

# VALVE

WINTER 2025

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Carbon Footprint of Additive  
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FORWARD

# The Rise and Fall and Rise Again of Nuclear Power

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BY HEATHER GAYNOR

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- Expanded sanitary valve line
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# New Year and New Opportunities

This new year started quite literally with both fire and ice.

2025 is already presenting both great challenges and opportunities for our industry. From the wildfires raging in California — still not fully contained at the time of this writing, causing billions of dollars in losses — to record-breaking snowfall in the southern U.S. that overwhelmed cities with infrastructures unprepared for such conditions, the need for a resilient infrastructure is more apparent than ever. As leadership in Washington changes over to the new administration, previously allocated funds for major infrastructure projects may be reassessed, potentially leading to shifts in priorities and funding allocations. Some change may come with new opportunities for our industry — adjustments in regulations related to energy exploration, environmental policies and industrial development could create new avenues for growth and innovation within the flow control sector. Staying informed and adaptable will be key to companies capitalizing on opportunities available.



The year ahead features several VMA industry events I'm excited to attend, especially the Hydrogen + Energy Valve Summit, Valve Forum and the Valve Repair Council's Repair Seminar. I'm looking forward to meeting more industry professionals and continuing to expand my knowledge as I learn from all of you. If you'll be there, let's connect!

In addition to attending these events, I'm also always looking for story ideas about your companies, products and the end markets you serve. Specifically, we're hoping to talk more about valve and actuator manufacturing this year and will promote this content not just in *Valve* but potentially in other Gardner Business Media publications. I'm hoping to visit a few more of your facilities this year, so if you're interested in being featured or hosting a visit, please contact me directly. If I can't get there, chances are a colleague of mine can so we'll tag team as appropriate.

This month's cover story was a fun one for me to write as I've long been a believer in nuclear energy from my days working for a valve and fittings manufacturer when I learned about the potential of the technology as a clean energy source. To me, the potential far outweighs the risks with nuclear, and that's largely due to the extreme care I know manufacturers take and that governments and standards organizations require when designing, manufacturing and approving products for nuclear plants across the globe. The potential of small modular reactors being installed for private enterprises is intriguing and one we'll continue to cover in the magazine and online.

Here's to a year of health and prosperity for all.

Cheers!

**Heather Gaynor**, Editor-in-Chief  
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# INDUSTRY NEWS

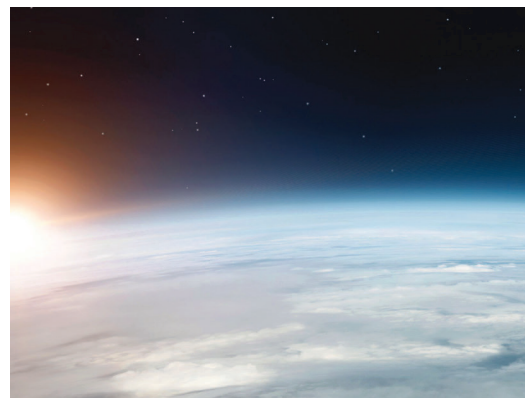
## Westinghouse Awarded Contract for NASA-DOE

Westinghouse Electric Company announced that NASA, working with the U.S. Department of Energy (DOE), has selected the company to continue development of a microreactor design through the Fission Surface Power (FSP) project.

The FSP project is focused on developing concept designs for small, electricity-generating nuclear fission reactors that could provide astronauts a reliable power supply for use on the moon and beyond. This contract, awarded by Idaho National Laboratory (INL), will build on the suc-

cessful design work Westinghouse completed during Phase 1 to optimize its contributions to the design of FSP systems and their configuration and begin testing critical technology elements. The continued progress under the FSP project can enable NASA's goal of a lunar demonstration within the next decade.

Westinghouse is leveraging its eVinci microreactor technology to develop a resilient and mass-efficient nuclear electric power and propulsion system for satellite, spacecraft and planetary surface power



applications. The eVinci microreactor generates electricity and heating for remote communities, universities, mining operations, industrial centers, data centers, defense facilities and soon the lunar surface and beyond. These microreactors have very few moving parts, providing versatility for mission types with the reduction of failure points, simple operation and increased reliability for the harsh environment of space.

## First LNG Produced at Corpus Christi Project

Cheniere Energy, Inc. announced that liquefied natural gas (LNG) was produced for the first time from the first train (Train 1) of the company's Corpus Christi Stage 3 Liquefaction Project, called CCL Stage 3. The commissioning process continues and Cheniere expects substantial completion of Train 1 to be achieved at the end of the first quarter of 2025, more than six months ahead of the guaranteed completion date. Once completed, Bechtel Energy Inc. will transfer care, custody and control of the completed train to Cheniere. Full notice to proceed on CCL Stage 3 was issued to Bechtel by Cheniere in June 2022. CCL Stage 3 consists of seven midscale trains, with an expected total production capacity of over 10 million tons per annum (MPTA) of LNG. Upon completion of all seven trains of CCL Stage 3, the expected production capacity of the Corpus Christi liquefaction facility will be more than 25 MPTA of LNG.

## IoT Breakthrough Awarded to Emerson

Emerson has won the "Industrial IoT Innovation of the Year" award for its DeltaV Workflow Management software at the 9th annual IoT Breakthrough Awards. The award recognizes Emerson's next-generation, software-as-a-service (SaaS) solution to help life sciences companies develop, scale and manufacture life-changing cell and gene therapies more efficiently.

Designed specifically for companies in early-stage development with limited IT infrastructure, DeltaV Workflow Management provides a cloud-based solution that transitions drug recipe workflow data from paper-based records to digital records, providing a simple and scalable solution with no coding experience required.

"Life sciences companies have a crucial job: fighting disease by bringing new, safe medicines to market as fast as possible. To do that, they need more agile, flexible and scalable processes to quickly move products through the development pipeline to the commercial



market," says Nathan Pettus, president of process systems and solutions at Emerson. "Our new DeltaV Workflow Management software provides companies with simple recipe authoring, execution and electronic data capture so they can focus on innovation."

The new Emerson software also generates searchable, exportable digital records for easier analysis and reporting of data. In addition, this digital shift minimizes the contamination risks associated with paper records in sterile clean rooms. For more information, visit the Emerson DeltaV Workflow Management software website.

## Clean Energy Project Completed Ahead of Schedule

Adapture Renewables, Inc., a utility-scale solar and energy storage developer, owner and operator, announced the completion and commercial operation of its solar project in Hunt County, Texas. The 67MW solar facility will generate clean, renewable energy to help meet the growing demand for electricity in the wake of data center growth. The site will support the corporate offtaker, a Fortune 50 company, as part of its broader sustainability goals to reach net zero targets.

The project spans 25 acres and includes over 130,000 solar modules. It is expected to deliver approximately 120 GWh of clean electricity

annually — enough to power the equivalent of 12,500 homes. This comes at a critical moment for renewable energy development.

Rapid growth in data centers, driven by advancements in AI and cloud computing, and the increasing demand for EV charging infrastructure, is placing unprecedented pressure on the grid. Sites like this play a vital role in meeting this demand, ensuring businesses and communities can access reliable, cost-effective energy solutions.

The project reached commercial operation three months ahead of schedule on Adapture Renewables' first ever VPPA (Virtual Power Pur-

chase Agreement), after the COVID pandemic created significant supply chain challenges, in addition to a major winter storm which swept through the region in 2021. Timely procurement of materials and the collaborative efforts of Adapture Renewables' teams and partners played a key role in the project's success.

This latest project adds to Adapture Renewables' growing portfolio of clean energy solutions, supporting corporate and industrial energy buyers in achieving their renewable energy goals while strengthening grid reliability.

## Motion Signs Agreement to Purchase Operating Assets of ICR

Motion Industries Inc., a distributor of maintenance, repair and operation replacement parts, and a provider of industrial technology solutions, signed a definitive purchase agreement to acquire the operating assets of U.S.-based International Conveyor and Rubber (ICR). The transaction was expected to close at the end of December 2024.

ICR services commercial and industrial customers in the eastern U.S. Headquartered in Blairsville, Penn., the company has seven locations, offering sales, installation, repair and maintenance of conveyor belts and related system products. They also provide engineering and design services for custom solutions. ICR serves a variety of industries, including mining and aggregates, power generation, oil and gas, construction, steel, building materials manufacturing, package handling and distribution, wood/pulp/paper, cement

and asphalt, recycling and marine terminals.

Kory Krinock, one of ICR's owner-operators, said: "It's a perfect match — both companies are dedicated to their customers and share the same core values. We look forward to enhancing our services and customer value proposition while contributing to Motion's growth."

"ICR is highly complementary to Motion, adding seven strategic locations that expand our reach," says James Howe, president of Motion. "ICR introduces new customers and end markets, allowing us to broaden our offerings. We are thrilled to welcome the highly talented ICR employees to the Motion team, including Kory and the other owner-operators, who will continue to play an integral role in the business." With 150 employees, ICR will join Motion's business unit, Motion Conveyorance Solutions.



## ConocoPhillips Completes Acquisition of Marathon

According to the terms of the agreement, each share of Marathon Oil common stock was converted to the right for stockholders to receive 0.255 shares of ConocoPhillips common stock at the effective time of the merger, with cash in lieu of fractional shares.

"This acquisition of Marathon Oil is a perfect fit for ConocoPhillips, adding to our deep, durable and diverse portfolio while meeting our strict financial framework," said Ryan Lance, chairman and chief executive officer. "Marathon Oil adds high-quality, low cost of supply inventory adjacent to our leading U.S. unconventional position. We have a strong history of seamlessly integrating assets and we expect to deliver synergies of over \$1 billion on a run rate basis in the next 12 months."



## Massive Data Center Being Built in NE Louisiana

Meta and Louisiana Economic Development (LED) announced a \$10 billion artificial intelligence data center in northeast Louisiana, a transformational investment that cements the state's status as a major innovation hub and leader in the global digital revolution. The 4 million square foot data center, to be located in Richland Parish, will be Meta's largest in the world. Construction on the facility is expected to be completed in 2030.

Meta projects the data center will support at least 500 direct new jobs in Richland Parish, while LED estimates the project will result in the creation of more than 1,000 indirect jobs, for a total of more than 1,500

potential new jobs in the Northeast Region. The company estimates 5,000 construction workers at peak of construction on a 2,250-acre site. Hyperscaler data centers like the one planned for Richland Parish are housed in huge physical structures designed to process the vast amounts of data required to support digital technologies, including Artificial Intelligence (AI) workloads. The facility is the largest of more than 20 Meta data centers worldwide. Once operational, the Richland Parish Data Center will be optimized for Meta's AI workloads as part of the highly advanced infrastructure that helps bring Meta's technologies, including Facebook, Messenger, Instagram, WhatsApp and Threads to life.

LED expects the project, one of the largest private capital invest-

ments in the state's history, to spark new economic activity and investments throughout northeast Louisiana as multiple industries benefit from the billions of dollars invested. Meta makes a concerted effort to source labor and materials locally, and partners with local schools and organizations to advance STEAM education and digital skills that can be used to compete in the digital workforce.

To power the data center, which at its largest point extends more than onemile from front to back, Entergy will add clean, efficient power plants to its system to meet growing power demands, including from the data center. Meta has

pledged to match its electricity use with 100% clean and renewable energy and will be working with Entergy to bring at least 1,500 MW of new renewable energy to the grid through its Geaux Zero program. In addition, Meta has committed to contribute up to \$1 million a year to Entergy's "The Power to Care" low-income ratepayer support program, a figure that will be matched by Entergy Louisiana.

In addition to Meta's commitment to match its electricity usage with clean and renewable energy, the company prioritizes water stewardship in its operations, including minimizing water use at its data centers. Meta has pledged to restore more water than it consumes at this data center by investing in water restoration projects in Louisiana.

## Curtiss-Wright Completes Acquisition of Ultra Energy

Curtiss-Wright Corporation announced that it has completed the acquisition of Ultra Nuclear Limited and Weed Instrument Co., Inc. ("Ultra Energy") for \$200 million in cash. Ultra Energy is a global provider of safety-critical measurement and control systems to commercial nuclear, aerospace and defense markets.

The business designs and manufactures reactor protection systems, neutron monitoring systems, radiation monitoring systems and temperature and pressure sensors that facilitate the safe and reliable operation of commercial nuclear reactors and other power generation plants. It also provides support to the legacy UK nuclear submarine fleet, as well as current and next-generation ship designs.

The acquisition of Ultra Energy increases the breadth of Curtiss-Wright's global commercial nuclear portfolio with complementary measurement and control solutions supporting plant life extensions and modernization projects of aging power plants, and further expands the company's presence in the U.S. and Europe.

The acquisition also supports Curtiss-Wright's long-term financial objectives for profitable growth and strong free cash flow generation. The business will operate within Curtiss-Wright's Naval & Power segment.

Through its predecessor companies, Ultra Energy's roots date back to the mid-1950s as a specialist in neutron monitoring and the late-1960s as a manufacturer of temperature and pressure sensors. Today, its diverse portfolio includes neutron monitoring for measuring reactor power and safety management, radiation monitoring for plant safety, reactor protection systems to constantly monitor plant conditions and highly accurate temperature and pressure sensors. Ultra Energy employs approximately 300 people and maintains primary operations in the U.K. and Texas.



## PVI Holdings Announces Name Change to VytI Controls Group

PVI Holdings announced that it has officially changed its name to VytI Controls Group. The decision was made to unify and enhance cross-company integration and directly reflects the investment the company has made over the past year to provide unmatched technical expertise and solutions to all current and future industries it serves.

A-T Controls, Setpoint Integrated Solutions, Valsource and W&O will now have “a VytI Company” added to their company names. The change unifies each brand under one umbrella and fully leverages the resources, products, services and engineering expertise across each company within VytI Controls Group. The new name more accurately represents the company’s expanded capabilities, vision and commitment to each brand’s market and future growth goals.

“Our new name is an important message to our employees, customers, distributors and OEM partners

we do business with,” says Matt Bate, CEO. “We provide essential services and technical solutions to critically important industries. As a part of coming together as one company, we have invested in best-in-class talent, technology and tools to ensure we are positioned for the future.”

VytI Controls Group companies include:

- A-T Controls: designs, manufactures and sells manual and automated process valves;
- Setpoint Integrated Solutions: supports the power, refining and chemical industries with best-in-class valve repair services, delivering process solutions for control, relief and automated valve requirements, along with industrial equipment including liquid level measurement, pressure gauges, PLCs and more;
- Valsource: valve manufacturer and comprehensive valve and automation solutions provider for all industrial valve re-



pair, remanufacturing, testing, maintenance and valve product solutions.

- W&O: now one of the world’s largest suppliers of pipe, valves, fittings and actuation and engineered solutions to the maritime and upstream oil & gas industries. GMS Instruments was acquired by W&O in June of 2024 and will now formally adopt the name W&O, a VytI Company. With the rebrand, EMI (formerly known as Engine Monitor, Inc.) and Valve Automation and Control of San Diego (VAC) teams will also join the marine practice and adopt the VytI Company brand.

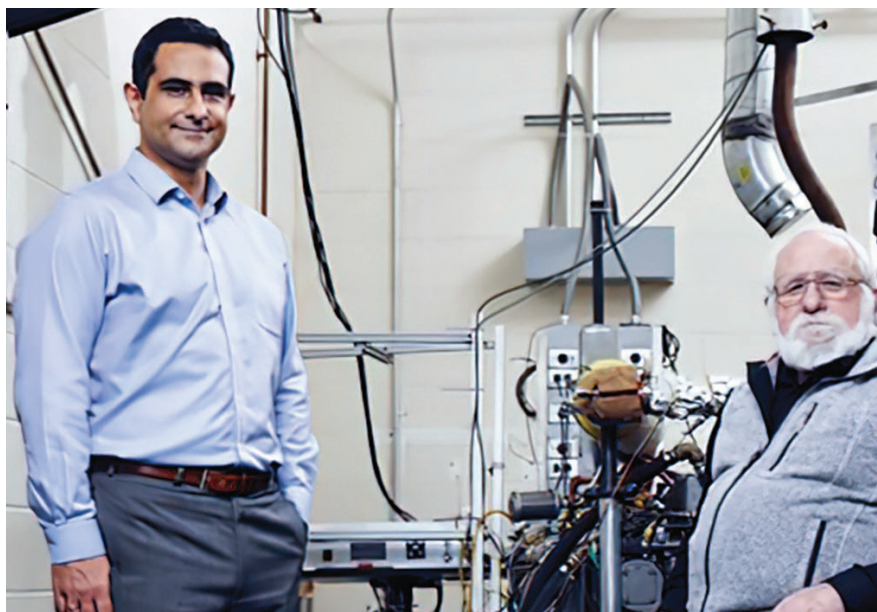
## Emvolon Selected by DOE and EPA to Adapt Technology Eliminating Flaring

Pioneer Energy announced that it has been selected by the U.S. Department of Energy (DOE) and the U.S. Environmental Protection Agency (EPA) to adapt Emvolon’s proprietary gas-to-methanol technology to eliminate flaring and emissions in oilfields. The technology will be demonstrated at an oil and gas facility in Eagle Ford, Texas.

MIT spin-off Emvolon converts otherwise wasted methane into liquid green chemicals and fuels. Using repurposed car engines as cost-effective modular chemical plants, Emvolon converts not only the flared gas but also biogas and landfill gas into liquid green methanol. The methanol can then be trucked away to monetize what were once stranded resources at a low cost without a pipeline infrastructure while avoiding emissions.

The grant will provide funds to scale and package Emvolon’s technology, and will be demonstrated for 12 months.

Emvolon co-founders Emmanuel Kasseris, PhD, and Leslie Bromberg, PhD.



## Velan Announces Initiatives to Reduce Cost and Risk

Velan Inc., a global manufacturer of industrial valves, announced major strategic initiatives that will significantly reduce operating and financial risks as well as strengthen its financial position. The company is divesting its asbestos liabilities and has entered an agreement to sell its French subsidiaries to Framatome SAS.

“We believe these two transactions are key to unlocking Velan’s inherent value and we are delighted with an outcome that makes us a financially and operationally stronger company going forward,” says James A. Mannebach, chairman of the board and CEO of Velan. “The divestiture of asbestos-related liabilities will allow Velan to confidently move ahead with the execution of its business plan while selling French subsidiaries to local interests also supports the protection of French sovereign interests,” he continues.

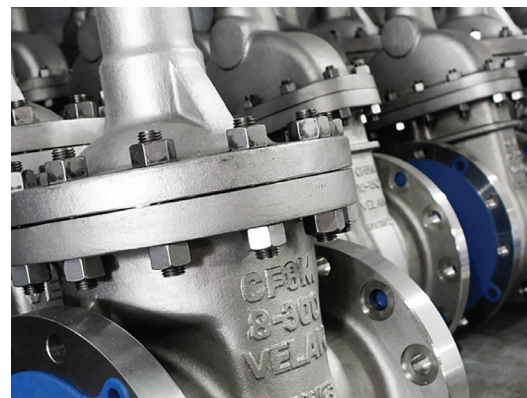
Mannebach also stated: “Our activities will also benefit from robust momentum in the clean energy sector, including nuclear, which is undergoing a multiyear growth cycle throughout the world. We remain well-positioned in this market with our proprietary valve offerings for small modular reactors, along with

our global installed base of products at existing nuclear reactors. In addition, we are firmly entrenched in other markets buoyed by global energy transition trends.”

Rishi Sharma, chief financial and administrative officer stated: “These transactions meet two key financial objectives, namely the reduction of risk and resolution of our asbestos-related liabilities through the divestiture transaction and the strengthening of our balance sheet. Following their closing, Velan would be virtually debt free which would allow for greater investments in growth opportunities.”

The company’s wholly-owned subsidiary, Velan Valves Limited, has entered into a memorandum of understanding relating to the sale of 100% of the share capital and voting rights of its French subsidiaries, Segault SAS and Velan S.A.S. (“Velan France”), to Framatome SAS, a world leader in nuclear energy, for a purchase price of \$175.2 million (€170 million), with the benefit of the transfer of an intercompany loan of \$23.2 million (€22.5 million), for total consideration to the company of \$198.4 million (€192.5 million).

The closing of the asbestos di-



vestiture transaction is subject to securing financing and other customary closing conditions. If the France transaction (as defined below) is not completed, the Company will seek alternative financing options for the asbestos divestiture transaction.

In accordance with French laws, Segault, Velan France and Framatome will inform and consult their employee representative bodies before any definitive agreement is entered into between the parties.

The completion of the France transaction under the definitive agreement would be subject to the approval of Velan’s shareholders. Velan Holding Co Ltd. (“Velan Holding”), the controlling shareholder of Velan, has entered into a voting and support agreement with Velan in respect of the approval of the France Transaction.

## IMI Invests \$38 Million in New US Control Valve Facility

IMI recently unveiled plans for a new \$38 million manufacturing facility in Lake Forest, California.

The new site, which will primarily support IMI’s CCI brand of actuator and control valves, will offer space for employee collaboration, well-being and productivity. The company also plans to reduce the new facility’s environmental impact through its design.

IMI is planning to sell its current facility in Rancho Santa Margarita to fund the project. It plans to complete the move by the beginning of 2026.

As companies recognize the value of employee engagement, IMI plans for the new facility to feature more

collaborative and flexible work areas with better lighting and climate control, as well as outdoor space and recreation areas.

The move will streamline manufacturing operations, providing faster technical responses and shorter lead times for IMI’s customers in both nuclear and conventional power industries.

Kevin McKown, Process Automation President for the Americas, at IMI said: “Our move to Lake Forest represents an important step for IMI. This new site will allow us to better serve customers with investment into our highly skilled staff and the latest manufacturing capabilities. It

will modernize our processes and provide a critical space for us to develop breakthrough engineering in two of our key markets.”

Further investments will include a state-of-the-art solar power system and additional technology to increase productivity, improve energy consumption and reduce hazardous waste streams.

“By establishing a new center of excellence in Southern California, we will be able to grow even as the demands of our customers change,” McKown continued.

# AMERICAN MANUFACTURER OF Electric Actuators and Controls

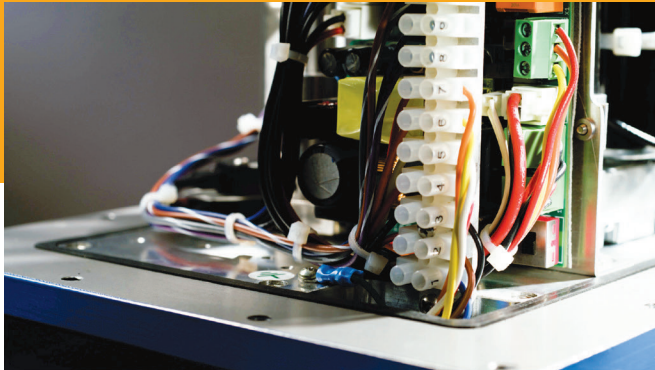
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# The American Society of Mechanical Engineers

Since 1880, ASME has been leading the way in developing standards and codes and educating engineers and industry globally.

Edited by Heather Gaynor

ASME was formed to help “the global engineering community develop solutions to real world challenges.” Founded in 1880 to enable collaborations, sharing of knowledge and skills across engineering and to promote engineering to the general public. Today, ASME develops codes and standards, and produces a number of conferences, publications and educational opportunities for industry. In 2020, the International Society of Interdisciplinary Engineers (ISIE) was created to house business ventures to bring new products, services and technology to the engineering community.

ASME published its first standard in 1884 and has continued to publish more than 570 standards to date. Among these is the Boiler and Pressure Vessel Code (BPVC) first issued in 1924. More than 100 countries globally use the BPVC, and an estimated 19,500-plus pages have been published on this code alone! Since valves are critical components to systems operating under pressure, ASME standards ensure safe design, manufacturing, testing and usage that minimizes failure risk and ensures safety for everyone involved.

A board of governors (BOG) is chosen from ASME membership to oversee the Society’s activities according to its own bylaws and constitution and its adherence to New York state laws. The BOG is comprised of 12 members-at-large, an executive director and up to two appointed governors. Society policies updates, changes and additions must be adopted by the Board of Governors.

At the 2024 VMA Valve Forum, VMA member Carlos Davila of Crane presented on current standards updates being considered for ASME B16.34 and B16.5. For B16.34, the most recent update included clarifying guidance on ASME B16 cases and a precautionary paragraph was added for trapped liquid between seats of double seated valves. For the next edition, the B16.34 committee will consider updates related to additive manufacturing (AM) for valve bodies, bonnets and covers; a new appendix for valve terminology and a new set of ceiling pressures, along with other updates. The 2020 B16.5 standard aligned tolerances between SI and US customary units and added clarification on marking requirements, along with other changes. The next edition changes being considered also include AM utilizing powder metallurgy Alloy 91, revised welding profiles and suitability of materials for cold temperatures.

For nuclear plants and other high-temperature and high-pressure systems, the BPVC is critical. Key sections code relevant to

valves are Section I: Power Boilers (valves used in steam boilers and power systems); Section VIII: Pressure Vessels (valves for pressurized systems); and Section XIII: Rules for Overpressure Protection (safety and pressure relief valves). Valves used in systems that are governed by BPVC standards must meet very strict requirements for their materials of construction, pressure ratings and performance testing. Not complying with these standards can lead to system failures, safety risks and legal liability for operators and manufacturers.

Benefits of ASME standards for manufacturers include access to many global markets that mandate compliance with them in their regions or localities, particularly in multinational or international oil and gas, chemical and energy sectors. ASME standards also ensure users that the products have been through robust and reliable design review and testing and will perform as they are intended and advertised. Certifications such as the ASME UV stamp for pressure relief valves is often used in conjunction with the National Board’s NB stamp to confirm that organization’s requirements have also been met with the product design.

Users find value in ASME standards because the risks of leaking, bursts or catastrophic failure in high-pressure systems is lessened when products meet these standards. Legal compliance also comes into play for jurisdictions that require ASME-compliant products to meet local codes or insurability requirements. And ASME-compliant valves often have higher durability and longevity reducing overall lifecycle costs for operators.

By adopting ASME standards, municipalities and industries are adopting uniformity in standards across industries and geographies making it easier for manufacturers to sell globally and companies to use the same products across many global markets and locations. For more information on ASME or to procure a copy of relevant codes or materials, visit [asme.org](https://www.asme.org).

The American Society of Mechanical Engineers promotes the art, science and practice of multidisciplinary engineering and allied sciences around the globe.





# Reflect, Plan and Pivot: VMA's Commitment to You

**Happy New Year!** This time of year always brings reflections on the past and planning for the future, and this year is no different.

I recently attended the National Association of Manufacturers' Council of Manufacturing Associations (CMA) conference, which had the theme "agile navigation." Whether looking back or forward, this theme is relevant. The conference is comprised of the leaders from other U.S. manufacturing associations and brings us together to discuss key manufacturing industry trends and issues and how to amplify the voice of the greater manufacturing community. Not surprisingly, much of the discussion was on the change of administration, workforce and the economy.

VMA will continue to work on behalf of all our members and industry to educate, advocate and provide tools and resources on many of the topics discussed at the CMA conference, and we'll do this through the lens of the industrial valve industry and specifically our member companies.



I'm excited to work alongside the VMA Board of Directors, announced on page 14, to stop a full ban on PFAS and fluoropolymers, to provide best practices and case studies on technical, manufacturing and management learnings that make our industry stronger, to provide business and market intelligence, and to advocate for tax and regulatory changes that support our company's ability to grow. VMA will continue to support a strong platform for our members' businesses, and being agile and responsive as we navigate the year will be paramount to our success.

Looking back on 2024, VMA provided value to our member companies in many ways. Two new conferences were launched, one on the hydrogen market and one to give background on the PFAS ban and tactics to meet regulatory requirements. In what could have a profound positive impact on our industry, VMA submitted justifications on why industrial valves and related products should be designated as a "currently avoidable use" of PFAS substances. This designation would mean that our products may continue to be transported freely between states and continue to be used to create emissions barriers, reduce energy and meet performance requirements in highly corrosive or high-temperature environments. VMA's 2024 Annual Report will provide further information on 2024 and will also demonstrate how addressing immediate market trends and issues allowed VMA to navigate the continually changing economic, political and business environment to provide member value.

Opportunity continues for the VMA members, our industry and VMA, and as I did last year, I invite our members to get involved in VMA. If you aren't already a member, I invite new companies to reach out and learn more about how your company may benefit from VMA membership. I also hope to see Valve readers at the Valve Forum: Conference & Exhibits, April 8-10, 2025, in Orlando where technical, business, government affairs, energy, manufacturing and other topics will all be discussed, and where networking within the industrial valve industry will take place.

As always, I wish all of our readers a strong and successful 2025!

Heather Rhoderick, CAE  
President

## VMA Board of Directors Announced

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

VMA is pleased to announce the 2024-2025 VMA Board of Directors, led by Chairman of the Board Kirk Wilson, President, Flow Control, Flowserve Corporation. VMA's Board of Directors sets the strategic direction for the association and works to ensure that member value is being provided through all the association services and activities.

The following individuals are new Board of Directors' members: Brian Weisel, Vice President and General Manager, DFT Inc.; Nick Buccheri, President, Discrete Automation Americas at Emerson; Scott Lustyk, General Manager at Enertech, Curtiss-Wright; Ludovic Goncalves, Executive Director of Product Management/NPD, Valves, Baker Hughes.

The following individuals remain on the VMA Board of Directors: Alex Alcalá, Crane Co.; Jordan Bast, Richards Industrials; Zachry Brown, Bray International Inc.; Danilo Garcia, RF Valves; Rachel Hollinger, DeZURIK (Executive Committee); Scott Jackson, FloWorks; Kevin McKown, IMI Critical Engineering (Executive Committee); Matt Thiel, AUMA Actuators Inc. USA (Executive Committee); Kevin Tinsley, Valmet; Rob Velan, Velan; Dave Loula, ITT Engineered Valves; Ex-Officio: Kelly Lovell, United Valve and Cory Jones, Setpoint Integrated Solutions.



Kirk Wilson, VMA Chairman  
Source: Flowserve



Brian Weisel, DFT



Nick Buccheri, Emerson



Scott Lustyk, Curtiss-Wright

## Registration Open for Valve Forum and Hydrogen + Energy Valve Summit

The entire industry is invited to join us for the Hydrogen + Energy Valve Summit and 2025 Valve Forum: Conference & Exhibits April 8-10, 2025, in Orlando, Florida. As the industry's most comprehensive source of education and networking, the Valve Forum is the premier gathering place for the entire valve industry value chain, offering business insights, professional development opportunities and the latest products and technology.

The Hydrogen + Energy Valve Summit takes place the day before the Valve Forum. The global energy landscape is no longer just "transition" focused; it's about energy expansion. This one-day program offers a strategic overview of energy opportunities for the valve industry.

Together, both events offer over 30 hours of content spanning manufacturing, technical, marketing and management, valve fundamentals, energy and repair topics; as well as five networking opportunities with industry



leaders, end users and exhibitors. This is the event you and your team can't afford to miss.

Register and learn more at [vma.org/valveforum](https://vma.org/valveforum). VMA and VRC member company employees receive significant discounts on attendee registration and exhibit displays!

## VRC Board of Directors Announced

The VRC membership has elected its 2025 Board of Directors, including a new Board chair, two new members and seven returning Board members. VRC is pleased to have Chris Jones of Midwest Valve Services as its new Chairman of the Board. Chris has been on the Board of Directors for five years and is excited to take on this new role to help lead the VRC and industry. Ben Davis of Setpoint Integrated Solutions and Jim Storing of Allied Valve are the two new Board members.

The complete list of 2024-2025 Board of Directors includes:

**Executive Committee:** Chris Jones (Chair), Director of Final Control Services, Midwest Valve Services; Jody Dunn (Vice Chair), President, Quality Valve; Kim Beise (Immediate Past Chair), CEO, Dowco Valve Company.

**Directors:** Ben Davis, Setpoint Integrated Solutions; Greg Johnson, United Valve; Richard Lewis, John H. Carter Company; Jack Roubik, Flotech Inc.; Cliff Smith, Valmet; Jim Storing, Allied Valve.



Chris Jones, VRC Chairman



Ben Davis, Setpoint



Jim Storing, Allied Valve



## R.E. Mason Joins the Valve Repair Council (VRC)

R.E. Mason recently joined the Valve Repair Council (VRC). The company, in business for more than 80 years, serves customers in the energy, life sciences, pulp and paper and chemical industries. The company is an authorized OEM repair provider for multiple international valve manufacturers, and is an Emerson Impact Partner.

Learn more at [remason.com](http://remason.com)

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## 2025 VMA Scholarship Applications Now Being Accepted

VMA's William Sandler Scholarship program provides financial assistance to the children of VMA and VRC member company employees who are attending either technical schools or 4-year universities and colleges. Those who are studying areas of importance to the valve manufacturing industry should apply by Monday, March 31, 2025. Learn more by visiting: [vma.org/sanderscholar](http://vma.org/sanderscholar)

## VMA 2025 Annual Meeting Dates

VMA and VRC members should save the date for the 87th VMA/VRC Annual Meeting, October 13-15, 2025, in Naples, Florida. This meeting is a must-attend for leaders, with expert speakers on external forces affecting the industry and analysis on impacts to our industry, as well as the best networking opportunities. Learn more at [vma.org/annual-meeting.com](http://vma.org/annual-meeting.com).

## VMA Provides Short and Long Term PFAS Insights

VMA's conference on PFAS last November highlighted both how our industry uses and is impacted by PFAS substances — mostly fluoropolymers — and what companies need to be doing now to meet upcoming deadlines in the U.S. and Canada. The conference also explored mid and long range issues to be planning for end of life, insurance and liability. VMA members can access tools and guidance on the regulations through VMA's Member Resource Library.



## Valve Repair Seminar in Summer 2025 Offers the Latest Insights

Mark your calendars and plan to join us for the sixth biannual Valve Repair Seminar on June 2-3, 2025, at San Jacinto College in Pasadena, Texas. Developed by the Valve Repair Council, this conference is designed specifically for professionals in the valve repair and service industry and offers a day-and-a-half of educational programming, a local facility tour, multiple networking opportunities and tabletop exhibits.

This event is open to both VMA/VRC members and industry nonmember companies. Discounts are available for companies with multiple attendees. Learn more at [vma.org/events](http://vma.org/events).



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### 2025 Save the Dates

**April 8**  
Hydrogen + Energy Valve Summit | Orlando, FL

**April 8-10**  
The Valve Forum: Conference & Exhibits | Orlando, FL

**June 2-3**  
Valve Repair Seminar | Pasadena, TX

**October 13-15**  
2025 Annual Meeting | Naples, FL

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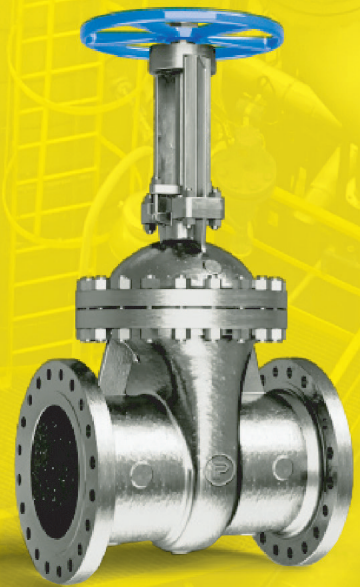
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FEATURED ARTICLE

# The Rise and Fall and Rise Again of Nuclear Power

While some countries have worked to phase it out in favor of sustainable renewables, others are embracing it and adding even more to their fleets.

BY: HEATHER GAYNOR, *Editor*

Since its discovery in 1938, nuclear fission has been studied and tested by scientists trying to harness the power generated to run everything from submarines to powering electrical grids. The U.S. Department of Energy (DOE) estimates that nuclear power contributes nearly 20% of all electricity generated in the U.S. today. Valves and actuators used in nuclear plants must meet stringent guidelines and specifications set by the Nuclear Regulatory Commission (NRC), ASME Boiler and Pressure Vessel Code (BPVC) and other regulatory agencies and requirements to ensure they are safe and fully seal to avoid leaks or create safety concerns. This article will give an overview of the technology, current state of the industry and delve into specific challenges that nuclear applications create for valve and actuator manufacturers.

## How does it work?

Nuclear fission occurs when the nucleus of an atom is bombarded by neutrons and protons and other particles and then splits into two or more smaller nuclei creating a chain reaction. This chain may release enormous amounts

A thimble-sized ceramic cylinder (approximately 3/8-in. in diameter and 5/8-in. in length), consisting of uranium, which has been enriched to increase the concentration of uranium-235 (U-235) to fuel a nuclear reactor. Modern reactor cores may contain up to 10 million pellets, stacked in the fuel rods that form fuel assemblies.

Source: U.S. Nuclear Regulatory Commission

of energy in the form of heat and radiation that can be harnessed for electricity. This is accomplished in many modern reactors when the heat is used to boil water to temperatures of over 500°F and create steam that is then used to drive steam turbines to generate electricity. This very clean process doesn't generate fossil fuel emissions like many other forms of power generation do but does generate nuclear waste from spent fuel that must be handled and disposed of very carefully.

Uranium is the mineral most often used for nuclear fuel, and estimates are that one pound of uranium has as much

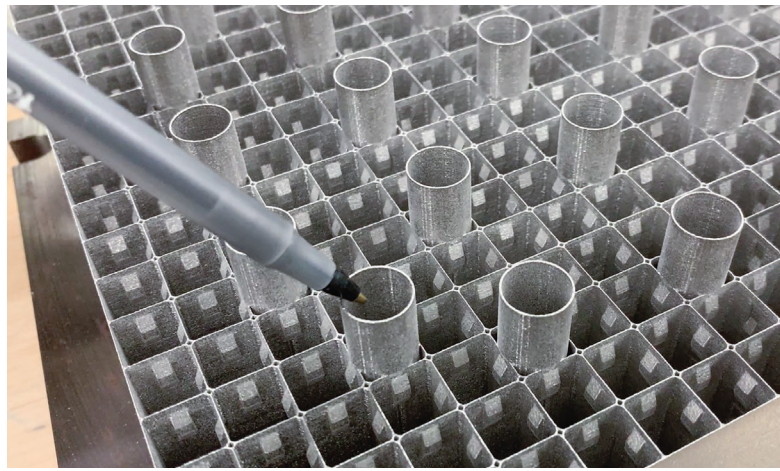
energy as 3 million pounds of coal — making it an incredibly efficient fuel source despite potential safety risks. Radiation is measured in “half-life” or the length of time it takes a material to lose half of its radioactivity. U-238, the most common form of uranium in nuclear plants, has a half-life of 4.5 billion years, and uranium U-235 of about 700 million years. With that in mind, it’s critical that there are safe and effective handling, disposal and storage mechanisms for spent fuel to maintain nuclear as a viable option.

**Use and recycling of nuclear fuel**

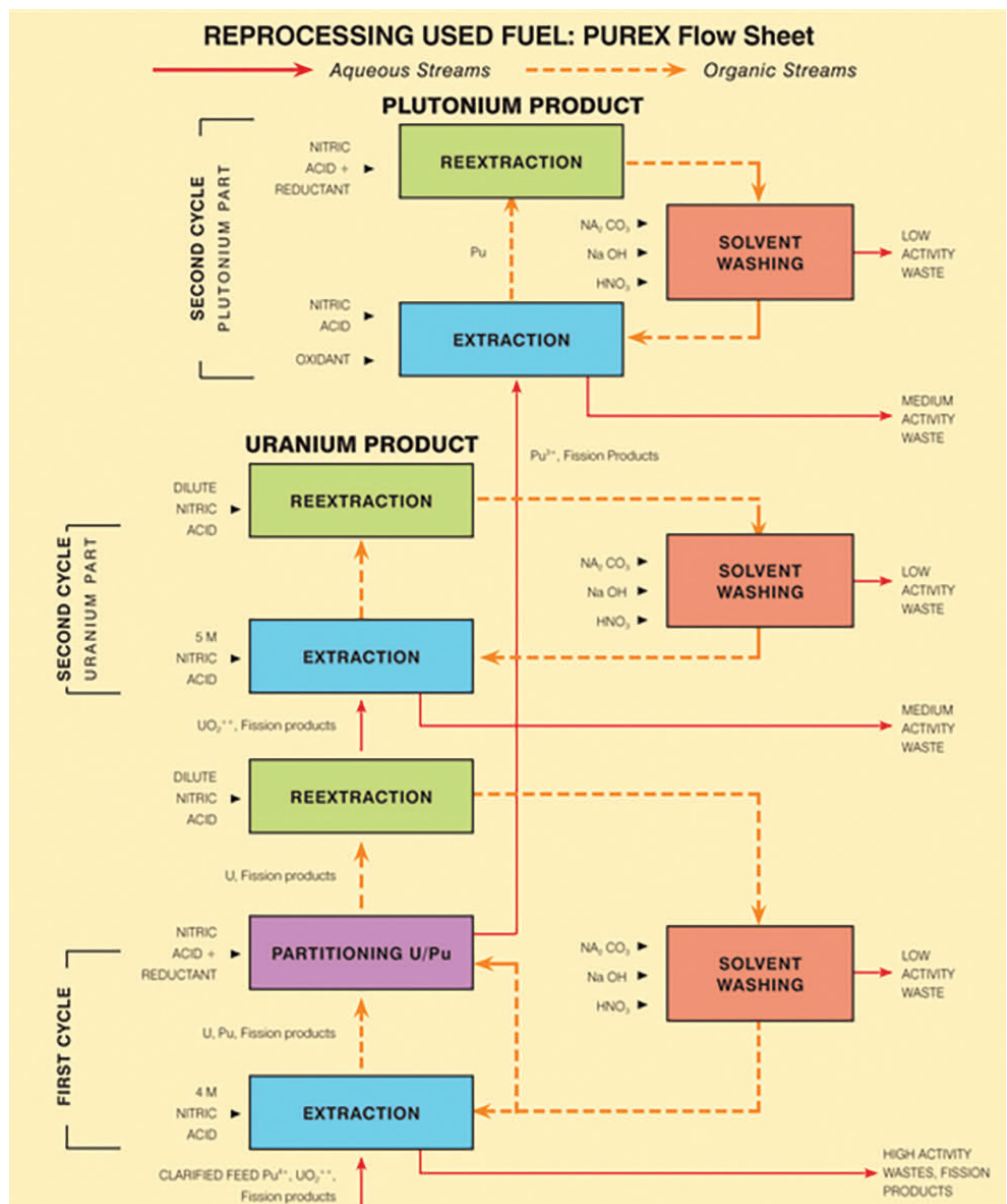
According to the World Nuclear Association, recycling today is largely based on converting U-238 to plutonium. This plutonium can then be used again as fresh fuel for fission power generation, as is currently the case in Japan, France, Russia and China, but other countries are not yet reprocessing the materials. By reprocessing used material to recover uranium and plutonium, operators not only avoid wasting valuable materials but also eliminate some of the waste stream. To date, World Nuclear estimates about 30% of spent fuel from nuclear power plants has been reprocessed.

In the U.S., the Nuclear Waste Policy Act of 1982, as amended, declares that the federal government is responsible for providing a place to permanently store high-level radioactive waste, while those who generate the waste are responsible for all costs of permanent disposal. This Act has been amended over time, and the U.S. government has designated Yucca Mountain, Nevada, as the permanent site for nuclear waste for the U.S., although the facility is still on hold so there is currently no waste at the site, or a completed facility for storage. Other sites may be considered in the future but must have crystalline rock formations and particular geological qualities to deem them suitable for permanent and safe storage.

Nuclear fuel is solid and is used as small ceramic pellets of enriched uranium oxide, encased in metal cladding to form fuel rods. The rods are bundled together into assemblies that are placed into the



These spacer grids were designed through a Westinghouse/ Carnegie Mellon collaboration then 3D printed as one piece replacing a very complicated assembly requiring joining many pieces with one piece. Source: Additive Manufacturing



Source: World Nuclear Association

Feature	Sodium reactor	Boiling water reactor (BWR)
Coolant	Liquid sodium, allowing operation at higher temperatures without high-pressure systems.	Water, which boils within the reactor vessel to generate steam to power the turbines.
Pressure	Operates at near-atmospheric pressure due to sodium's high boiling point, reducing the risk of pressure-related incidents.	Requires high-pressure systems to prevent boiling water within the reactor vessel, which necessitates higher pressure vessels and equipment and enhanced safety protocols.
Energy storage	Features an integrated molten salt energy storage system for flexible output and grid stability.	Lacks integrated storage so output is constant and can't be easily adjusted based on grid demands.
Safety considerations	Sodium coolant operates at low pressure but is more reactive with air and water so still requires stringent containment measures.	Water as coolant is less reactive but requires higher pressure equipment and multiple safety systems to regulate and monitor pressure and temperature.

reactor. Once used or spent, the rods are placed in steel-lined concrete pools of water to cool, then put into dry storage casks made of concrete and steel for protective shielding. The fuel can then be reprocessed to recycle and separate out the radioactive components for reuse or to be permanently stored. Whether it will be stored or transported to a recycling and reprocessing facility, it is placed in the casks that are built to withstand fire, water immersion, impact and punctures, keeping the radiation safely contained.

In total, since the first nuclear power plants went online, it is estimated the U.S. has produced 90,000 metric tons of spent fuel, an amount that if stacked would cover one football field at a depth of less than 30 feet — a seemingly small amount relative to the power generated.

Spent nuclear material can be reprocessed using three different methods: hydrometallurgy, which uses an aqueous solution to dissolve metals and then separate them using electrolysis; electrometallurgy uses electrical current to separate the metals in solid form; and pyrometallurgy uses heat to initiate separation of the metals. Reprocessing often uses a combination of these technologies, and today the most current process is called PUREX, a plutonium uranium extraction process (see process flowchart on p. 17). It uses nitric acid to dissolve the fuel elements then chemical separation via solvent extraction. This very complex process requires multiple facilities and technologies but is the most commonly used process.

### Current state of nuclear energy

Because of high-profile nuclear accidents such as the one at Fukushima after a major earthquake, and a push toward more long-term sustainable technology, many countries decided to limit their use of nuclear and move toward renewables such as solar and wind. Among these is Germany, where nuclear capacity has been decommissioned with the last reactors shut down in 2023. However, many other European nations are pursuing more nuclear

capacity, including government subsidies for low- or no-interest loans being considered.

The U.S. has the most nuclear reactors currently in service with 94. The World Nuclear Association cites reactors in 32 countries totaling 440 operational. But with the extreme costs and frequency of delayed schedules to build new reactors or retrofit existing ones, many countries are slow in building new capacity. There is hope being placed in a new class of reactors called Small Modular Reactors (SMR). These SMRs can be installed on a very small footprint and

are designed to generate around 300 MW, or enough energy to power an average of 220,000 homes in the U.S. or to easily power a specific facility or plant.

The most frequently cited SMR plants under development are planned to power data centers and other highly energy intensive operations, with agreements recently signed by Amazon, Google and others to independently power their massive data centers on site without the need for major utility infrastructure. These SMRs are currently in development and are planned to go online as soon as 2035. Google is working with Kairos Power and Amazon with X-energy for its SMR designs, however, in the U.S. only NuScale has received design approval from the U.S. Nuclear Regulatory Commission for its SMR design. Several other companies are in varying degrees of “pre-application activities” according to the NRC, so it is likely that in the next decade other designs may achieve NRC design approval. Globally, Rolls-Royce, Westinghouse, GE-Hitachi and Holtec are also developing SMR technology, with Romania’s Nuclearelectrica planning to deploy its first NuScale reactor by 2028 and Poland by 2029. This is an ever-evolving technology and market and it is expected to continue on this path for the foreseeable future.

### Flow control products in nuclear applications

Within nuclear power plants are a wide variety of valves, some specific to these applications. For example, reactor coolant system valves are often gate or globe valves that must operate under extreme pressure and temperature. Containment isolation valves require fast and reliable actuation to isolate containment if there is an emergency. Steam system valves encounter very high temperatures and must be resistant to creep — a gradual and permanent deformation of metal components that creates leaking conditions and is often caused by damaged seals or debris or contamination in the flow.

Among these applications, globe, gate, ball and check valves are used in various systems and they must be resistant to a variety of conditions including:

- **Thermal and mechanical stress:** exposure to prolonged high temperatures and pressures that could lead to wear, fatigue and deformation.
- **Corrosion or erosion:** high velocity flow or aggressive chemicals used in the process can compromise seal and valve integrity.
- **Leakage:** small leaks could be catastrophic and lead to significant safety issues at the worst and while system inefficiencies pose less risk, they can still cause potential damage to the systems.
- **Actuator malfunctions:** actuators are used throughout the plants to operate valves. If their integrity is compromised or they fail in any way, this could create a catastrophic safety condition.
- **Radiation exposure:** components that are exposed to the radiation from the fuel rods are at higher risk of degrading which can affect valve or actuator performance.

To address these needs, specific materials and design requirements and constraints are imperative in the nuclear industry. Materials including Inconel or other nickel-based alloys, stainless steel or other alloys are application specific. Nickel-based alloys are often required for high-temperature and high-pressure areas of the plant with the components ability to withstand harsh and corrosive environments, radiation and hydrogen embrittlement.

Reactor buildings are often very tight quarters, so size constraints for valves and all equipment are very specific. Valve sizes must be carefully specified based on the application, flow rates and the space allowed for the valve in the physical footprint of the plant. Often valves must be custom engineered to fit into applications properly, but all must still meet the requirements of the ASME BPVC Section 3, and be NRC certified for use in U.S. plants.

Nuclear power plants follow rigorous maintenance schedules and must adhere to the defined life of the valves and equipment. While some valves will need to be replaced at set intervals, others may be built to last for the entire operational life of the facility with regular maintenance. ASME code mandates inspection intervals for valves in working plants, and advanced diagnostics can be used to predict failures or required maintenance based on vibration monitoring, thermal imaging and other non-destructive testing methodologies are employed to validate the safety of equipment while in operation.

### New technology in nuclear

Along with SMRs, Generation IV reactors, such as sodium-cooled fast reactors (often called Natrium), gas-cooled reactors and molten salt reactors are under development by companies including TerraPower (cofounded by Bill Gates and GE Hitachi). These reactors use liquid sodium instead of water for heat transfer. Molten salt is also used for energy storage, which allows plants to store energy that



An employee of Curtiss-Wright works on a butterfly valve that will be shipped to a nuclear customer for installation in their plant. Source: Curtiss-Wright

is produced until it is needed based on load. Power output can be adjusted based on grid demand more easily with these reactors, and the higher boiling point of sodium reduces the risks of coolant boiling and pressurization. The chart on the previous page was derived from the World Nuclear Association and GE Vernova's websites.

With this new generation of reactors, nuclear power appears to be gaining on its clean energy capabilities and offers advantages such as flexible output and the capacity for energy storage that traditional PWRs and BWRs don't offer today.

In addition to this new technology, additive manufacturing or 3D printing is finding applications within nuclear power applications. Oak Ridge National Laboratories working with Framatome 3D printed brackets for use in a reactor that will be in service for 6 years then removed and tested.

Westinghouse and Carnegie Mellon have collaborated on spacer grids used to hold fuel and control rod assemblies (photo on p. 17). These parts are traditionally manufactured through stamping and welding, requiring a lot of precision machining and manufacturing. With 3D printing, the parts can be printed with a laser powder bed fusion process and produces as a complete grid in one piece. This can reduce total part count, increase production and reduce cost of these components for nuclear plants, all while producing very complicated assemblies in just one operation.

While some aspects of the valve industry and the markets served are slow to change and still use technology invented centuries ago, the nuclear market is one in a constant state of change and refinement and is getting a new life thanks to a focus on sustainable and consistent power generation requirements. The once highly lauded technology has seen ebbs and flows but it appears to be on the upswing again. ❗

FEATURED ARTICLE

# HVOF Coatings for Severe Service Valves

Chrome carbide is one coating that can be applied during manufacturing or repairs that extends service life of valves and other flow control components.

BY: KELLY SONGER, *Director of Valve Services*  
COMPANY: PRECISION SPRAY & COATINGS

Valves are a vital component in oil and gas, water treatment, mining and chemical processing, regulating the flow of fluids with high precision and reliability.

Severe service valves are used in the most difficult environments within a process. These severe service environments include erosive, corrosive, high-pressure, high-temperature, and high-velocity media or slurry media.

Over time, valves experience wear leading to costly repairs or replacements. For valves facing severe service conditions, thermal spray coatings like high-velocity oxygen fuel (HVOF) applied coatings, specifically chrome carbide, offer a solution that significantly enhances the performance and longevity of critical components.

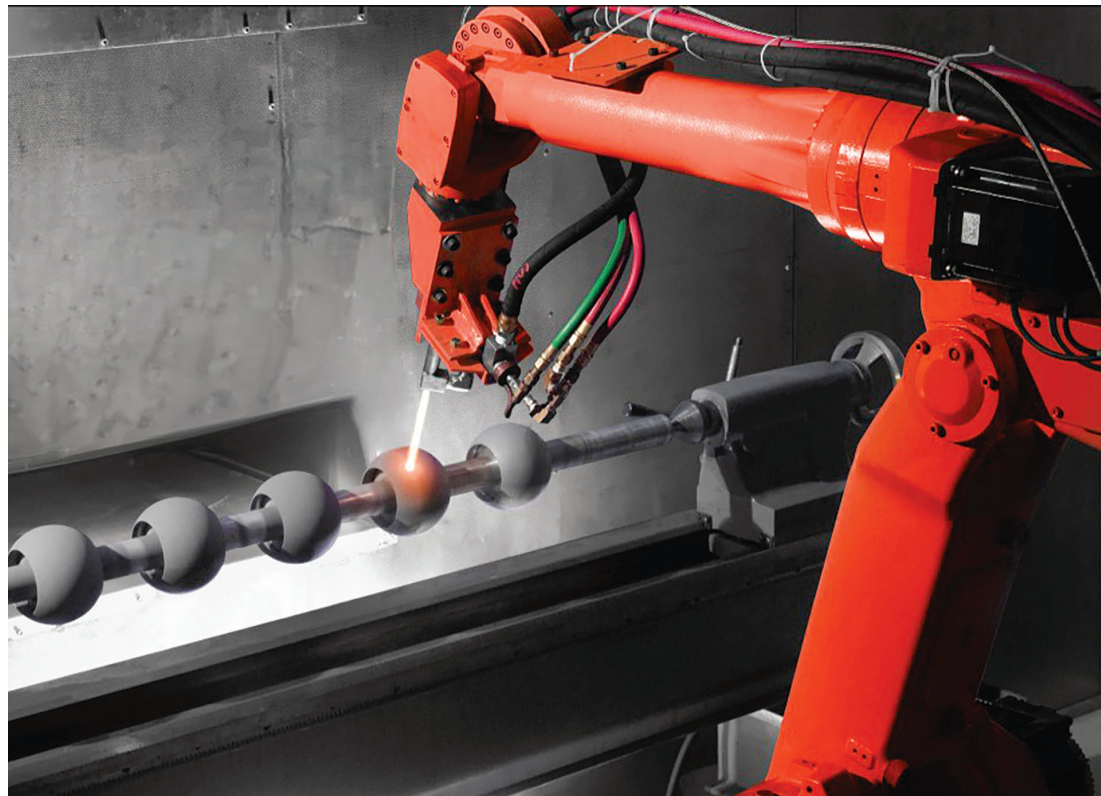
## HVOF coatings: high performance for severe conditions

HVOF is a thermal spray process that involves



HVOF carbide coated balls for ball valves. All images courtesy of Precision Spray & Coatings.

Ball valve component undergoing robotically applied HVOF spray process.



## HVOF material options

Several types of materials can be HVOF coated, and the specific material chosen depends on the desired properties for the application. Here are some of the materials commonly used with HVOF coating:

### Metallic Materials

- **Stainless steels:** These offer excellent corrosion resistance, high strength and wear resistance. Examples: 316L, 904L, 410
- **Nickel alloys:** Often used for applications requiring high resistance to heat and oxidation. Examples: Inconel 625, Inconel 718, Monel
- **Cobalt alloys:** Known for high wear resistance, good corrosion resistance and high-temperature stability. Examples: Stellite 6, Stellite 21
- **Iron alloys:** These can be used to improve wear resistance in some cases. Examples: Hardened steel, cast iron
- **Titanium alloys:** Useful for applications needing a combination of strength, low weight and corrosion resistance. Examples: Ti-6Al-4V, pure titanium (Grade 2 & 5)

### Carbide Materials

- **Tungsten carbide (WC) coatings:** These are widely used in applications where wear resistance is a priority, such as in mining, drilling and other harsh conditions.
- **Chromium Carbide (CrC):** Provides excellent wear resistance and is used in various applications, including oil and gas, petrochemical, mining and cement industries.

### Composite Coatings

- **WC-Co (Tungsten Carbide-Cobalt):** Composite coatings often combine hard ceramics like tungsten carbide with a metal matrix, such as cobalt, to improve wear resistance and toughness.
- **WC-Ni (Tungsten Carbide-Nickel):** Another composite coating, this provides improved wear resistance while offering better toughness than pure tungsten carbide.

### Other Alloy Materials

- **Copper alloys:** Coatings made from copper and its alloys can improve electrical conductivity and corrosion resistance. Examples: Bronze, brass.
- **Molybdenum:** Molybdenum coatings are used for high-temperature applications requiring strength and wear resistance.



### Common applications of HVOF coatings

- **Aerospace:** Protection of turbine blades, compressor blades and other engine components.
- **Oil and gas:** Coatings for drill bits, pumps and valves exposed to extreme abrasion and corrosion.
- **Automotive:** Coatings on engine components to improve wear resistance and protect against corrosion.
- **Mining and cement:** Coatings for tools and equipment exposed to high abrasion.

### Considerations for HVOF Coating Materials

- **Adhesion strength:** The material must bond well with the substrate.
- **Wear resistance:** The material chosen should be able to withstand abrasive and erosive environments.
- **Thermal properties:** Some applications require materials with high resistance to heat and oxidation, such as in turbines.
- **Corrosion resistance:** In environments where exposure to chemicals or saltwater is a concern, corrosion-resistant materials like nickel alloys or stainless steels are often preferred.

Choosing the right material for an HVOF coating is crucial for ensuring the coating meets the performance and durability requirements of the specific application.

## Repairing a ball valve: coating, grinding and lapping



Lapped chrome carbide-coated ball before reassembly.

Ball valves are a great candidate for HVOF coatings. The repair process for a ball valve begins with the disassembly and evaluation of its individual components. The valve is inspected for signs of wear, the damaged areas are identified, and if the valve is able to be repaired the coating is removed. Grit blasting is used to remove old coatings, paints and any scale buildup before the new coatings are applied to prepare for coating re-application, taking the components back to the base metal.

At this stage the roundness of the ball is verified and it is determined if it is still usable and repairable or must be replaced. Once all components are verified as complete and in spec, the surface is prepared, the HVOF coating process is performed, followed by grinding and lapping to achieve the required surface finish and dimensional tolerance. Grinding is a general abrasive process that refines the valve surface, while lapping is a precision abrasion process used to bring a surface to a desired finish or dimensional tolerance by removing an extremely small amount of material at a time, ensuring a smooth and even finish for a metal-to-metal seal.

There are two types of lapping: rough lapping and finish lapping. Rough lapping removes a lot of material quickly, while finish lapping removes an extremely small amount of material at a time to achieve a sealing surface. These processes are critical to ensuring that the ball valve, once repaired, functions as intended, providing a reliable and tight seal to prevent leaks.



Inspection of chrome carbide-coated and lapped ball and seats.

spraying molten or heated material onto a surface at high velocity, creating a dense and durable coating. Developed in 1980, HVOF-applied chromium carbide has significantly advanced in the subsequent years, making it a good solution for valves and other components to extend the life of equipment by increasing wear and erosion resistance.

The primary advantage of HVOF chrome carbide coatings is their mechanical bond, which offers superior adhesion compared to other spray processes. Unlike welded overlays, which create a metallurgical bond, HVOF coatings achieve a strong mechanical bond without altering the underlying material's structure. This helps preserve the integrity of the valve while enhancing its performance.

Chrome carbide is particularly effective due to its exceptional hardness, wear resistance and ability to withstand high-temperature environments. Carbides are primarily used to create a hard surface to resist fretting, wear and erosion and to provide low coefficients of friction. Chrome carbides have an additional function

**Chrome carbide is an ideal coating for valves.**

of heat resistance and are generally prescribed for high-temperature applications.

These coatings are commonly applied to valves to enhance their wear resistance, hardness and durability. They provide excellent protection against harsh operating conditions. The dense, tough chrome carbide layer significantly improves the valve's lifespan by reducing friction and preventing material degradation, making it an ideal choice for critical components exposed to extreme environments. This coating ensures the valves maintain optimal performance and reliability over time.

These characteristics make chrome carbide an ideal coating for valves, such as ball valves, that are subjected to erosive and corrosive conditions.

### The need for valve repair and coating

Many operators choose to repair valves rather than replace them during shut-downs and planned maintenance. During the planned period, experienced vendors can be contracted to complete the repairs within a few weeks.

Valve repairs are a complex process involving the evaluation of components such as the stem, body and seats on all valves, and components such as the ball in ball valves. Soft goods like packing, gaskets and seals must be replaced, while metal parts can often be repaired through welding or coating to restore functionality. Repairing a valve instead of replacing it can save time and money for operators, especially because downtime is costly. The faster a turnaround happens, the faster the plant is returned to service. HVOF coatings can be an essential part of this repair process, restoring damaged surfaces and enhancing valve components' resistance to wear and corrosion.

### A cost-effective solution

When operators choose to finish valves with the addition of HVOF chrome carbide coatings, a valve's lifespan is extended, minimizing the frequency of repairs and reducing long-term operational costs. The ability to modify and improve the valve during the repair process also provides an opportunity for performance optimization, making this solution even more attractive for industries that require high reliability. If you are an operator, working with a trusted valve repair service provider can save you not only money but time during crucial shutdowns, and can help prevent unscheduled maintenance and repairs in the future. ❗

### ABOUT THE AUTHOR


Kelly Songer is a third-generation industrial manufacturer with more than 20 years experience. In 2016, she was featured as a "Legacy Leader" by the National Association of Manufacturers and in 2017 she was honored with the Service Award from the Valve Manufacturers Association.



# Smooth Control

## Position Sensors for VALVE Applications





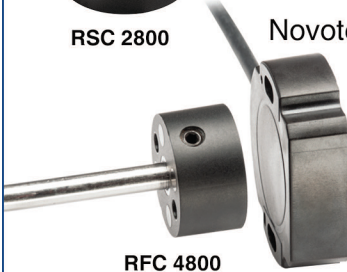
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FEATURED ARTICLE

# How Much Carbon Can 3D-Printed Valve Components Save?

Additive manufacturing is often assumed to be more sustainable than subtractive production but there has been relatively little evidence to support that claim — until now.

BY: BERTRAND MAILLON, *Retrofit 3D Business Leader*  
 COMPANY: IMI PROCESS AUTOMATION

Valves are inherently functional. Because of this, it can be easy to overlook their role in “big picture” issues such as climate change. But there’s good reason to make the connection and take it seriously.

Heavy industry, such as refining and chemical processing, is facing growing pressure to decarbonize across the value chain. Research shows that much of this pressure is now coming directly from customers.<sup>1</sup>

Valves in good working order also have a major impact on plant performance. According to the European Sealing Association, the nonprofit trade association representing manufacturers of sealing devices and materials, control valves account for roughly 60% of a plant’s total emissions. In refineries, this value can increase to 70%, though may only come from 1% of a facility’s total installed assets.<sup>2</sup>

These figures are enough for any facility to take action, which is partly why far more attention is now being given to fugitive emissions. But scrutiny cannot end there because other hidden issues have a major impact on the sustainability of heavy industry.

Take valve replacement scenarios. Every site, regardless of what’s being produced, needs to regularly maintain, upgrade or change its control valves at some point. This regularity comes with a carbon penalty. With advances to manufacturing techniques, however, there is now scope to drive down

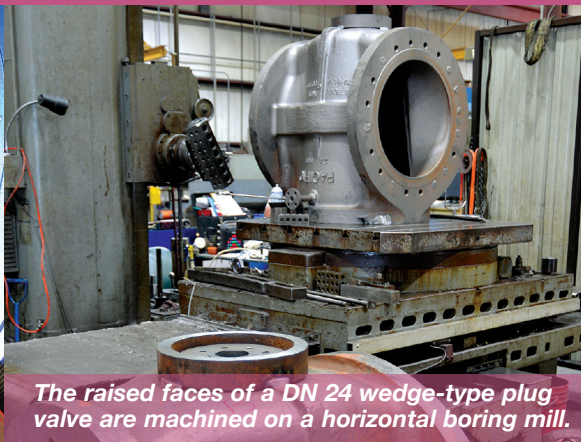
Valve replacement components additively manufactured by IMI Retrofit3D. Source IMI.



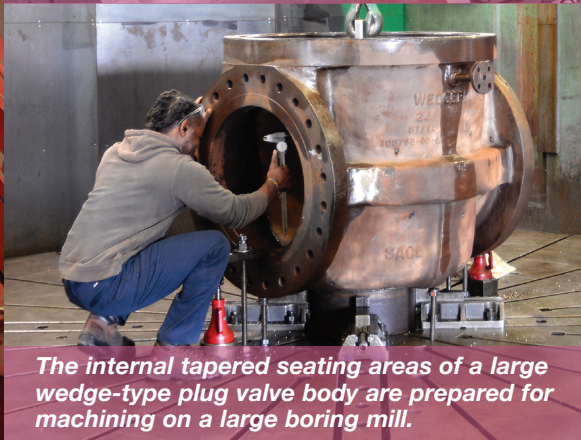
# Rising-Rotating Plug Valve Repair & Service



*The seating areas of a DN 30, wedge-type plug valve are weld-repaired, prior to machining and grinding.*



*The raised faces of a DN 24 wedge-type plug valve are machined on a horizontal boring mill.*



*The internal tapered seating areas of a large wedge-type plug valve body are prepared for machining on a large boring mill.*

United Valve is fully equipped to handle repairs and modifications on all types and brands of rising-rotating metallic plug valves. These valves are mainstays of Coker-valve block service as well as many other critical fluid control applications, such as overhead vapor lines and ethylene cracking units. We offer in-shop or field-service repair on these valves and their associated actuators.

The largest boring mills in our machine tool inventory can machine plug valve tool components of any size or material, while our grinding machinery is capable of handling valves of up to NPS 24 for both internal and external grinding. The machining department features 20-ton cranes, while the adjacent assembly area is served by a 40-ton crane.

Weld repairs are often required on these plug-type metallic valves. The United Valve welding department is led by our in-house welding engineer and features both manual and mechanical welding processes. All of our 200+ welding procedures are created and qualified in accordance with ASME Section IX, as well as approved by many, even stricter end-user specifications.



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embodied carbon, to the point where considerable savings can be made by making relatively minor changes.

This situation provided the rationale for a life cycle assessment conducted by Ricardo on behalf of IMI. While important intelligence for IMI, the findings also have wider implications for the valve industry and industrial businesses seeking to drive down emissions in line with major targets.

### Why analyze valve maintenance in such detail?

Valves can be damaged due to the harsh conditions, caustic substances and particles commonly observed in industrial flow control applications. Cavitation is among the most common of these issues and occurs with improper fluid velocity control.

Cavitation in a control valve is damaging, resulting in a potential loss of control and the frequent replacement of spare parts. It can create excessive noise, the erosion of metal parts and pressure fluctuations that result in valve or piping vibration and potentially fatigue failure.

When these issues occur, facilities must either repair and replace valve parts or the entire valve itself. Repairs typically involve engineers fitting a new disk stack. Full valve replacement is only needed if the valve's body is damaged, or when a facility's process conditions change.

Like-for-like replacement of core internal components is no guarantee of long-term success. This is especially true if the maximum flow velocity isn't initially managed within the valve, or if the original valve trim is no longer suitable for the current process requirements.

Disk stacks constitute part of a recommended spares

program, allowing a site to operate with minimal downtime. These stacks need replacing more often when fluid velocity control is not maintained, or when a site has an older, poorly designed control valve installed. These valves also wear naturally over time, making it essential to have an adequate maintenance program in place.

Suppliers and manufacturers work regularly with customers across the globe to replace faulty valves. As with any effort on this scale, this work has a significant impact on the environment and needs to be measured accurately to ensure that manufacturers are making legitimate progress on their own climate commitments, as well as those of their customers.

### What did the life cycle assessment cover?

Ricardo's lifecycle assessment examined the replacement of a faulty disk stack in a valve manufactured by IMI. The study assessed a large valve (8-in.) and a small valve (3-in.) across three different replacement scenarios:

1. Replacement of disk stack only via traditional manufacturing methods
2. Replacement of the full valve via traditional manufacturing methods
3. Replacement of the disk stack only via additive manufacturing

Full valve replacement included replacing the disk stack, body and bonnet, while the other two replacement scenarios only involved changes to the disk stack.

The lifecycle assessment was a cradle-to-grave study. However, the valve's use phase was excluded because data was not available to support claims that different replacement scenarios have different use efficiency savings. Therefore, the study only examined the sourcing and production of raw materials required for each replacement scenario, manufacturing inputs, the transport of parts between sites and the end-of-life fate of finished parts, including transportation to a disposal location.

### Setting the metrics

There are several ways to measure the environmental impact of a product or industrial process. Climate change impact (also known as global warming potential and abbreviated CCP and GWP, respectively) is arguably the most significant. Carbon dioxide equivalent (CO<sub>2</sub>-eq) is a metric measure used to compare the emissions from various greenhouse gases on the basis of their CCP/GWP.<sup>3</sup> CO<sub>2</sub>-eq is the principal metric given in Ricardo's final report.

Disk stacks, which can be either traditionally or additively manufactured, require different levels of maintenance

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Number	Replacement scenario	Replacement part(s)	Lifetime (yrs)	Number of lifetime replacements (yrs)
1	Traditional disk stack	Disk stacks only	1	10
2	Full valve replacement	Body, bonnet and traditional disk stack	10	1
3	Additive disk stack	Disk stack only	5	2

and yield different lifetimes. This means that under a specific replacement scenario, a valve can last a certain time before it needs to be replaced or upgraded.

IMI set the project’s horizon at 10 years. The table above shows the number of replacements required over that period for each replacement scenario.

As the organization procuring the study, IMI had to make some assumptions based on existing knowledge in this field, which were supplied to Ricardo. The table above provides a breakdown of the three replacement scenarios covered in this study.

As the table shows, a traditionally manufactured replacement disk stack is assumed to last one year. Any facility using this replacement scenario would therefore need 10 new disk stacks over the set study horizon of 10 years. The full valve replacement is only required once, while disk stacks manufactured additively would need replacing twice over the 10-year period.

The researchers factored in these differences when analyzing the replacement scenarios as part of a sensitivity study, provided in the appendix of its report.

**The additive advantage**

Ricardo’s lifecycle assessment found that the additive disk stack replacement was the preferable scenario across all the environmental indicators analyzed. This finding was the same for both the large and small valve categories used in the study.

In other words, additively manufactured disk stacks should be considered environmentally advantageous when compared with the other valve replacement methods. This is due to the different materials used and the lower quantities needed to produce them.

The small valve with an additive disk stack replacement had a climate change impact of 146 kg of CO<sub>2</sub>-eq, while the large valve with an additive disk stack replacement recorded 1,360 kg CO<sub>2</sub>-eq. Both of these figures were calculated based on the 10-year study horizon.

For the large valve, this represented:

- A 96% climate change impact saving when compared with replacement of the full valve via traditional manufacturing.
- A 94% climate change impact saving when compared with replacement of the disk stack only via traditional manufacturing.

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For the small valve, this represented:

- An 87% climate change impact saving when compared with replacement of the full valve via traditional manufacturing.
- An 85% climate change impact saving when compared with replacement of the disk stack only via traditional manufacturing.

Unsurprisingly, for the large valve, the least favorable scenario in terms of climate change impact was replacement of the full valve at 34,000 kg CO<sub>2</sub>-eq. This was due to the body component, which required more material and resources ahead of delivery to a customer site.

For the small valve results, however, the traditional disk stack replacement was the least favorable option. It contributed 1,130 kg CO<sub>2</sub>-eq. This is noticeably more than the 988 kg CO<sub>2</sub>-eq for the full valve replacement. This was due to the raw materials required for replacing 10 traditional disk stacks over the 10 years.

Extra work was carried out to determine the sensitivity of these results against assumptions made about the mode of transport, valve lifetimes and the frequency of replacement. Even with these factors, the additive replacement scenario still proved favorable.

Consideration was also given to assumptions about the frequency of replacements. Even with a “tipping point” factored into the results, the additive disk stack still outperformed the other two scenarios. It was determined that an additive disk stack would need to be replaced every two or three months to be less favorable than the traditional replacement options. ❌

1. [pwc.com/gx/en/issues/esg/decarbonising-value-chain.html](https://www.pwc.com/gx/en/issues/esg/decarbonising-value-chain.html)
2. ESA European sealing assoc. Pub. No. 014/05
3. [ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Carbon\\_dioxide\\_equivalent](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Carbon_dioxide_equivalent)

*Editor’s note: As standards organizations evaluate the safety, reliability and compliance aspects of additive manufacturing of valve and valve components, this study clearly found that additively manufactured parts can offer time and cost savings to valve users.*

#### ABOUT THE AUTHOR



Bertrand Maillon uses his extensive experience in product development and manufacturing at IMI, where he leads the Retrofit3D team. Retrofit3D addresses complex customer challenges with custom-made valve trim solutions made using the latest additive manufacturing techniques. Bertrand champions digital production as a gamechanger for reducing carbon footprints and reimagining supply chains.

# MSS SP-161-2024, Guidelines for Classifying the Severity of Valve Service Conditions

SP-161 provides the user with guidance and a method with which to classify and categorize valves based on service conditions they will encounter in an intended application.

This new standard is important to industry because it provides users a tool to guide their requirements and specifications for **severe service** valves, to better manage safety, environmental risks, and cost.

[msshq.org/page/ActiveStandards](https://msshq.org/page/ActiveStandards)

Scroll to SP-161 for details.

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## FEATURED ARTICLE

# Reflections on Leadership: Lessons Learned

BY: ANDY DUFFY, Retired  
COMPANY: EMERSON

## Leadership encompasses many things.

Over my nearly 40 years at Emerson, I worked in a variety of sales and leadership roles globally. My journey into sales wasn't typical; it came through management, marketing and commercial business. However, every role I held involved direct customer interaction, shaping my perspective on leadership. Now, as I enter retirement, I'm reflecting on my career and would like to share some lessons I've learned.

### The power of listening

One of the most important qualities in a leader is the ability to listen. Allow your team to discuss issues with you to build their confidence (and yours in them, too). When I first started out, I thought I was the smartest guy in the room. Someone would be talking through a problem or situation and I'd try to leap ahead and tell them how to proceed. If I'd just listened and let them work through it, they would have gotten there on their own. They would have owned it, as opposed to me telling them what to do. That was probably the most important early lesson I learned — you've got to sit back.

### Delegate for development

Leadership isn't about making every decision yourself. Delegating authority not only empowers your team but also allows them to grow. In sales, this is particularly critical, as salespeople often need to make decisions on the spot when engaging with customers.

Empowered salespeople can say with confidence, "Yes, I can make that happen," instead of, "I'll check and get back to you." This instills trust with customers and boosts the salesperson's confidence.

That said, delegation must come with clear boundaries. Leaders need to set expectations and provide guardrails. By the time a team member brings an issue to you, they should already have anticipated potential questions and obstacles, equipping both of you to make quicker, better decisions.

### Consistency is key

To get the team to operate more autonomously you need to be consistent — consistent in the way you treat people, in how you look at problems and how you respond to things. If you're consistent it is easier to delegate down through your

team and build consistency in others. Once you've established this, teams and regions anywhere will work better together because your process is the same with everyone.

Feedback in the moment is important — but make it a teaching moment and productive, not a flogging. One of the toughest things to do is to see a salesperson struggle or have a bad sales meeting while you're in the room. You can help steer the conversation, but they will never learn if you don't let them trip a few times along the way. Wait until you're out of the meeting and instead of asking what they did wrong, ask what more you could have done as a leader to help during the meeting to get a better outcome. Never make it about the person making the sales call, it should be about yourself or the team so they don't feel threatened and lose confidence.

### Identifying leadership potential

Something else I learned later in my career is I made a really bad salesperson! A good salesperson's traits don't necessarily translate into a successful sales manager. In my experience, a really good salesperson loves the chase and pursuit of the sale, and knows what it takes to dig in and get it done. Salespeople are "people" people, but also want to win on their own. Sales managers who are great salespeople can run right over the team, struggling to listen, delegate, teach and learn from their team. The most successful sales managers I encountered know the process but excel at listening and coaching. Some people are natural leaders and others can become leaders if they have an open mindset and are willing to be mentored. As a sales leader you can almost watch the natural leaders rise. They step up in meetings and help others, coming to the table with answers as opposed to questions, so create a path for them to keep growing.

Finally, make sure to incentivize your sales team. That doesn't mean promoting them every time they hit a goal. Not everyone wants to or should move into management or executive roles. Don't penalize someone who just wants to be a great salesperson. Encourage them and coach them to keep meeting their own goals as well as those you set for them. Ensuring that you help them keep winning, being fairly compensated and appreciated for what they do? That's key to building a loyal and successful team.

### Parting thoughts

When asked about my legacy, I reflect on the team I've built and will leave behind. Their ability to continue succeeding, supported by my successor, is the true measure of my success in leadership. Their longevity, work ethic and ability to adapt and thrive will define my impact as a leader. ✂

*Ed. note: A longer version of this can be found online.*

### ABOUT THE AUTHOR

Andy Duffy is past chair of the Valve Manufacturers Association. He recently retired from his role as vice president of discrete automation at Emerson. Throughout his career he moved around the world with his family until his final role in Morristown, NJ.



## The Eccentric Plug Valve

BY: JAMES NIELSEN, *Technical Writer*  
COMPANY: DEZURIK

The first non-lubricated eccentric plug valve was developed in the late 1920s, designed to solve the issue of pitch buildup in paper mill valves. Due to the eccentric nature of the valve, closure was still attainable even in the harsh conditions of a paper plant where pitch and tar would clog and bind other valve designs. As elastomers have advanced over the years, the eccentric plug valve has gained favor throughout many industries and applications. The valve is known for its reliability and versatility across many different applications. The eccentric plug valve can be found in municipal wastewater and water systems, industrial processes handling slurries or chemicals, and

demanding environments such as power generation and mining operations where durability and performance are critical. The valve is well known for on/off operation, throttling and as a very capable control valve.

### How eccentric plug valves work

A rectangular shaped body seat and plug in the shape of a quarter-cylinder are employed in the most common eccentric plug valve configuration. What makes an eccentric plug valve “eccentric” is that the body seat axis is not the same as the plug face axis. The offset of the two axes of rotation causes the plug to cam into the seating position (see Fig. 2). This means that throughout operation, there is no rubbing or scraping of the plug into the body seat, significantly reducing wear of the critical seating surfaces and significantly prolonging the valve’s lifespan. During closing the eccentric action presses the plug face into the body seat with a smooth, low torque, cam-like action creating a positive seal with minimal seating compression. During opening, the plug cams out of the body seat without scraping. This is ideal for handling clean and dirty liquids, sludge, slurries and gases. This design also enables precise flow control, making eccentric plug valves a great option for control valve applications.

### Design features of eccentric plug valves

Eccentric plug valves are engineered with several innovative features that enhance their performance, reliability and adaptability across a wide range of applications. Available in a broad size range, from small ½-inch valves to jumbo 72-inch valves and beyond, these valves are designed to meet the demands of diverse systems and flow requirements. Design features of eccentric plug valves include:

- **Off-center rotation:** The plug rotates around an axis that is offset from the seat, reducing friction and minimizing wear.

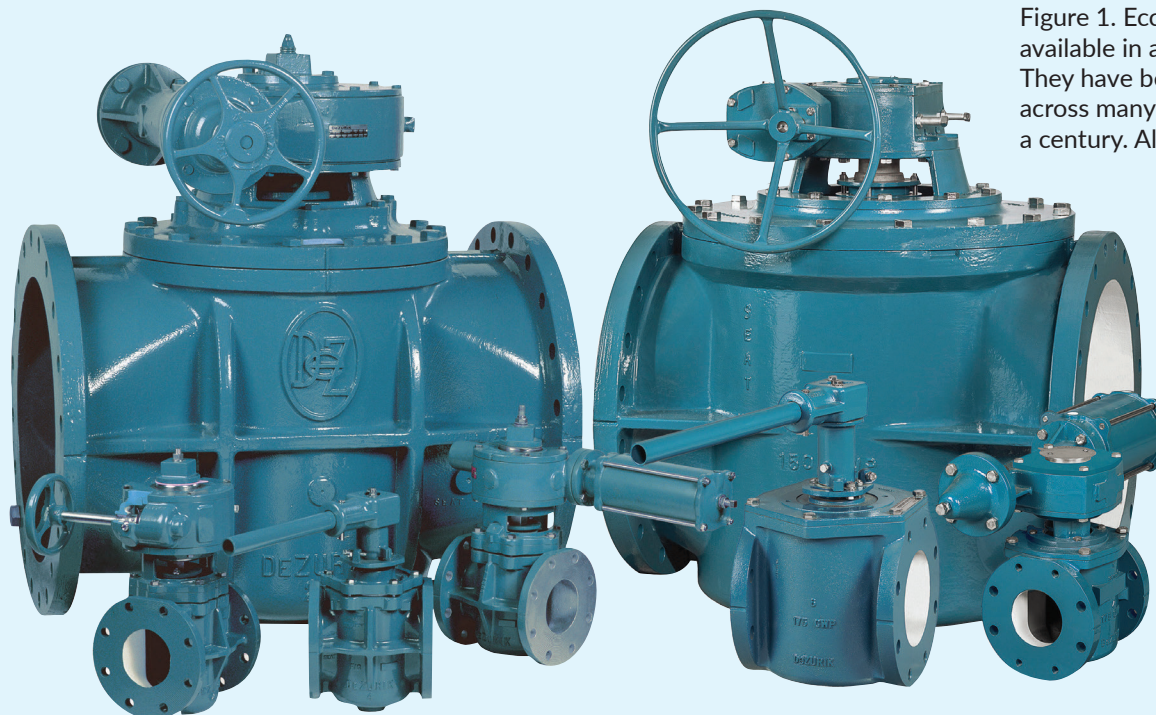


Figure 1. Eccentric plug valves are available in a wide range of sizes. They have been a top choice across many industries for nearly a century. All images: DeZURIK

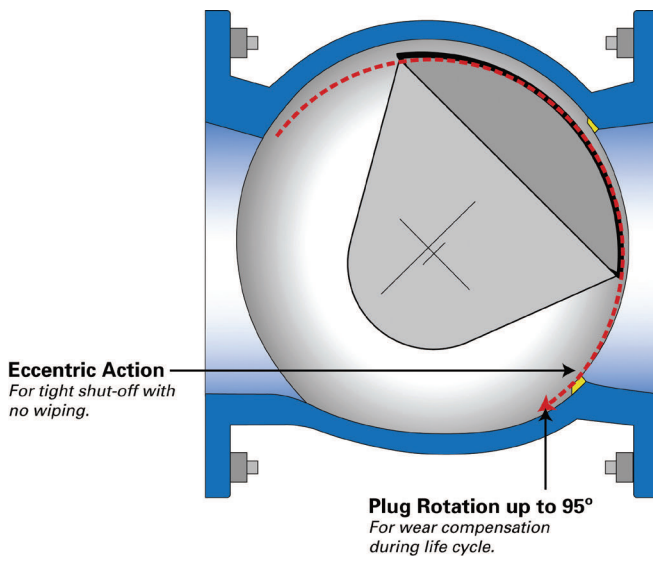


Figure 2. The axis of rotation is offset between the plug and the body seat creating a cam-like opening and closing operation.

- **Cam-action sealing:** The eccentric motion presses the plug face into the seat during closure without scraping or sticking.
- **Offset plug profile:** Eccentric plug valve plugs have an offset profile (see Fig. 3) which means the plug is completely out of the flow path when the valve is open. This enables increased flow efficiency while allowing relatively large solids and stringy materials to pass through without clogging.
- **Resilient or metal plug facings:** Offers flexibility for various applications, with many choices for resilient plug facings providing drip-tight shutoff and metal plugs achieving ANSI/FCI 70-2 Class IV performance.
- **Wide range of body materials:** Valves are available in cast iron, ductile iron and stainless steel for typical applications. When situations necessitate, special materials like bronze, aluminum and Monel are available.
- **Welded seat overlay:** The raised, welded-in body seat, normally of nickel, is designed for longest seat life.
- **Internal linings:** For special environments, valve interiors can be coated with materials including soft rubber lining, glass or Nedox.

The design features of the eccentric plug valves are governed by certain industry standards. The standards that should be considered when selecting a valve differ by industry. For the eccentric plug valve in North America, some relevant codes and standards organizations include the American Water Works Association (AWWA), the American Society of Mechanical Engineers (ASME), the Manufacturers Standardization Society (MSS) and the American Petroleum Institute (API). These standards should be considered during the design phase of any project. Some prominent standards that may be of use include:

- **AWWA C517: Resilient-Seated Cast-Iron Eccentric Plug Valves**

- **ASME – B16.1: Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250**
- **ASME – B16.34: Valves — Flanged, Threaded, and Welding Ends**
- **ASME – B16.5: Pipe Flanges and Flanged Fittings: NPS ½ through NPS 24, Metric/Inch Standard**
- **MSS SP 25: Standard Marking Systems for Valves, Fittings, Flanges, and Unions**
- **MSS SP 61: Pressure Testing of Valves**
- **MSS SP 78: Gray Iron Plug Valves, Flanged and Threaded Ends**
- **MSS SP 108: Resilient-Seated Cast Iron Eccentric Plug Valves**
- **API 6D: Specification for Pipeline and Piping Valves**
- **API 599: Metal Plug Valves — Flanged, Threaded, and Welding Ends**

### Applications of eccentric plug valves

Eccentric plug valves are a preferred choice for many different applications across industries and applications:

- **Municipal water and wastewater:** Eccentric plug valves are extensively used in pump stations, wastewater treatment plants, lift stations and collections systems and in water treatment plants and distribution networks. Their ability to handle corrosive sewage containing large solids, grit, stringy materials and sludge ensures long-lasting performance. Their efficient design and superior flow characteristics are ideally suited for critical raw and finished water applications. ▶

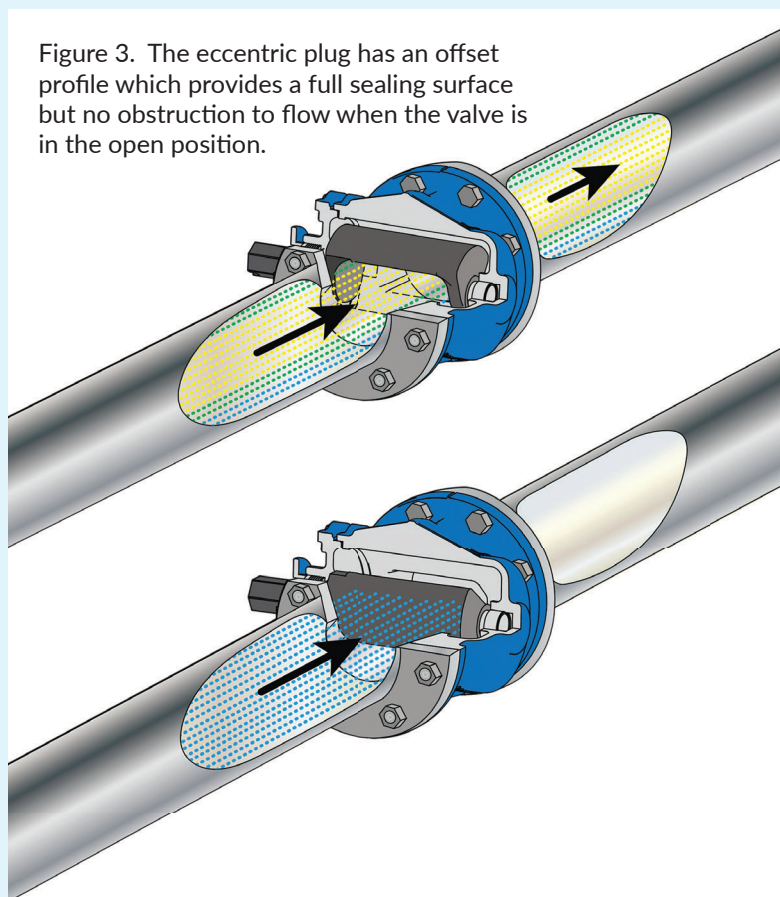


Figure 3. The eccentric plug has an offset profile which provides a full sealing surface but no obstruction to flow when the valve is in the open position.

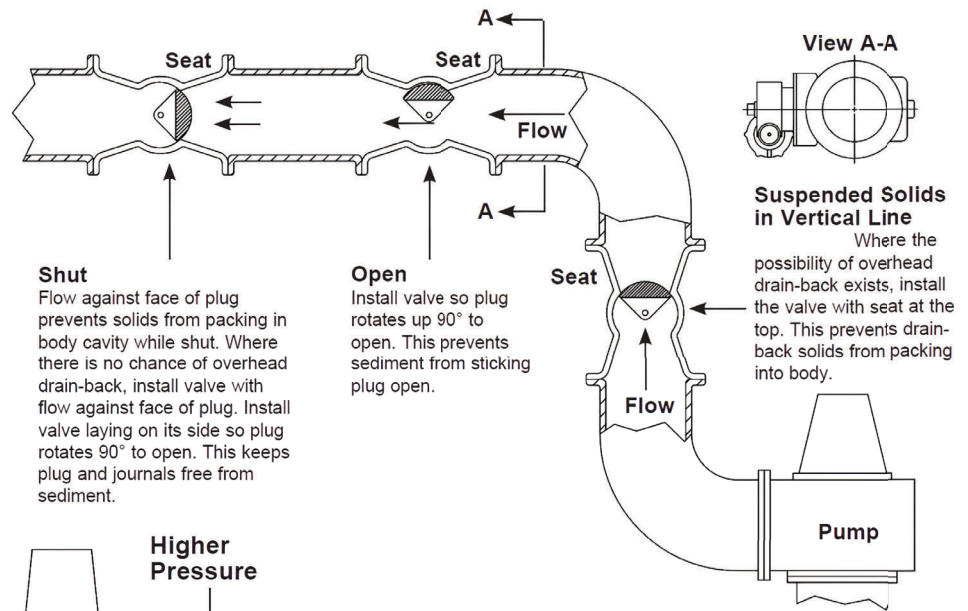
- **Industrial processes:** These valves work well handling abrasive slurries, viscous chemicals and other challenging fluids. Materials of construction can be selected for tight shutoff or minimal wear, and the valves find applications in many industries such as chemical processing, pulp and paper and food and beverage production.
- **Power generation and mining:** In environments such as power plants and mining operations, eccentric plug valves deliver high performance under demanding pressures and abrasive conditions. Their durability makes them a reliable choice for applications involving slurries, ash handling and other harsh media.
- **As control valves:** Rectangular ported eccentric plug valves are highly effective control valves, particularly in water and wastewater applications. With their high cavitation resistance and favorable character-

istics, they excel in maintaining stable flow control. Available in a wide size range, the eccentric plug valve can be sized properly to precisely control the flow without excessive wear. The rectangular ported eccentric plug valve provides a solution from ½-in. through 72-in. NPS with the potential to go even larger (see case study on fish ladder application).

### Installation considerations for the eccentric plug valve

Eccentric plug valves are rugged and, in many applications, will last for decades. To ensure the longest service life possible, certain considerations should be taken during the design phase pertaining to installation orientation. The main factor to consider is what type of media will flow through the valve. Media types can be broken into two main categories:

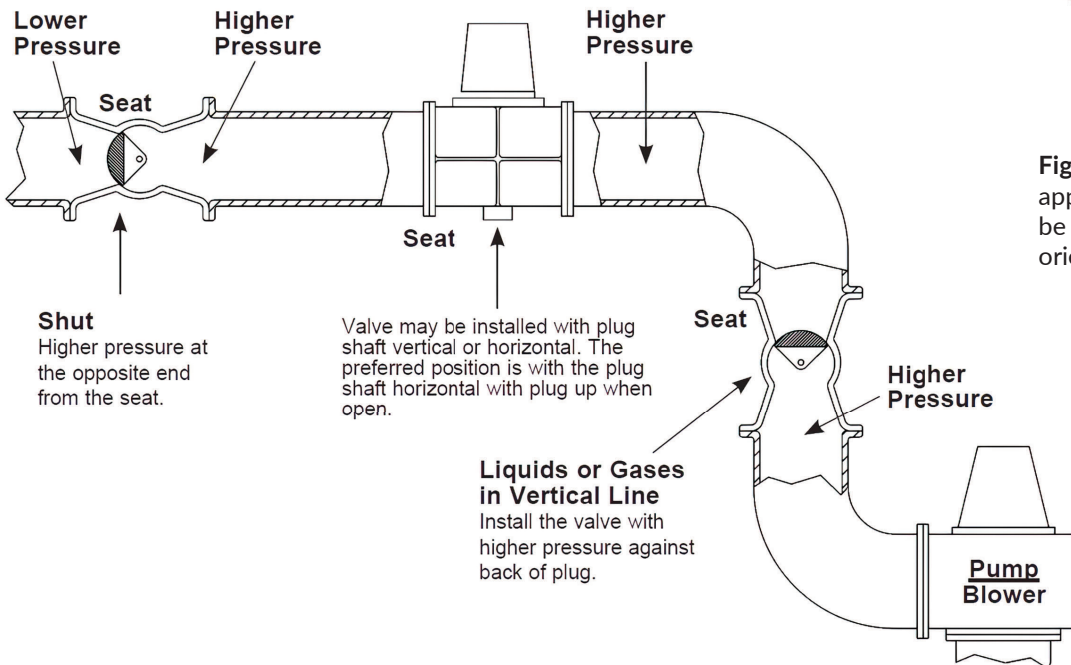
**Fig. 4** When pipeline media contains suspended solids, consideration should be given to what happens to the solids when they settle out of the fluid.



**Shut**  
Flow against face of plug prevents solids from packing in body cavity while shut. Where there is no chance of overhead drain-back, install valve with flow against face of plug. Install valve laying on its side so plug rotates 90° to open. This keeps plug and journals free from sediment.

**Open**  
Install valve so plug rotates up 90° to open. This prevents sediment from sticking plug open.

**Suspended Solids in Vertical Line**  
Where the possibility of overhead drain-back exists, install the valve with seat at the top. This prevents drain-back solids from packing into body.



**Fig. 5** In clean water and gas applications, the valve should be installed in the flow-to-close orientation.

## Case Study: Eccentric Plug Valve Accurately Controls Flow in Fish Ladder



A west coast engineering firm required a reliable control valve for a fish ladder designed to help migratory salmon bypass a dam. The application demanded high flow capacity and the ability to handle high velocity in a 66-in. diameter pipeline with a 6-ft. elevation head differential. After considering multiple valve types, the eccentric plug valve was selected due to its low dynamic torque and resistance to cavitation at velocities up to 38 feet/second.

The valve, paired with a gear unit and modulating electric actuator on a 55-ft. extension, was installed with the plug shaft horizontal and seat downstream, flow-to-close, for optimal service life. Unlike other valve designs, which required costly piping modifications, the eccentric plug valve provided a cost-effective, durable solution that met the project's stringent performance requirements. This valve now ensures proper flow velocity for fish to ascend the ladder, meeting all operational goals and ensuring longevity.

Fish ladders like this are installed to help migratory fish such as salmon bypass dams.

- Dirty liquids and dirty gases containing suspended solids.
- Clean liquids and clean gases containing no suspended solids.
- In applications where the media contains suspended solids, it is preferred that the solids settle outside of the valve when the flow stops. In horizontal installations, the higher pressure should be against the closed face of the plug to ensure most solids settle outside of the valve body. In vertical installations, the plug face should be installed such that it closes upward regardless of flow direction, to prevent solids from settling down into the valve body (see Figure 4).
- In applications with no suspended solids, the valve should be installed in the flow-to-close orientation so that the higher pressure pushes against the backside of the plug when it is in the closed position (see Figure 5). This is the same whether the valve is installed in a horizontal or vertical run of pipe.

### Maintenance

Maintenance for eccentric plug valves is generally simple. Often, the packing gland can be tightened to stop leaks that may occur around the valve stem. If the packing ever needs to be replaced, it can be easily done in the field by maintenance personnel. If the valve does not fully seal when in the closed position, the actuator stops can be adjusted to advance the plug further into the seat. If the plug should ever need to be replaced, the bonnet or cover can be removed while the body remains installed in the pipeline.

### Conclusion

The eccentric plug valve stands out as a reliable and versatile solution for a broad range of applications. With a wide selection of materials and internal linings to choose from, eccentric plug valves are suitable for many industries including industrial processes, mining and municipal water systems, to name a few. With its proven ability to handle abrasive media, slurries, highly viscous substances like sludge or pitch, and to excel in clean fluid applications, the eccentric plug valve has become a trusted choice across industries. Its longevity, paired with its ease of maintenance, make it a favorite among plant operators and maintenance personnel.

As the demands of modern systems push the limits of size and capacity, the eccentric plug valve continues to demonstrate its ability to meet those challenges, providing operators with a long-lasting and cost-effective solution for their flow control needs. X

### ABOUT THE AUTHOR

**James Nielsen** is a technical writer at DeZURIK, where he was previously a manufacturing engineer. His background includes roles as a CNC machinist and automation specialist. He has a B.S. from Rasmussen University.



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# LATEST LAUNCHES



## High-precision positioner for industrial valves

ifm's MVQ positioner is used to move valves to the required position, based on a signal from the control level indicating the degree to which the valve is open in percentages. Based on the MVQ sensor and supplemented by a new control unit, the connected solenoid valve is moved to the required position using supply and exhaust air. It has a self-learning algorithm to continuously monitor, improve and expand the positioner's performance over time. The positioner comes as a set including the MVQ301 sensor and control unit, a pneumatic solenoid valve, a throttle plate and a Y cable, and can be installed directly on the NAMUR interface of an actuator. [ifm.com](http://ifm.com)

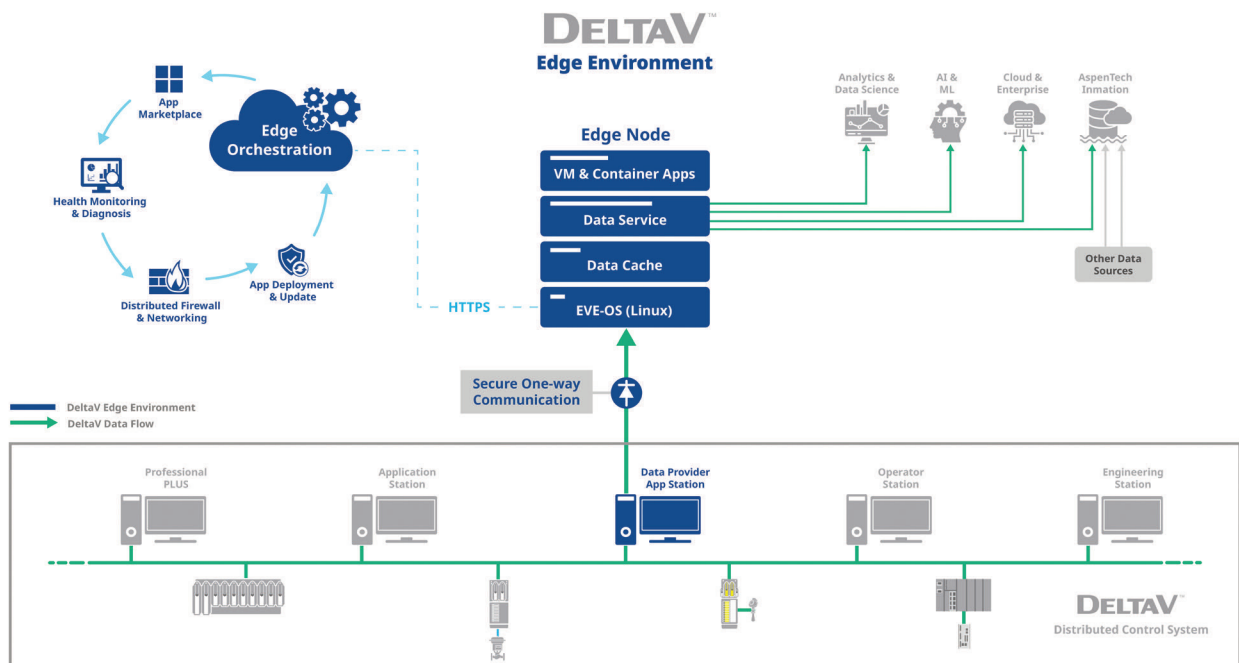
## Emerson's updated technology improves consistency

Emerson introduced DeltaV Edge Environment 2.0, the newest version of its edge technology for delivering OT applications and contextualized control data anywhere in the enterprise. The updated DeltaV Edge Environment 2.0 now supports batch data integration to help life sciences, chemical processing and other batch processing industries leverage their critical data in analytics applications, AI and machine learning applications, IT enterprise systems and more, whether on-premise or in the cloud.

Batch processing operations frequently require data reconciliation, aggregation and validation, driving a need for seamless data mobility to bring critical data to varied technologies across the enterprise. DeltaV Edge Environment 2.0 bridges

the gap between operational technology control systems and information technology-focused applications with one-way egress of control system data via a secure, read-only replica of contextualized DeltaV distributed control system data. Increased visibility into batch health empowers teams to intervene earlier to prevent costly, off-specification batches.

DeltaV Edge Environment 2.0 can integrate with the control system configuration hierarchy, helping clarify how configuration changes impact batch execution. OT teams also gain the ability to correlate batch-related alarms and events with other system events to identify root causes of production issues quickly and effectively. [emerson.com](http://emerson.com)



## Siemens modular solution for data centers

Compass Datacenters, which designs and constructs data center campuses for some of the world's largest technology companies, has signed a multiyear capacity agreement with Siemens to supply a custom modular medium-voltage skid solution. The solution consolidates the capabilities of multiple electrical components, including medium-voltage switchgear and transformers, into a single integrated unit which will enable Compass to build faster and at a lower total cost. The agreement guarantees delivery of up to 1,500 units over the next five years.

This innovative design, developed by Siemens and Compass, dramatically reduces the time required to install critical power systems, enabling faster data center delivery during an era of unprecedented demand. Driven by the advancement of artificial intelligence (AI), continued progression of cloud computing, and the explosive growth of global data, the data center market is projected to grow by double digits through 2030.

Siemens will deliver prefabricated modular units that include maintenance-free 8DJH 36 gas-insulated, arc-resistant, medium-voltage switchgear and transformers. Conserving resources, the design of the switchgear reduces the need for maintenance and extends the service life of the equipment, while the compact design increases energy efficiency in operations. The custom skid solution creates a simplified and standardized design for easy deployment across various environments. [siemens.com](https://www.siemens.com)



## Equibar announces new sanitary valves

The FDO series expansion of sanitary fluid control valves and back pressure regulators provide precision required for biopharmaceutical and other aseptic processes with extremely low flow rate ranges.

The FDO2 valve offers ¼-in. ports; FDO3 offers ⅜-in. ports.

The FDO4 ½-in. valve is now available in a round format offering higher precision

over a wider range of flow rates than the original square design. The new FDO4 design enables gravity drainability for sanitary applications, however the old design is still available.

FDO valves feature a multiorifice diaphragm-operated technology to control pressure. The valves are pilot-controlled which allows for easy automation. A membrane is the only moving part, responding instantly to changes in the system flow rate to maintain pressure. The valves are designed for use in applications requiring surface finishes, clean-in-place, drainability or USP Class VI materials. [equibar.com/sanitary](https://www.equibar.com/sanitary)

▶ To submit press releases for Valve Magazine, please send emails to [press@vma.org](mailto:press@vma.org).

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INDUSTRY

# PROFILE

## Stuart Prestridge

*A personal profile of Stuart Prestridge from Setpoint Solutions, and long-serving member of Valve Magazine's editorial advisory board.*



Stuart and his partner Kim on a recent trip to Kauai, HI. Source: Stuart Prestridge

### What inspired you to pursue a career in the world of valves and actuators?

I started in industrial construction, working for electrical, instrumentation and controls contractors. I became familiar with the “valve business,” primarily control and isolation valves. After 15 years, I started a new chapter in the instrumentation department of a refinery in Norco, LA. Now I was doing maintenance and continuing operations so my knowledge and understanding of valves was greatly expanded. I quickly moved to construction management/turnaround planning for projects within the refinery and planned outages. I worked closely with multiple valve sales and service organizations, which brings us to today. After six years in the world of “the end user,” I started a new chapter with Setpoint Integrated Solutions where I work in sales and service. Looking back on my path, the knowledge I’ve gained has been truly rewarding and one I am proud to have taken.

### Why did you decide to get involved with VMA?

I was introduced to the (now former) managing editor for Valve in 2018 to better understand the role of the Editorial Advisory Board and to see if there was an opportunity for me to support the team to help ensure the technical accuracy and market validity of published content. This opportunity was immediately interesting and has since proven to be very rewarding in both the knowledge gained and the ability to support the effort to continue to improve the published content.

### What interesting things are you working on?

We are working on a project to build out a product demonstration trailer that will be used by the sales team. The trailer will include power and compressed air, along with a simple control system to provide full product automation and functional demonstration capabilities. The trailer will enable us to have products from all the primary manufacturers we sell and service and maximize time spent with customers not only demonstrating the primary product of interest, but to expose them to the rest of the offering in a mobile unit. It’s not a new concept, but it will be new for Setpoint and will serve to increase customer awareness of the offerings for products and services.

### How do you stay current with changes in the valve/actuator industry?

There is a range of sources I read that I’m sure aren’t different from my peers. Trade magazines and journals, conferences and industry trade shows including networking with peers in the market are invaluable for staying on top of what is changing. Other resources include online content, webinars and continuous learning through industry associations as well as valve and actuation manufacturers. And working for a company that works with many manufacturers introduces me to a lot of what’s new.

### What are the biggest challenges for manufacturers and the industry today?

An ongoing challenge is dependable supply chain – managing the demands for a consistently high-quality product that can be delivered quickly and in an increasingly cost competitive environment. Hiring and retaining top-level manufacturing personnel is another huge challenge, as well as staying at the forefront of technological advancements with increasing regulations on issues like the potential PFAS ban which is found in many valve seals and packings. Keeping our distributors and end users aware of product changes and improvements that may require engineering acceptance on their end can also be a challenge! Get them to understand why an “improvement” to a valve is needed, and how it will not negatively impact (and potentially improve) their unique operation is critical.

Read the full interview: [VALVE-MEDIA.com/articles/industry-profile-Stuart-Prestridge](https://www.valve-media.com/articles/industry-profile-Stuart-Prestridge)



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