operating conditions as is given to the defined operating conditions. The undefined operating conditions such as startup and shutdown processes, cleaning process, and emergency and upset conditions

may be more detrimental to the valve than the defined operating conditions. If overlooked these conditions may require a costly shutdown to execute a detailed analysis to resolve the problem. It is also important to understand valve requirements related to isolation or control and if the control valve is expected to accommodate process growth changes. Inquiring about this additional information upfront while specifying and selecting the valve will ensure the best valve is selected to handle both defined and undefined operating conditions and will provide the best performing valve for the process system. VM

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To learn more about valve selection, attend the VMA Valve Basics Seminar and Petting Zoo, Nov. 9-11. The event provides hands-on, in-person experience with valves and actuators. The 3-day program covers common valve types for multiple applications, and a look at flow control technology beyond the common valves used in specific markets. For more information or to register go to: vma.org/valvebasics



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NEW PUBLICATION

MSS is proud to announce the publication of new **Standard Practice (SP)-158-2021, Supplemental High-Pressure Gas Test Procedures for Valves**. This new standard provides for a testing protocol that can be applied to valves requiring supplementary high-pressure gas testing because of hazardous, unique, or severe service requirements. The supplemental high-pressure gas testing procedures and marking may be utilized for any category of valve service where supplementary pressure boundary and closure integrity testing are desired.

NEW PROJECT

MSS is leading the way with the development of a Standard for valves used in the Hydrofluoric Acid (HF) Alkylation process. The scope of this new "**HF Alky Valve**" Standard Practice will include design considerations, materials and testing requirements. The MSS task group for this project will be comprised of representatives from manufacturers (MSS members) as well as other industry experts and representatives by special MSS invitation.

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The Globe Valve

There are many applications where the globe valve outshines other designs, so the future is still bright for these long-time favorites of the flow control industry.

BY GREG JOHNSON

Globe valves are used everywhere today and have been a fixture on the fluid control landscape for 200 years. The globe valve's primary reason for existence is to regulate the flow of fluids, however, there are still applications where complete blocking of flow is also handled by globe valve designs. The common hose spigot is a good example of globe valve for on/off and regulating usage.

The lifeblood of the industrial revolution was steam and water, but these potentially powerful fluids needed to be controlled. The first valves to do that job efficiently were globe valves. The design was so effective and popular that the first patents obtained by most of the major legacy U.S. valve manufacturers (Crane, Powell, Lunkenheimer, Chapman and Jenkins) were for globe valve designs.

Although the globe valve can be used as a block or isolation valve, it is designed to regulate flow in the partially open position, while gate valves are designed to be used in either the fully opened or fully closed position. Care in design selection should be taken when considering globe valves for on-off isolation service valves because of the difficulty in maintaining a tight seal against a strong force pushing up on the disc. With flow coming from the above-disc direction, positive sealing is assisted by the force of the fluid and is easier to attain.

The regulating function of globe valves makes them perfectly suited for control valve applications, where positioners and actuators attached to the globe valve bonnet and stem make very accurate regulation possible. In these applications, they are referred to

as "final control elements" and provide workman-like service in a variety of fluid control applications.

AN INDIRECT FLOW PATH

The globe gets its name from its original rotund design (Figure 2), a design that still hides its unique and somewhat convoluted flow path. Unlike fully opened gate or ball valves, a fully opened globe valve still provides a lot of friction or resistance to fluid flow, with its zigzagging pathway (see Figure 1). This angled flow creates fluid friction, which in turn slows down flow through the valve.

Flow rates through valves are measured by their flow coefficient, referred to as "Cv." The Cv for the same size gate and globe valve will be vastly different since the gate valve offers little flow resistance while in the open position.

The globe valve closure mechanism, called a disc or plug, can be machined



Figure 2: Vintage globe valve design with rotund body

All images credit: Greg Johnson

to many different shapes. By changing the shape of the disc, the rate of flow through the valve as it is opened can vary greatly in proportion to the number of turns of the stem. A more common or conventional curved type disc design is used for most services as it opens more for a given movement of the stem than other designs. A V-port disc design is used for fine throttling through a wide range of opening percentages and is adaptable to all size globe valves. A needle disc design is used for very-fine flow regulation but is usually only available in smaller sizes. When absolute shutoff is required, a soft-seating elastomer insert can be installed in either the disc or the seat.

GLOBE VALVE TRIM

In globe valves, the parts that provide the actual component-to-component closure are called trim. The components that make up the trim in a globe are the seat, disc, stem, backseat and sometimes the hardware that connects the stem to the disc. Correct trim design and materials selection are crit-

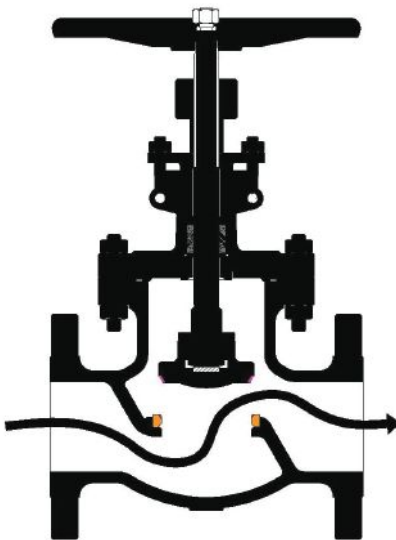


Figure 1: Typical globe valve with flow

ical for correct operation and longevity of any valve, especially globe valves due to their high fluid friction and convoluted flow path. As the seat and disc move closer together, the velocity and turbulence across them increase. This elevated velocity combined with the corrosiveness of the fluid can cause the trim to be damaged, resulting in a valve that leaks badly in the closed position. Sometimes the defect is what looks like a thin slice in either the seat or disc, which is called wiredrawing. This initial small leak path can widen and become a major leak if not repaired promptly.

On smaller bronze globe valves, the trim is usually the same material as the valve body, or in some cases a similar bronze alloy with greater strength. On iron globe valves, the most common trim material is bronze. The designation for this trim on iron valves is "IBBM," which stands for "iron body, bronze mounted." Steel valves are offered in a variety of trim materials, with usually one or more of the trim components being a 400-series martensitic stainless steel. Hard facings such as Stellite are also used, as well as 300-series stainless steels and copper-nickel alloys, such as Monel.

Globe valves are available in three basic patterns. The most common is the "T" pattern, where the stem is perpendicular to the pipeline flow. The second type, or angle pattern, is similar to the T pattern, but the flow is turned 90 degrees in the valve to allow the valve to serve as both a flow control device and 90 degree piping elbow. The angle pattern globe valve is still commonly used on the top of boilers and is also the pattern used for the final output regulating valve on oil and gas "Christmas trees."

The third design is the "Y" pattern design (Figure 4), developed to reduce the turbulence that takes place in the body of a globe valve as well as provide a more rigid design for on/off applications. In this type of globe, the bonnet,



Figure 3: An angle globe valve in a marine application

stem and disc are slanted at a 30-45 degree angle, resulting in a straighter flow path and less fluid friction. This reduced friction also means potentially less erosive damage to the valve, as well as better overall flow characteristics for the piping system.

BONNET DESIGNS VARY BY APPLICATION

Globe valves come in a variety of bonnet designs, and each has its place and purpose. For small bronze valves, the inside-screw-rising-stem design is the most popular. In this design, the stem threads are contained within the pressure/fluid envelope of the valve bonnet. This design is easy to manufacture, but it does have one drawback — the threads are exposed to the

process fluid. This means that the critical stem threads could be damaged if exposed to corrosive liquid or gas. Normally, this type of valve is used for water or low-pressure steam so that is not an issue.

Bonnet designs where the stem threads are outside of the pressure/fluid envelope are much preferred on valves larger than NPS 2, or when a valve is in corrosive service. The most common of these designs is called the outside screw and yoke, also known as OS&Y. It is the primary design for larger industrial globe valves.

The body/bonnet connection on globe valves comes in various configurations. Both threaded connections and

union bonnets are found on the smaller bronze valves, while the bolted bonnet is found on most steel and iron globe valves. The pressure seal bonnet is used on high-pressure, high-temperature globe valves, such as the Y-pattern design.

STOP-CHECK VALVES

Globe valves and boilers have been connected for over 150 years. The first

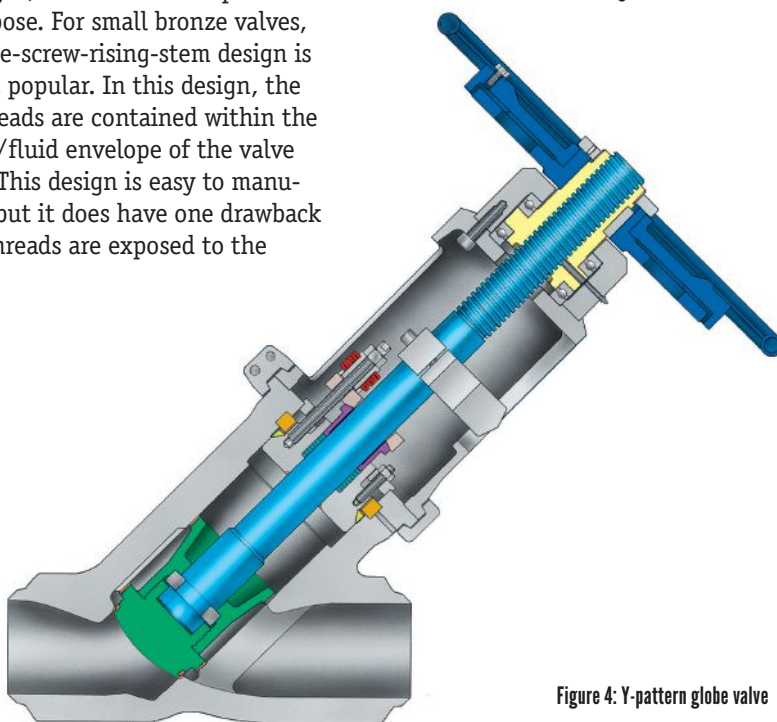


Figure 4: Y-pattern globe valve

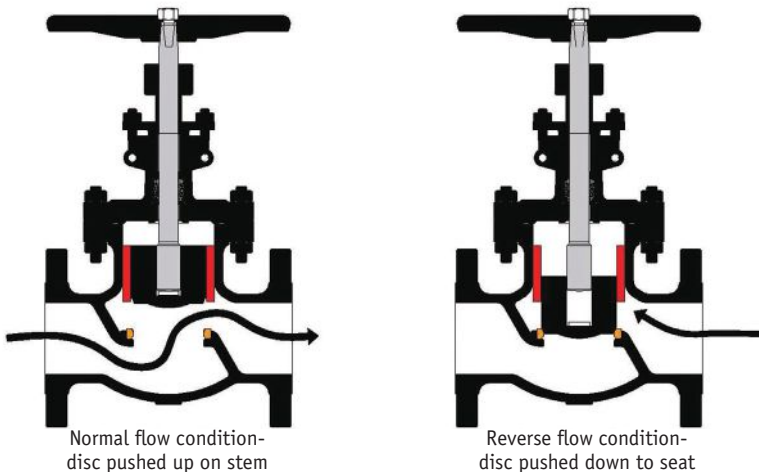


Figure 5: Stop-check design globe valve operation

valve on any boiler output line is often a stop-check valve, also known as a non-return or boiler stop valve. The stop-check is actually two valves in one: a globe valve for regulating flow, and a check valve for preventing back-flow. To make the non-return function occur, the disc on a stop-check is not attached to the stem but is guided in the valve bonnet and allowed to freely move up and down when the stem is raised. This allows the flow rate to be regulated, but when backflow occurs, the disconnected disc functions as a piston check valve and quickly closes, preventing reverse flow into the boiler (Fig. 5). If tighter shutoff is required, the stop-check stem may be lowered by closing the stem, preventing movement of the disc to the fully open position. In addition to regulating boiler output, the stop-check valve is also used for other applications where combining a check valve and globe valve makes sense for the piping designer.

LARGE OUTER DIAMETER GLOBE VALVE ISSUES

Due to some testing requirements, large globe valves can present challenges during the seat-test phase of hydrostatic testing. The problem occurs when globe valve bonnets flex because of the hydrostatic test pressure being transferred from the area under the disc, to the stem, yoke and then to the bonnet. While globe valves are designed to be operated primarily in the partially open position to regulate flow, they are nonetheless required to pass a stringent 110% of rated-work-

ing-pressure hydrostatic seat test in some testing standards.

The problem is a lack of stiffness in the bonnets of these low-pressure, large globe valves. For the most part, wall thickness requirements come from the American National Standards Institute (ANSI) B16.34, Valves-Flanged, Threaded, and Welding End, but that is often not enough section thickness to keep bonnet flexing from occurring. Most of these basic globe valve designs and patterns were created back when the required American Petroleum Institute (API) 598, Valve Inspection and Test seat test for globe valves was only 90 psi air. Prior to the sixth edition of API 598, Valve Testing and Inspection, published in 1990, when the 90-psi air low pressure test was the required test procedure for globe valve seat testing, the problem did not exist.

On large, low-pressure-class valves, this can cause the disc to lift away from the seat a few thousandths of an inch as the pressure is increased, thus causing leakage. The easy solution is to add more thrust on the stem (tighten it) as it rises. This usually solves the problem, however, the initial closure torque is often exceeded during this operation. Due to flexibility in the valve bonnet, large diameter, handwheel-operated globe valves may require secondary re-torquing when used in on/off service. This re-torquing may also be required during hydrostatic testing.

To counter the problem without adding extra thickness or ribbing to the bonnet, many manufacturers will pro-

vide hammer-blow handwheels, manual bevel-gear operators or powered actuators as standard on these larger valves. The use of these methods usually works well, but does mask the actual degree of force applied to close the valve.

API GLOBE VALVE STANDARD – API 623

API has created a relatively new globe valve standard, API 623, Steel Globe Valves — Flanged and Butt-welding Ends, Bolted Bonnets, which requires wall thicknesses greater than ANSI B16.34 and similar to those in API 600. The additional thickness requirement is designed to address potential corrosion and erosion issues that often occur in petrochemical and refining applications, but this added thickness also helps to address the bonnet flexibility issues that can occur during hydrostatic testing and high-pressure closure applications.

Another point that is addressed in the 623 document is the need for stronger stems to provide tight sealing when certain corrosion-resistant alloys are used for stem construction. Many austenitic stainless-steel materials such as 316 stainless steel are chosen for stems in highly corrosive fluid applications. However, these materials are sometimes significantly weaker than the 410 stainless steel stems usually specified as standard. This requirement resulted in the stem diameters in the document being appreciably larger than non-API 623 globe valve stems.

While the tried-and-true globe valve is still being manufactured in huge quantities all over the world, newer quarter-turn designs such as the butterfly and ball valve have taken much of the market share. However, there are still many applications where the globe valve outshines other designs, so the future is still bright for these long-time favorites of the flow control industry. **VM**

Greg Johnson is president of United Valve (unitedvalve.com). He is a contributing editor to VALVE Magazine and a current Valve Repair Council board member. He also serves as chairman of the VALVE Magazine Advisory Board, is a founding member of the VMA Education and Training Committee and is past president of the Manufacturers Standardization Society. Reach him at greg1950@unitedvalve.com.

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Fugitive Emissions Standards for Valves

API, ISO and TA Luft all have their own set of standards to control emissions. What are the differences and how do they compare?

BY TRIPP LOWERY Valves and connectors account for over 90% of emissions from leaking equipment, according to the Environmental Protection Agency (EPA). Because these emissions can cause many health and environmental issues, countries have created laws and regulations that help reduce the leakage of these emissions.

API 624 AND API 641

Through the EPA, the Clean Air Act was introduced in the United States in 1963. As environmental problems increased, this act evolved through multiple milestones and the implementation of the 1990 Clean Air Act Amendments. With the laws and regulations provided by the EPA, the American Petroleum Institute (API) created standards for valves to reduce fugitive emissions in the U.S. specific to its industry.

The API 624 – Type Testing of Rising Stem Valves Equipped with Graphite Packing for Fugitive Emissions, was issued in February 2014. This test uses methane as the medium for testing leakage. The API 624 is a valve-type test meant to focus on the performance of the packing of rising stem valves. To qualify the valve for the API 624 testing, the packing must have previously qualified according to the API 622 test, which focuses on the packing sets in the valve. There are 310 mechanical cycles, three temperature cycles at 500°F, with the option of one cycle at -20°F, and a maximum allowed pressure of 600 psi for the API-624 test. During the test, no stem seal adjustments are allowed. The API 624 uses the EPA Method 21 as the basis when evaluating the leakage of fugitive emissions and has an allowable leakage limit of 100 ppm.

	Test Item	Scope	Parameters	Specimen Size	Gasket size	Assembly	Test duration	Mechanical cycles
API 624	valve (packing and body seal)	fugitive emission type testing of valves with packings tested according to API 622	prestress value assembly procedure	individually (specified in Annex B)	-	manufacturer's installation specification (to be verified prior to the test)	3 days	310 50% at RT, 50% at T
	Temperature cycles	Test medium	Test pressure	Leakage measurement	Tightness criteria	Tightness requirements	Re-adjustment	Extension to untested valves
	3 500 °F (260 °C) 1 cycle to -20 °F (-29 °C) optional	Methane	"max. 600 psi (41.4 bar) in dependence of the material (p/T-rating)"	pressurization at the beginning; leakage measurement prior and during every 50 stem cycles	temperature and pressure independent	100 ppmv	no	Extensions individually depending on the test item (see also Chapter 10 and Appendix B of the standard)

Figure 1. Overview of API 624

	Test Item	Scope	Parameters	Specimen Size	Gasket size	Assembly	Test duration	Mechanical cycles
API 641	quarter-turn valves (packing and body seal)	fugitive emission type testing of quarter-turn valves with packings tested according to API 622	prestress value assembly procedure	individually max. NPS24 oder ASME B16.34 class 1500	-	manufacturer's installation specification (to be verified prior to the test)	4 days	610 50% at RT, 50% at T
	Temperature cycles	Test medium	Test pressure	Leakage measurement	Tightness criteria	Tightness requirements	Re-adjustment	Extension to untested valves
	3 500 °F (260 °C) or less	Methane	min. 100 psi (6.89 bar) max. 600 psi (41.4 bar) in dependence of the material (p/T-rating) pressure relief during temperature changes	"pressurization at the beginning; leakage measurement prior and during every 100 stem cycles"	temperature and pressure independent	100 ppmv	no	primarily dependent on the stem diameter Coverage area: 1/2 * D - 2 * D and packing height (see also Chapter 11 of the standard)

Figure 2. Overview of API 641

Test Item	Scope	Parameters	Specimen Size	Gasket size	Assembly	Test duration	Mechanical cycles	
valve (packing and body seal)	classification of the performance of industrial valves ("endurance classes") - C01, C02, C03 (on-off valves) - CC1, CC2, CC3 (control valves)	stem cycles temperature pressure	individually	individually	manufacturer's installation specification	several days	- 205, 1500, 2500 (C01-C03) - 20000, 60000, 100000 (CC1-CC3) rate 1 - 5 mm/s	
ISO 15848-1	Temperature cycles	Test medium	Test pressure	Leakage measurement	Tightness criteria	Tightness requirements	Re-adjustment	Extension to untested valves
"2 (C01/CC1) 3 (C02/CC2) 4 (C03/CC3) ""temperature classes"": -196 °C, -46 °C, -29°C, RT, 200 °C, 400 °C"	Helium or Methane	according to p/T-rating of the shell material recommended	in every test step (body seal only at the beginning / end of each endurance class)	temperature and pressure independent	"Tightness Classes" for packing: A: $\leq 1.0E-05 \text{ mg}/(\text{s}^*\text{m})$; $\leq 50 \text{ ppmv}$ B: $\leq 1.0E-04 \text{ mg}/(\text{s}^*\text{m})$; $\leq 100 \text{ ppmv}$ C: $\leq 1.0E-02 \text{ mg}/(\text{s}^*\text{m})$; $\leq 500 \text{ ppmv}$ Body seals: $\leq 50 \text{ ppmv}$; $\leq 50 \text{ ppmv}$ Helium / Methane	yes 1 for C01/CC1 2 for C02/CC2 3 for C03/CC3	primarily dependent on the spindle diameter Coverage area: $1/2 * D - 2 * D$ (see also Chapter 8 of the standard)	

Figure 3. Overview of ISO 15848-1

Test Item	Scope	Parameters	Specimen Size	Gasket size	Assembly	Test duration	Mechanical cycles	
Valve (shut-off and control valves) (only Packing Leakage mentioned) Valves with high-quality sealed metallic bellows with a safety stuffing box generally meet the leakage rate LB -> no test required	Reference to DIN EN ISO 15848-1 (2015) (or other proven equivalent test or measurement methods)	stem cycles temperature pressure	individually	individually	manufacturer's installation specification	several days	- 205, 1500, 2500 (C01-C03) - 20000, 60000, 100000 (CC1-CC3) rate 1 - 5 mm/s	
TA Luft 2021	Temperature cycles	Test medium	Test pressure	Leakage measurement	Tightness criteria	Tightness requirements	Re-adjustment	Extension to untested valves
2 (C01/CC1) 3 (C02/CC2) 4 (C03/CC3) "temperature classes" (2015): -196 °C, -46 °C, RT, 200 °C, 400 °C	Helium or Methane	according to p/T-rating of the shell material recommended	in every test step (body seal only at the beginning / end of each endurance class)	temperature and pressure dependent	"Tightness Classes" for packing: identical for Helium and Methane LA: $\leq 1.0E-05 \text{ mg}/(\text{s}^*\text{m})$ LB: $\leq 1.0E-04 \text{ mg}/(\text{s}^*\text{m})$ LC: $\leq 1.0E-02 \text{ mg}/(\text{s}^*\text{m})$ Body seals: not mentioned	not mentioned, but indirectly according to DIN EN ISO 15848-1 1 for C01/CC1 2 for C02/CC2 3 for C03/CC3	no coverage area mentioned, indirectly according chapter 8 of DIN EN ISO 15848-1	

Figure 4. Overview of TA Luft

The API 641 – Type Testing of Quarter-turn Valves for Fugitive Emissions, issued in October 2016, is a valve type test for quarter-turn valves. Like the API 624, the test focuses on the performance of the packing, as well as the boundary connections, and uses methane as a test medium. This test produces 610 mechanical cycles, three temperature cycles up to a maximum of 500 °F, and a minimum allowed pressure of 100 psi, with a maximum allowed pressure of 600 psi. No stem seal adjustments are allowed during testing. The API 641 uses the EPA Method 21 as the basis when evaluating the leakage of fugitive emissions. The allowable leakage limit is 100 ppm.

ISO 15848-1

In 1947, a group of delegates from 25 countries founded the International Organization for Standardization (ISO). They unified under the goal of ensuring that products and services would be safe, reliable and an acceptable quality.

Over the years, hundreds of different international standards were developed and published by ISO. In January 2006, through the guidance of an international team, the ISO 15848-1 (Industrial valves — Measurement, test and qualification procedures for fugitive emissions — Part 1: Classification system and qualification procedures for type testing of valves) was issued.

The ISO 15848-1 is a valve-type test used for shut-off valves and control valves focused on the performance of the packing and body seals. This test uses methane or helium for the test medium. The ISO 15848-1 tests within three types of classes: temperature class, tightness class and endurance class. There are three tightness classes a valve can achieve while qualifying for the ISO 15848-1. For methane: AM 50 ppm, BM 100 ppm, CM 500 ppm. For helium: AH $1.0E-05 \text{ mg}/(\text{s}^*\text{m})$, BH $1.0E-04 \text{ mg}/(\text{s}^*\text{m})$ and CH $1.0E-02 \text{ mg}/(\text{s}^*\text{m})$. If the leak rate surpasses a tightness class limit, one stem seal adjustment may be done (one per endurance class). If the

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valve still is above a tightness class of C after the stem seal adjustment or surpasses a 50 ppm leakage rate on the valve's body seal, then it is disqualified. The three endurance classes for shut-off (CO) and control (CC) valves are C01/CC1, C02/CC2 and C03/CC3. To reach a higher endurance class, the previous one must be attained first. Each endurance class must undergo several mechanical cycles. For shut-off valves: C01 – 205 cycles, C02 – 1500 cycles, and C03 – 2500 cycles. For control valves: CC1 – 20,000 cycles, CC2 – 60,000 cycles, and CC3 – 100,000 cycles. The temperature classes range from -196°C, -46°C, -29°C, room temperature (RT), 200°C and 400°C. The test pressure used will be according to the P/T rating of the valve material.

TA LUFT

The Technical Instructions on Air Quality Control (TA Luft), established in 1964 and most recently updated in December 2021, is the general administrative regulation on the Federal Emission Protection Law of the German federal government. In previous editions, TA Luft used the VDI 2440 standard as guidance for emission regulations for valves in Germany. After the recent update in 2021, TA Luft uses the ISO 15848-1(2015) standard for guidance when dealing with emissions standards for valves.

While the testing parameters of the TA Luft must follow the ISO 15848-1(2015) standard, TA Luft regulates permissible leakage limits. Instead of following the tightness classes of ISO 15848-1, TA Luft has designated its own leakage limits and tightness classes of: LA 1.0E-05 mg/(s*m), LB 1.0E-04 mg/(s*m) and LC 1.0E-02 mg/(s*m). These leakage limits apply for both helium and methane according to TA Luft. The tightness criteria, unlike the other standards mentioned, is also pressure dependent. Depending on the tightness class that needs to be reached, the pressure and temperature must fall within a certain parameter.

CONCLUSION

Each of these standards is relevant for valve testing parameters but which to use is dependent on end-user test requirements. However, ISO 15848-1 has a wider range of test options for the end user. Compared to API testing, which only uses methane as a medium and has a determined maximum temperature and pressure rating, ISO 15848-1 can use helium or methane as the medium, has a wide range of temperatures to choose from, and the pressure depends on the P/T rating of the valve. Also, if the valve surpasses a leakage rate of 100 ppm, according to API, the valve is disqualified. ISO 15848-1 has tightness classes (A – C) and one SSA per endurance class, which give the valve a broader range of acceptability. Since ISO 15848-1 offers this wide range of testing, the end user can choose to test valves according to their functionality in their given application. \blacktriangledown

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New Board Chairman Matt Thiel

Matt Thiel, President of AUMA Actuators, Inc., in Canonsburg, Pa., and the 2022-2023 VMA Board of Directors Chair, explains why the industry is an exciting and important place to be, how he'll lead VMA over the next year, and his career path. Matt follows Ron Warren as VMA Chairman of the Board, who remains on the VMA Executive Committee.

VALVE Magazine: Tell us about your education and how you got involved in the industry.

Matt Thiel: I received my degree in electrical engineering and started my career designing instrumentation used in the industrial market spaces as well as for process and industrial safety. While working, I received a master's in management, and an MBA. I transitioned from engineering to various business and management roles. When I was approached with an opportunity to join AUMA Actuators — the electromechanical aspects of the products, the local manufacturing, in-house machine shop, and the flow control industry — all were very appealing.

VM: Why did you want to get more involved with the VMA?

MT: I was in various other industry groups throughout my career. When I went to my first VMA meeting seven years ago, my expectations were low. Throughout my first conference, I was continually blown away with how the VMA operated. Members were communicating with each other trying to solve industry problems. I had never seen this level of cooperation among industry peers. At that point, I knew I wanted to get more involved.

VM: What are the greatest industry opportunities and challenges?

MT: The greatest opportunities for our industry are also some of our biggest challenges. These are workforce development and government affairs. At times, these go hand in hand. Our industry is critical to the global

infrastructure. As domestic policies impact infrastructure and supply, the VMA needs to be the industry leaders that provide input on the policies that impact the flow control industry. Everyone is struggling with workforce development. Attracting and retaining talent is a challenge. New approaches need to be taken to educate young students on the benefits of the trades. These are good paying, respectable careers that are overlooked by many in lieu of college. With college debt skyrocketing, opportunities could exist for government funding, tax credits for apprenticeships, and support to bring more students back into the trades.

VM: Did the pandemic or other global events bring on any shifts or changes you think may stay?

MT: With the recent economic and global events there are certainly some changes that occurred in the short term that may and should stick around for a while. The first is reshoring of production and procurement. Recent legislation is helping to drive this through programs like Build America, Buy America (BABA). With supply chain issues, there is more effort on collaboration, planning and sourcing of products for major projects. This has been a refreshing change which may not last, but ideally is how business should be conducted.

VM: How do you see VMA's role in advancing the valve industry?

MT: The VMA needs to be the voice of the flow control industry. This can be accomplished at high levels through legislation and government affairs and at lower levels by adding more value to our member organizations, through training, meetings, materials and guidance.

VM: How do you hope to focus your efforts as a leader of VMA?

MT: Over the past few years, the VMA has been evolving as an organization. We formalized a strategic plan to give



direction to the organization and established a number of committees to help advance the organization and grow membership. I want to continue to build off this strong foundation created by the previous chairs and executive teams.

VM: What advice would you give to someone joining VMA?

MT: Get involved. The value of the organization is what you make of it. If you join and do not attend events or meetings, you are missing out on what the VMA provides. Sign up for committees. Help shape the future of our industry.

VM: Your job must keep you busy. What do you do when you're not at work?

MT: I am the proud parent of two active teenagers. I spend much of my free time attending their sports events, as well as volunteering at school functions. When I'm not doing that, I enjoy the outdoors: hiking, biking, hunting and fishing.

VM: What piece of advice would you have for those entering the valve industry, new grads or mid-career?

MT: Get involved in the companies you work for. Learn the entire business, inside and out. Our industry controls the world. Learn what your products are used for, the value they bring to people, and their importance in the various industries. Get out in the field and see the products being installed, serviced, or in operation. Our industry controls so much behind the scenes, we should be proud of that. ■

VMA **DOUBLE** FEATURE

Whether you are new to the valve industry or an experienced professional, the Valve Manufacturers Association offers two great programs for you and your team to learn, meet and connect.

VMA Valve Basics Seminar and Petting Zoo



NOVEMBER 9-11, 2022 | PASADENA, TX

The **Valve Basics Seminar and Petting Zoo** is coming to Pasadena, TX, and it's your only chance to get the in-person, hands on experience you need to fully understand valves and actuators.

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During the Petting Zoo, you will handle, operate, and investigate various valve and actuator samples in a small group, with presenters available to demonstrate and answer questions.

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Crane now offers an improved version of its Saunders P345 polymer pneumatic actuator, designed to reduce operating pressure requirements to 4.5 bar, which in turn, can reduce carbon footprint and energy cost by 11%. The lightweight piston-type pneumatic actuator has been developed to deliver sustainable performance for sterile biopharm applications.



Gilmore introduces its new surface compact regulator, designed to provide the highest reliability in pressure regulating for wellhead control panels and hydraulic power units. Tungsten carbide shear-seal technology allows thousands of reliable cycles between valve maintenance, making these regulators an excellent choice to regulate pressure when filling umbilical lines or flushing equipment. This versatile design can be used in low- and high-pressure applications and is capable of enduring high-flow conditions during start-up.




Mueller now offers a 2300 series gate valve product line with "clean seat" technology and offers reliable and repeatable water-tight shutoff suitable for utilities' exercise programs. Standard and oversized variants are now available in 4, 6, 8, 10 and 12 inches, and can be inserted into an existing water main with minimal service disruption.

Mueller also offers a line of PermaSeal Insertion Valve installation equipment that has been designed to ease common installation difficulties and comes as two independent sets intended to service individual size ranges of 4-8 inches and 10-12 inches.

Cowan Dynamics has released the E2H-ESD actuator, the newest addition to its electrohydraulic actuator lineup. It is designed specifically for emergency shutoff valve (ESD) automation. The ESD-E2H combines both hydraulic and electric actuation in one self-contained system. It features a completely modular design consisting of

the following modules: hydraulic power, hydraulic cylinder, scotch yoke mechanism, spring canister and control panel for local and remote operation.

Solon Manufacturing Co. has a new liquefied natural gas (LNG)/cryogenic flange calculator — a product selection tool designed to calculate the recommended Belleville springs and washers needed in LNG and cryogenic applications where cold temperatures and corrosion are factors in process leaks and fugitive emissions. Customers simply complete the fields with information relative to their application and Solon's calculator will automatically filter the selection to recommend Solon flange washers that meet specific requirements. Similar product selection tools aimed for minimizing bolt preload loss and reducing fugitive emissions with high-temperature flange live loading and valve and process leaks can be found in Solon's online resource library.

DeZURIK's KUL urethane-lined knife gate valves are designed for on-off applications of abrasive slurry and dry abrasive materials. Flanged urethane lined knife gate valves are well-suited for applications in mining, chemical and food industries. KUL valves feature a one-piece, cast-in-place bonded liner that provides bi-directional, drip-tight shutoff to either 150 or 250 psi (1030 or 1720 kPa) CWP. These valves can also provide bi-directional dead-end service to the full pressure rating of the valve. All wetted surfaces are lined with urethane. The urethane liner is bonded in place to form a continuous liner throughout the entire body, chest, packing chamber and flange face area. The bonding process enhances the mechanical and abrasion resistance properties of the urethane, which creates a robust seat seal in harsh slurry services. 



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