FLOWSERVE

PRODUCT CATALOG

Pumps | Seals | Valves | Actuation

Experience In Motion

EXPERIENCE IN MOTION

Every day, our customers are challenged to take their plant operations to the next level. To do that, they need partners who deliver much more than products.

Flowserve is answering that call. We're working with the world's most important providers of oil and gas, power, chemicals, water and other essential products to solve the absolute toughest challenges in flui motion and control.

Our industry-leading portfolio of pumps, seals, valves and actuation is only part of the story. Our customers need answers that demand extensive know-how and experience, and we've got it. More than 18 000 committed associates are go-to resources for expert engineering, project management, technical support and service in every corner of the world.

Expertise and Experience

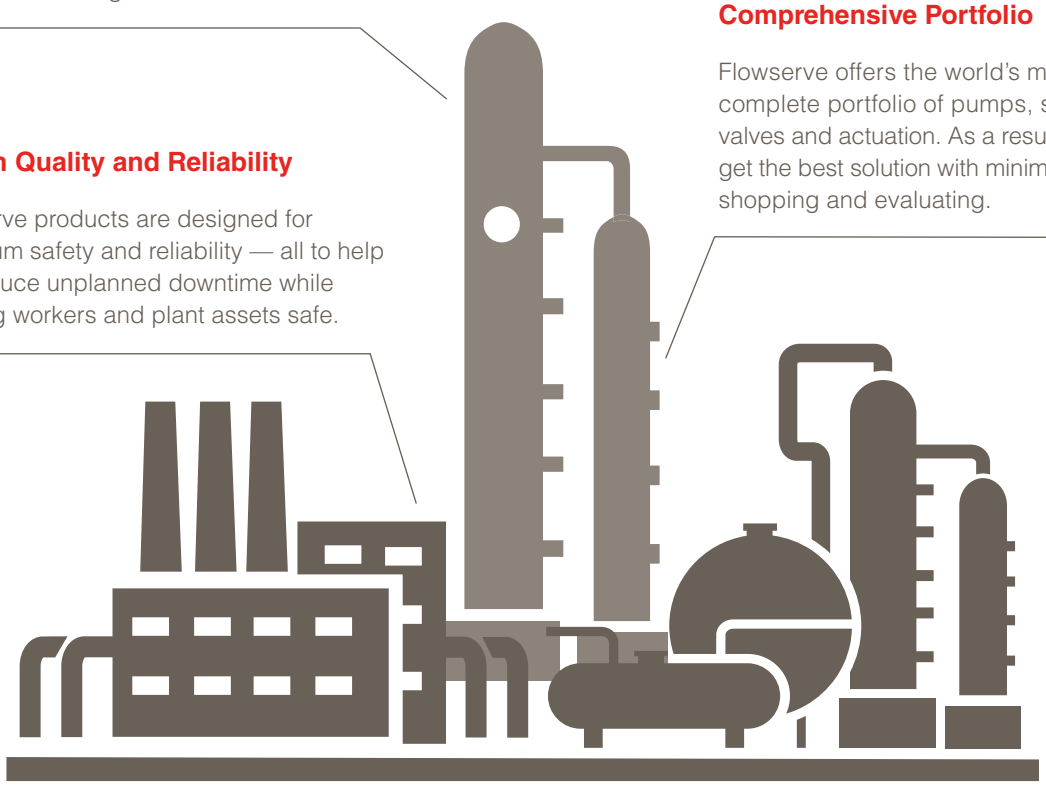
Flowserve has an unrivaled combination of technical expertise and practical experience to help you solve the toughest fluid motion control challenges.

Comprehensive Portfolio

Flowserve offers the world's most complete portfolio of pumps, seals, valves and actuation. As a result, you'll get the best solution with minimal time shopping and evaluating.

Proven Quality and Reliability

Flowserve products are designed for maximum safety and reliability — all to help you reduce unplanned downtime while keeping workers and plant assets safe.



Technology and Insights

We help maximize your systems' efficiency and uptime by applying flo specific technologies and advanced aftermarket capabilities, all supported by a vast team of technical resources.

Local Support Worldwide

Flowserve is everywhere you do business. Our global network of Quick Response Centers helps to minimize downtime with hands-on support that's fast and dependable.

INDUSTRIES

The world's infrastructure industries rely on Flowserve to solve their most complex fluid motion and control challenges. We deliver more than the most complete portfolio of pumps, seals and valves; we help our customers exceed their operational goals. We understand that profitable performance requires critical process equipment and systems operate safely, reliably and at maximum efficiency. Our commitment to meeting these expectations for our customers drives everything we do.

OIL AND GAS

From production wells deep on ocean floors and remote oil sands, to transportation infrastructures that span continents and refineries that create the world's feedstocks — global energy companies push the limits of fluid motion and control. They need solutions for increasingly demanding applications. To meet their high-temperature, high-pressure processing needs, Flowserve provides unmatched mechanical, hydraulic and materials know-how and the industry's most complete flow management portfolio. Backed by service and support teams around the globe, we can help maximize uptime, productivity and safety, and keep you at the forefront of innovation.

CHEMICAL

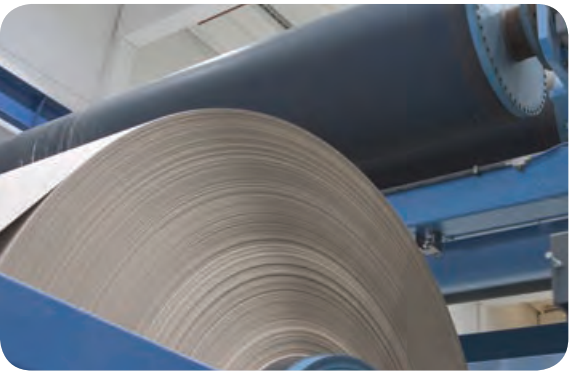
Aggressive corrosion and erosion. Hazardous, toxic substances. Application variation that makes equipment specification more than a little challenging. The chemical industry faces tough challenges, and Flowserve is in the middle of them, solving our customers' most difficult hurdles every day. Our solutions span the industry, from basic, organic, specialty and fine chemicals to biofuels and pharmaceuticals. We continue to build on our materials science heritage and advance sealing and flow control technologies. We do this to help customers improve performance, maximize service life and keep personnel safe.

POWER

Rapid load variations, frequent stops and starts, and the highest temperatures, flows and pressures. Welcome to fluid motion and control in the power industry. These grueling applications are where Flowserve became a driving force in power generation. To appreciate our role, you needn't look further than our pioneering work in nuclear power or the massive machines we've built for conventional steam plants. But that's history. Today, we're developing next generation solutions to meet the newest challenges, including concentrated solar, biomass and geothermal.

WATER RESOURCES

Whether for flood control, desalination, distribution, waste management or agriculture, those who move water need to do it economically, sustainably and reliably. They need low-maintenance equipment and high-efficiency systems that minimize energy consumption. They also need partners who ensure the right solution is specified every time to minimize environmental impacts and control total life cycle costs. Supplying flow management systems for the global water resources is a commitment with far-reaching implications. That's why the world's leading municipalities and water system providers trust Flowserve.



GENERAL INDUSTRY

From paper and metals to sweeteners and electronics, most of the world's products depend on reliable fluid motion and control solutions. Endless demanding and complicated application parameters are found in industries such as food and beverage, mining, steelmaking, and pulp and paper. Flowserve has a global portfolio of solutions and technical expertise capable of tackling the tough and often unique requirements found in these industries. A global network of Quick Response Centers delivers the timely technical support, parts and service needed to keep operations running dependably and profitably.

SERVICES

SERVICES THAT DRIVE SAFETY, RELIABILITY AND PERFORMANCE

Flowserve offers a comprehensive suite of services designed to provide unprecedented value and cost savings throughout the life span of the system. By integrating hydraulic, mechanical and materials engineering knowledge with real-world operating and practical business solutions, Flowserve helps customers:

- Increase equipment reliability
- Optimize asset uptime and performance
- Improve plant and personnel safety
- Lower total cost of maintenance

PARTS, REPAIRS, UPGRADES AND FIELD SERVICES

Investments in well-equipped Quick Response Centers, mobile service fleets, and advanced manufacturing technologies along with the unrivaled expertise of its engineers, technicians and craftsmen enable Flowserve to address virtually every service requirement for process equipment, on- or off-site, regardless of OEM.

- **Repair and Upgrades** — From machining to mechanical upgrades to on-site management, Flowserve repairs and upgrades services to improve equipment performance while reducing downtime and costs.
- **Replacement Parts and Components** — Using its broad network of service and manufacturing centers, Flowserve supplies customers with the quality parts needed to keep operations running smoothly and profitably.
- **Field Services** — From maintenance to management, highly qualified Flowserve project managers, engineers and technicians can be deployed on-site to help your operations run smoothly.

ENGINEERING AND TECHNICAL SERVICES

With world-class engineering and technical resources in more than 55 countries, Flowserve delivers value-added solutions that improve operational performance and increase profitability for its customers.

- **Technical Assessments** — Flowserve can perform system audits to identify operational issues that may be constraining output or elevating operating costs and recommended solutions.
- **Reliability Services** — Flowserve offers standard solutions to improve rotating equipment reliability while lowering cost of ownership.
- **Engineering Support** — Flowserve engineers can engage remotely or on-site to support grassroots project planning, system design or project management requirements.

ASSET MANAGEMENT AND OPTIMIZATION

Flowserve continues to invest in capabilities and technologies to help customers realize more payback from their plant assets.

- **LifeCycle Advantage** — Through a combination of on-site assessments and technology, Flowserve experts help customers benchmark operational performance, define key metrics and implement solutions to achieve their long-term operational goals.
- **Intelligent Performance Solutions** — By employing sophisticated products, services and software to collect, examine and understand data, Flowserve helps customers use predictive analytics to take action and improve asset reliability.

EDUCATION AND TRAINING

Flowserve offers a wide range of innovative programs to help plant operators, reliability specialists, engineers and maintenance personnel deepen their understanding of critical equipment and processes.

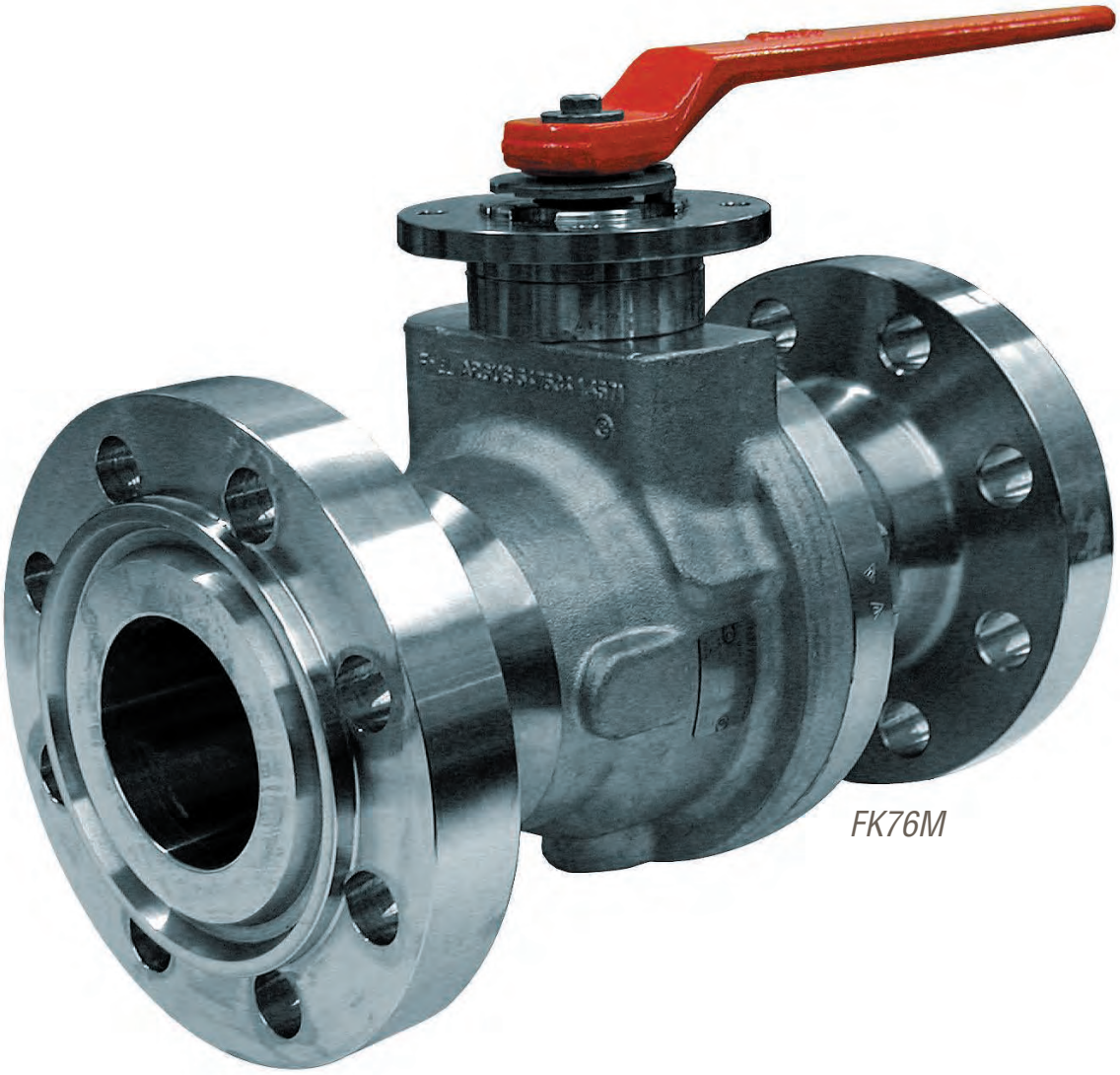
- **Learning Resource Centers** — At its state-of-the-art Learning Resource Centers, Flowserve provides hands-on training and instruction in the principles of equipment operation, maintenance and reliability.
- **Customer On-site Training** — Flowserve can design, develop, and deliver training programs tailored specifically around the people, equipment and processes at a customer's facility.
- **Online Training** — Flowserve offers web-based modules with online testing and reporting to ensure comprehension of the most important principles.


Valtek
FLOWSERVE
FLOWSERVE

VALVES

Whether it's critical, lethal, toxic or aggressive, you'll find Flowserve valves doing the job around the world. That's because extended service life, safe operation and environmental protection are at the core of every valve we manufacture. Global customers can easily find the configurations they equire, engineered to meet requisite performance and safety standards, whether it's a standard or custom-engineered solution.

It's a portfolio of brands for quarter-turn, rotary, linear, control and specialty configurations that covers today s toughest demands for valve performance. But we're looking ahead to new challenges that will test the current state of valve manufacturing. This mindset pushes us to pursue materials advancements and severe-duty enhancements as well as the next levels of precision control, optimized flow and fail-safe shut-o f.



FK76M

BALL

Long life and safe operation in tough services, from cryogens to highly corrosive fluids — these are the hallmarks of our comprehensive and respected ball valve portfolio. Maximum safety and environmental protection are the driving factors in every design, achieved through corrosion-resistant materials, fire-safe testing, blowout-proof stems and tight shut-off features. Global customers can fulfill requirements from dozens of configurations built to a full range of international design and performance standards.

Ball – Quick Reference*

Product	Sub-Type	Sizes	Pressures	Temperatures
FK75M	Floating	DN 65 to 300 NPS 2½ to 12	PN 16 to 40 Class 150 to 900	-105°C to 650°C (-157°F to 1202°F)
FK79	Floating	DN 15 to 50 NPS ½ to 2	PN 16 to 250 Class 150 to 2500	-105°C to 650°C (-157°F to 1202°F)
Duball™ DL	Floating	DN 25 to 400 NPS 1 to 16	PN 10 to 40 Class 150 to 300	-30°C to 250°C (-22°F to 482°F)
Worcester Three-Piece Ball	Floating	DN 8 to 150 NPS ¼ to 6	PN 100 Class 600	-46°C to 230°C (-51°F to 446°F)
Worcester Flanged Ball	Floating	DN 15 to 250 NPS ½ to 10	PN 20 to 50 Class 150 to 300	-46°C to 315°C (-51°F to 600°F)
Worcester Cryogenic Ball	Floating	DN 8 to 150 NPS ¼ to 6	PN 100 Class 600	-196°C to 82°C (-321°F to 180°F)
CryoSeal	Floating	DN 15 to 200 NPS ½ to 8	PN 20 to 100 Class 150 to 600	-196°C to 200°C (-320°F to 400°F)

** Additional products shown on next two pages*

Ball – Quick Reference, cont'd.

Product	Sub-Type	Sizes	Pressures	Temperatures
ProCap Capping Valve	Segmented	DN 500 to 750 NPS 20 to 30	PN 16 Class 150	-30°C to 250°C (-22°F to 482°F)
FK76M	Trunnion-Mounted	DN 65 to 500 NPS 2½ to 36	PN 16 to 160 Class 150 to 900	-105°C to 650°C (-157°F to 1202°F)
HK35	Trunnion-Mounted	DN 50 to 500 NPS 2 to 20	PN 160 to 250 Class 1500 to 2500	-105°C to 650°C (-157°F to 1202°F)
VW1	Trunnion-Mounted	DN 50 to 1600 NPS 2 to 64	PN 20 to 420 Class 150 to 2500	-46°C to 220°C (-50°F to 428°F)
VB2 and VB3	Trunnion-Mounted	DN 25 to 1600 NPS 1 to 64	PN 20 to 420 Class 150 to 2500 API 2000 to 10 000	-196°C to 400°C (-320°F to 750°F)
Subsea	Trunnion-Mounted	DN 50 to 1400 NPS 2 to 56	PN 20 to 420 Class 150 to 2500 API 2000 to 10 000	-46°C to 150°C (-51°F to 302°F)
Double Block and Bleed	Trunnion-Mounted	DN 50 to 1200 NPS 2 to 48	PN 20 to 420 Class 150 to 2500	-196°C to 400°C (-320°F to 750°F)
Cryogenic Ball Valve	Trunnion-Mounted	DN 25 to 1400 NPS 1 to 56	PN 20 to 420 Class 150 to 2500	-196°C to 200°C (-320°F to 392°F)
Trunnball™ DL	Trunnion-Mounted	DN 150 to 900 NPS 6 to 36	PN 10 to 40 Class 150 to 300	-30°C to 250°C (-22°F to 482°F)
Rising Stem Ball Valve (RSBV)	Rising Stem	DN 25 to 600 NPS 1 to 24	PN 10 to 320 Class 150 to 2500	-196°C to 600°C (-321°F to 1112°F)
AKH2	Lined	DN 15 to 350 NPS ½ to 14	PN 16 Class 150	-10°C to 200°C (14°F to 392°F)
AKH2-300	Lined	DN 25 to 150 NPS 1 to 6	PN 50 Class 300	-10°C to 200°C (14°F to 392°F)
AKH2A	Lined	NPS 1 to 6	Class 150	-10°C to 200°C (14°F to 392°F)

Product	Sub-Type	Sizes	Pressures	Temperatures
AKH3	Lined	NPS 1 to 14	Class 150	-10°C to 200°C (14°F to 392°F)
AKH5	Lined	DN 25 to 150 NPS 1 to 6	PN 16 Class 150	-10°C to 350°C (14°F to 662°F)
AKH7-KP	Lined	DN 25 to 50 NPS 1 to 2	For glass connections	-10°C to 200°C (14°F to 392°F)
AKH8	Lined	DN 15 to 150 NPS ½ to 6	PN 16 Class 150	-10°C to 200°C (14°F to 392°F)
V-Port	Lined	DN 25 to 150 NPS 1 to 6	Varies, depending on valve	Varies, depending on valve
AMP3	Lined	DN 25 to 150 NPS 1 to 6	PN 16 Class 150	-10°C to 200°C (14°F to 392°F)
Sight Glass Series	Lined	DN 25 to 150 NPS 1 to 6	PN 16 Class 150	-10°C to 200°C (14°F to 392°F)
AKH6 Fully Lined Tank Drain	Lined	DN 25x50 to 150x200 NPS 1x2 to 6x8	PN 16 Class 150	-10°C to 200°C (14°F to 392°F)
McCANNASEAL®	Top-Entry	DN 15 to 450 NPS ½ to 18	PN 20 to 260 Class 150 to 1500	-196°C to 815°C (-320°F to 1500°F)
VT1	Top-Entry	DN 50 to 1400 NPS 1 13/16 to 16¾	PN 20 to 420 Class 150 to 2500 API 2000 to 10 000	-196°C to 400°C (-320°F to 750°F)

BALL

FLOATING

FK75M

A split-body ball valve for the chemical and petrochemical industries with a highly standardized design.

Argus®

- Increased uptime and durability from robust design with chemical coating and high-performance cladding
- Reliable performance to highest zero-tightness demands enabled by FCI 70-2 Class VI seat design
- Reduced replacement cost via easy upgrades and chemical coating options for diverse applications
- Improved plant and personnel safety assured by valve compliance with fugitive emissions standard ISO 15848

SPECIFICATIONS

Sizes: DN 65 to 300; NPS 2½ to 12
Press: PN 16 to 40; Class 150 to 900
Temp: -105°C to 650°C
(-157°F to 1202°F)

Refer to literature ARAFL0001-W-FK75M at flowse ve.com/library.

FLOATING

FK79

With many innovative design features, the FK79 represents the highest standard in valve technology and is designed to meet API-6D, ASME 16.34 and ISO 17292 requirements.

Argus

- High performance in severe service conditions and extreme environments ensured by durable design with chemical coating and high-performance cladding
- Reliable performance to highest zero-tightness demands enabled by FCI 70-2 Class VI seat design
- Long service life via double-stem seal system and stem supported in bearings, ensuring seals are free from operating loads
- Reduced environmental impact and improved safety ensured by compliance with TA-Luft, EPA (Method 21) and ISO 15848 fugitive emissions requirements

SPECIFICATIONS

Sizes: DN 15 to 50; NPS ½ to 2
Press: PN 16 to 250; Class 150 to 2500
Temp: -105°C to 650°C
(-157°F to 1202°F)

Refer to literature ARAFL0001-W-FK79 at flowse ve.com/library.

FLOATING

Duball DL

A high-performance, metal-seated, full-bore ball valve, equally suitable for isolation, on-off and modulating control applications.

NAF®

- Long, maintenance-free, safe operation in automated on-off and control service assured by spring-loaded stem seal packing
- Increased plant and personnel safety via blowout-proof stem and high-torque transmission with minimum mechanical backlash
- Broad application versatility enabled by extensive size range and options, including fire-safe tested version

SPECIFICATIONS

Sizes: DN 25 to 400; NPS 1 to 16
Press: PN 10 to 40; Class 150 to 300
Temp: -30°C to 250°C (-22°F to 482°F)

Refer to literature NFENTB4167 at flowse ve.com/library.

FLOATING

Worcester Three-piece Ball

Worcester

The Worcester family of three-piece ball valves is comprised of numerous configur tions to suit a wide variety of application requirements. Each is designed to ASME B16.34 specific tions.

- Significantly longer se vice life compared to conventional ball valves via improved stem seal design
- Increased durability from heavy-duty bolting and valve constructions
- Ease of maintenance enabled by design that allows actuators and brackets to be removed without affecting valve or piping integrity, plus easy access for stem seal adjustment
- Low inventory carrying costs made possible by common mounting brackets for three-piece and equivalent flanged valve

SPECIFICATIONS

Sizes: DN 8 to 150; NPS ¼ to 6
Press: PN 100; Class: 600
Temp: -46°C to 230°C (-51°F to 446°F)

Refer to literature WCABR1050 or WCE4459 at flowse ve.com/library.

FLOATING

Worcester Flanged Ball

Worcester

The Worcester family of standardized flanged ball valves offers tight shutoff and leak-tight stem seals Each is designed for high-cycle operation, pressure integrity, material compatibility, fast operation and high-temperature endurance.

- Longer service life through unique seat design that minimizes friction and wear
- Economical operation facilitated by low operating torque
- Improved plant and personnel safety via compact, blowout-proof stem

SPECIFICATIONS

Sizes: DN 15 to 250; NPS ½ to 10
Press: PN 20 to 50; Class 150 to 300
Temp: -46°C to 315°C (-51°F to 600°F)

Refer to literature WCABR1013 and PB 800 at flowse ve.com/library.

FLOATING

Worcester Cryogenic Ball

Worcester

Worcester high-performance cryogenic shutoff valves are designed for tough applications involving all types of cryogens, including oxygen, hydrogen, methane, ammonia, nitrogen, flourine LNG and deuterium.

- High performance and low thermal stress assured by valve design that assures tight shutoff, zero-body leakage and low torque through large thermal excursions from ambient to -253°C (-425°F)
- Economical performance provided by eliminating the expensive high-maintenance stuffing box common in rising stem globe valve
- Increased plant and personnel safety assured by zero-leak packing, fire-tight design and blowout-proof/pressure-safe stem

SPECIFICATIONS

Sizes: DN 8 to 150; NPS ¼ to 6
Press: PN 100; Class 600
Temp: -196°C to 82°C
(-321°F to 180°F)

Refer to literature WCABR1040 or WCEBR0013 at flowse ve.com/library.

BALL

McCANNA™

FLOATING

CryoSeal

The optimum solution for cryogen fl w isolation at temperatures as low as -196°C (-320°F), including LNG liquefaction, transportation and regasific tion. Certified fire-safe and meets ISO 15848 standard

- Environmental and regulatory compliance made possible by design engineered to meet ISO 15848, ASME B16.34, BS 6364, MSS SP-134, MESC SPE 77/200, ASME B16.10 and API 6D specific tions
- Easy in-line maintenance via top-entry design
- Simple and cost-effective to automate due to quarter-turn operation and low-torque seat profile

SPECIFICATIONS

Sizes: DN 15 to 200; NPS ½ to 8
Press: PN 20 to 100; Class 150 to 600
Temp: -196°C to 200°C
(-320°F to 400°F)

Refer to MMENBR1027 or MMENIM2007 at flowse ve.com/library.

NAF

SEGMENTED

ProCap Capping Valve

Unique high-tech capping valve designed for automated filling of wood chips for b tch digester applications in the pulp industry.

- Maximized uptime and reduced maintenance requirements via eccentric hubs, which load the seat and provide tight shutoff
- Increased efficien y provided by its unique design that prevents wood chips from getting stuck between the housing and the ball
- Improved safety and environment compliance due to tight shutoff that prevents leakage to the atmosphere during cooking sequence
- Excellent corrosion resistance from EN 1.4408/ASTM A351 CF8M body

SPECIFICATIONS

Sizes: DN 500 to 750; NPS 20 to 30
Press: PN 16; Class 150
Temp: -30°C to 250°C (-22°F to 482°F)

Refer to literature Fk 41.55 at flowse ve.com/library.

Argus

TRUNNION-MOUNTED

FK76M

Designed to meet API-6D, ASME B16.34 and ISO 17292 requirements, the FK76M delivers durability and low operating torques with a clear separation of sealing and bearing functions. Fire-safe to ISO 10497 and API 607.

- Long service life in severe applications owing to chemical coating and high-performance cladding
- Reliability ensured by seat design to FCI 70-2 Class VI, enabling it to meet the highest demands with zero tightness
- Reduced replacement cost, as performance capabilities of valves can be easily upgraded and coatings can be applied to suit different applications
- Improved plant and personnel safety from valve design, which meets fugitive emission standard ISO 15848

SPECIFICATIONS

Sizes: DN 65 to 900; NPS 2½ to 36
Press: PN 16 to 160; Class 150 to 900
Temp: -105°C to 650°C
(-157°F to 1202°F)

Refer to literature ARENTB0001 at flowse ve.com/library.

TRUNNION-MOUNTED

HK35

Argus

All the benefits of the FK76M in a high-pressure design Designed to meet API-6D, ASME B16.34 and ISO 17292 requirements.

- Extended service life and low operating torques provided by clear separation of sealing and bearing functions on both ball and stem
- Environmental compliance assured by stem seal design, which meets current TA-Luft and EPA (method 21) standards
- Increased plant and personnel safety via fire-safe design and construction th t complies with fugitive emission standard ISO 15848
- Installation ease enhanced by included DIN ISO mounting plate

SPECIFICATIONS

Sizes: DN 50 to 500; NPS 2 to 20
Press: PN 160 to 250;
Class 1500 to 2500
Temp: -105°C to 650°C
(-157°F to 1202°F)

Refer to literature ARGBR1111 at flowse ve.com/library.

TRUNNION-MOUNTED

VW1

Valbart®

This API 6D-compliant, welded-body valve seals off both seats at the same time and allows bleeding of the entrapped cavity pressure (double block and bleed) with the ball in the closed position.

- Reduced fugitive emissions made possible by welded-body construction, which eliminates leak paths
- Greater process control and safety assured by dual independent flo ting seat design, guaranteeing sealing power at any pressure level
- Economical performance due to low torque requirements
- Simplified seal verifi tion made possible by double block and bleed feature

SPECIFICATIONS

Sizes: DN 50 to 1600; NPS 2 to 64
Press: PN 20 to 420; Class 150 to 2500
Temp: -46°C to 220°C (-50°F to 428°F)

Refer to VBEEBR1009 or VBENBR1010 at flowse ve.com/library.

TRUNNION-MOUNTED

VB2 and VB3

Valbart

The Valbart VB2 and VB3 are repairable, bolted body, side-entry, trunnion-mounted ball valves featuring a fixed ball and flo ting seat rings. Compliant with API 6D and 6A.

- Greater efficien y, safety and control enabled by pressure-absorbing bearings, seat-sealing action at any rated pressure and anti-static design
- Plant and personnel protected by anti-blowout design that ensures the stem is retained by the stem cover
- Environmental compliance assured by zero-emission design
- Reduced actuation costs, as seat design minimizes the torque required to operate the valve without losing the sealing power

SPECIFICATIONS

Sizes: DN 25 to 1600; NPS 1 to 64
Press: PN 20 to 42; Class 150 to 2500;
API 2000 to 10 000
Temp: -196°C to 400°C
(-320°F to 750°F)

Refer to VBEEBR1009 or VBENBR1010 at flowse ve.com/library.

BALL

TRUNNION-MOUNTED

Subsea

Valbart

Quarter-turn ball valve designed for total reliability against internal and external leaks in shallow and deep-water applications.

- Application flexibility derived from comp tibility with hydraulic actuators, ROV-operated gear boxes, and electrical and hydraulic umbilical systems
- Extended life due to robust design that protects against leaks with metal-to-metal seats, elastomeric and thermoplastic seals, and corrosion-resistant alloy seal housing
- Minimized leak paths made possible by body designs plus corrosion-resistant materials of construction
- Complete safety and functionality compliance ensured by hyperbaric chamber testing (API 6DSS certific tion/API Spec Q1)

SPECIFICATIONS

Sizes: DN 50 to 1400; NPS 2 to 56
Press: PN 20 to 420; Class 150 to 2500; API 2000 to 10 000
Temp: -46°C to 150°C (-51°F to 302°F)

Refer to literature VBENBR1005 at flowse ve.com/library.

TRUNNION-MOUNTED

Double Block and Bleed

Valbart

Side-entry ball valve, with either a bolted or welded body, designed for use in upstream, midstream and downstream oil and gas applications.

- Initial and installation cost savings owing to reduced structural requirements of design that saves both space and weight
- Increased system reliability from single valve with bleed port between two valves
- Improved plant and personnel safety due to anti-blowout stem, fire-safe construction and anti-static design

SPECIFICATIONS

Sizes: DN 50 to 1200; NPS 2 to 48
Press: PN 20 to 420; Class 150 to 2500
Temp: -196°C to 400°C (-320°F to 750°F)

Refer to literature VBENBR1004 at flowse ve.com/library.

TRUNNION-MOUNTED

Cryogenic Ball Valve

Valbart

Meets demanding end-user requirements for leak rate and fugitive emission performance. Body construction and flexible trim configu tions ensure proper safe isolation.

- Improved seal performance at extremely low temperatures enabled by isolating stem seals from cold media
- Guaranteed optimum leakage resistance in demanding cryogenic applications via primary energized lip seal
- Increased reliability and safety from automatic discharge of excessive body pressure by internal self-relieving system (top- and side-entry models only)

SPECIFICATIONS

Sizes: DN 25 to 1400; NPS 1 to 56
Press: PN 20 to 420; Class 150 to 2500
Temp: 196°C to 200°C (-320°F to 392°F)

Refer to literature VBEEBR1002 at flowse ve.com/library.

TRUNNION-MOUNTED

Trunnball DL

NAF

Full-port process ball valve well-suited for the most challenging operating conditions. Frequently used for isolation or on-off applications, but equally suitable for control.

- Improved plant and personnel safety provided by the Z-trim option's excellent cavitation control and noise reduction
- Reduced maintenance enabled by spring-loaded stem seal packing
- Broad application flexibility facilit ted by the extensive size range
- Optimum controllability through the use of a sturdy blowout-proof stem that provides high torque transmission with minimal mechanical backlash

SPECIFICATIONS

Sizes: DN 150 to 900; NPS 6 to 36
Press: PN 10 to 40; Class 150 to 300
Temp: -30°C to 250°C (-22°F to 482°F)

Refer to literature NFENTB4168 at flowse ve.com/library.

Performance You Can Count On

From the bone-chilling cold of the Arctic to the stifling d y heat of desert regions to the hot salty air of tropical coasts, Flowserve solutions can be found anywhere fluid motion and control are mission-critical Our products excel, even in these challenging environments. And our fl w control experts are right there with them to provide the engineering, installation and maintenance support you need to get the most out of your operations.

RISING STEM

Rising Stem Ball Valve (RSBV)

Valbart

The oil and gas industry's choice for applications requiring a mechanically energized metal or soft seat to prevent losses from process contamination or material leakage. Ideal for frequent cycling.

- Extended service life and low maintenance costs due to unique helix coil stem design, which enables friction-free opening and closing
- Improved product quality, efficien y and safety with tightness performance up to ASME FCI-70-2 Class VI
- Easy in-line inspection and maintenance enabled by top-entry design
- Reduced corrosion due to heavy wall thickness in excess to ASME B16.34
- Improved personnel safety from blowout-proof stem that meets international standards of API 600 and 6D

SPECIFICATIONS

Sizes: DN 25 to 600; NPS 1 to 24
Press: PN 10 to 320; Class 150 to 2500
Temp: -196°C to 600°C
(-321°F to 1112°F)

Refer to literature VBENBR1008 at flowse ve.com/library.

BALL

LINED

AKH2

Atomac®

Designed to reduce energy and pumping costs, the AKH2 two-piece, full-port design minimizes pressure losses and increases fl w capacity.

- Minimized downtime and maintenance from long-life seats and large stem sealing area, plus substantial middle flanges and molded liner
- Reduced energy costs enabled by low frictional coefficients and oper ting torques
- Reduced fugitive emissions made possible by reduction of stem side loads, eliminating potential valve gland leaks
- Increased plant and personnel safety assured by anti-blowout stem and anti-static design

SPECIFICATIONS

Sizes: DN 15 to 350; NPS ½ to 14
Press: PN 16; Class 150
Temp: -10°C to 200°C (14°F to 392°F)

Refer to literature ATENTB0010 at flowse ve.com/library.

LINED

AKH2-300

Atomac

This valve offers the same advantages as the AKH2 series, while meeting the stricter pressure requirements, wall thickness, face-to-face and flange dimensions of ASME Class 300.

- Enhanced safety derived from ASME Class 300 piping requirements demanded in the chlorine and related industries
- Low inventory carrying costs and simplified maintenance made possible by the high degree of interchangeability with the entire AKH2 series

SPECIFICATIONS

Sizes: DN 25 to 150; NPS 1 to 6
Press: PN 50; Class 300
Temp: -10°C to 200°C (14°F to 392°F)

Refer to ATETB001 or ATENTB0010 at flowse ve.com/library.

LINED

AKH2A

Atomac

The AKH2A is a short-pattern, full-port lined ball valve that offers the same benefits as the AKH2 at reduced space and weight. Designed per ASME B16.5 Class 150 flange dimensions and ASME B16.10 face-to-face dimensions.

- Broad application versatility enabled by a variety of metallic and non-metallic ball material options as well as available characterized ball for throttling services
- Greater application flexibility and decreased structural impact from reduced space and weight (compared to the AKH2)
- Lower operating costs resulting from high-efficien y performance
- Reduced automation costs due to low turning torque and ISO 5211 universal mounting pad

SPECIFICATIONS

Sizes: NPS 1 to 6
Press: Class 150
Temp: -10°C to 200°C (14°F to 392°F)

Refer to literature ATETB001 or ATENTB0010 at flowse ve.com/library.

LINED

AKH3

Atomac

The AKH3 is an ASME B16.10 short-pattern, reduced-port, lined ball valve. The flo ting ball design ensures bubble-tight shut-off.

- Economical performance and improved process efficien y from bubble-tight shutoff across the pressure range of 1 mbar to 19 bar (14.5 to 275 psi)
- Long-term external leak protection provided by PTFE chevron packing rings in a deep stuffing box substantial body flanges and molded liner sea
- Low installation costs, as ASME dimensions permit the replacement of previously installed valves with no need to alter existing piping
- Safety assured by blowout-proof stem assembly and anti-static device

SPECIFICATIONS

Sizes: NPS 1 to 14
Press: Class 150
Temp: -10°C to 200°C (14°F to 392°F)

Refer to ATETB001 or ATENTB0010 at flowse ve.com/library.

LINED

AKH5

Atomac

These full-port, ceramic-lined valves are recommended when nothing else will work in applications with abrasive slurries, high-temperature corrosives and services with high-temperature fluctu tions.

- Long service life and wear resistance enabled by Mg-PSZ ceramic surfaces that resist erosion, corrosion and extreme temperature shock
- Increased uptime from minimal cavity space, which significantly reduces retention of line media and product contamination
- Reduced energy and pumping costs due to full port design, which minimizes pressure loss and increases fl w capacity
- Shutoff to ASME FCI 70-2 Class IV
- Virtually no maintenance and low stem torque enabled by large stem sealing area

SPECIFICATIONS

Sizes: DN 25 to 150; NPS 1 to 6
Press: PN 16; Class 150
Temp: -10°C to 350°C (14°F to 662°F)

Refer to ATETB001 or ATENTB0010 at flowse ve.com/library.

LINED

AKH7-KP

Atomac

Engineered exclusively for glass pipe systems. Available with socket/ball or plane end connections per DN EN 12585 or DN EN 1092. For flange/glass end connections the AKH7-KPF is available.

- Long service life and high corrosion resistance via FEP- or PFA-molded fluorocarbon resin liners (others vailable on request)
- Handling of highly viscous fluids or process pplications with high purity requirements enabled by liners' inert, non-stick properties
- Increased plant and personnel safety assured by anti-static design and anti-blowout stem, plus long-term leak protection provided by PTFE chevron packing rings and molded liner/seal

SPECIFICATIONS

Sizes: DN 25 to 50; NPS 1 to 2
Press: For glass connections
Temp: -10°C to 200°C (14°F to 392°F)

Refer to ATETB001 or ATENTB0010 at flowse ve.com/library.

BALL

LINED

AKH8

Atomac

This full-port monoblock ball valve improves sticky, adhesive and highly viscous fluid pplications, particularly in high cycling requirements that can cause deterioration in flo ting ball design valves.

- Superior performance in high-viscosity applications made possible by single-piece ball and stem unit
- Reduced downtime and maintenance enabled by metal-to-metal body joint, which absorbs destructive pipe vibrations and negative effects of thermal cycling
- Greater efficien y provided by larger diameter seats and integral retention lip, which minimize fl w turbulence and enhance seat stability

SPECIFICATIONS

Sizes: DN 15 to 150; NPS ½ to 6
Press: PN 16; Class 150
Temp: -10°C to 200°C (14°F to 392°F)

Refer to literature ATDEENFL0007 at flowse ve.com/library.

LINED

V-Port

Atomac

V-Port valves enable you to achieve precise control and modulation of aggressive products without the expense and long deliveries of exotic alloy valves.

- Greater process control and modulation for throttling applications via characterized ball valve
- Available in models AKH3, AKH8, AKH2A and AKH2; or in Mg-PSZ ceramic for model AKH5.

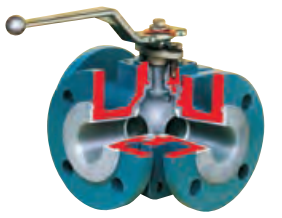
SPECIFICATIONS

Sizes: DN 25 to 150; NPS 1 to 6
Press: Varies, depending on valve
Temp: Varies, depending on valve

Refer to literature ATENTB0010 at flowse ve.com/library.

LINED

AMP3



Atomac

The compact design of this three-way ball valve permits use in corrosive diverter applications with space constraints.

- Lower capital cost in difficult se vices than alloy valves, with equal or superior corrosion resistance
- Reduced plant operating costs made possible by high-fl w capacity, which minimizes valve pressure losses
- Broad application versatility for a wide variety of 90° or 180° fl w patterns enabled by L- or T-ball configur tions
- Improved efficien y due to flo ting ball seat design which ensures bubble-tight shutoff across the pressure range

SPECIFICATIONS

Sizes: DN 25 to 150; NPS 1 to 6
Press: PN 16; Class 150
Temp: -10°C to 200°C (14°F to 392°F)

Refer to ATETB001 or ATENTB0010 at flowse ve.com/library.

LINED

Sight Glass Series

Atomac

Atomac sight glasses offer clear visual inspection from either side. An integrated drip lip with a cast core provides visual fl w indication, even at low velocity. Available in standard, three-way and four-way models.

- Convenience, efficien y and ease of visual inspection enabled by sight glass on either side
- High durability of inspection apertures assured by borosilicate glass, utilized to withstand high temperatures, mechanical stress and corrosion per DIN 7080
- Long service life and high corrosion resistance due to thick, uniform, blowhole-free FEP or PFA liners for all non-glass internal components

SPECIFICATIONS

Sizes: DN 25 to 150; NPS 1 to 6
Press: PN 16; Class 150
Temp: -10°C to 200°C (14°F to 392°F)

Refer to ATETB001 or ATENTB0010 at flowse ve.com/library.

LINED

AKH6 Fully Lined Tank Drain

Atomac

Primarily used for tank drainage, AKH6 valves are also commonly installed in place of reducing spools to downsize piping dimensions.

- Lower energy and pumping costs facilitated by larger inlet port and full-port design, which minimizes pressure loss and increases fl w capacity
- Improved handling of highly viscous or high-purity services assured by inert, non-stick liners
- Reduced downtime and easy maintenance made possible by interchangeability of all internal components and spare parts with entire AKH2 series

SPECIFICATIONS

Sizes: DN 25x50 to 150x200;
NPS 1x2 to 6x8
Press: PN 16; Class 150
Temp: -10°C to 200°C (14°F to 392°F)

Refer to ATETB001 or ATENTB0010 at flowse ve.com/library.

TOP-ENTRY

McCANNASEAL

McCANNA

A high-performance, top-entry, metal- or soft-seated ball valve designed for use in PTA production and other general applications. Ideal for remote operations with high-cycle frequency.

- Reliable operation assured by sealing of carbon graphite seat, with wedge design for consistently “clean” finished produc
- Economical performance via quarter-turn and low torque for compatibility with cost-effective actuators
- Improved personnel safety with fire-seal se ts and two-way shutoff
- Fast, easy maintenance enabled by top-entry design that permits in-line service and emergency entrance in minutes
- Longer service life from engineered design that maximizes seal and seat lives

SPECIFICATIONS

Sizes: DN 15 to 450; NPS ½ to 18
Press: PN 20 to 260; Class 150 to 1500
Temp: -196°C to 815°C
(-320°F to 1500°F)

Refer to literature MMENBR1015 at flowse ve.com/library.

BALL

Valbart

TOP-ENTRY

VT1

An in-line repairable valve that assures bi-directional sealing with two independent flo ting seats. Double block and bleed feature, fire-safe design and anti bl w-out stem.

- Increased efficien y enabled by independent ball and stem, which minimizes side thrust caused by pressure on the ball
- Improved safety assured by anti-static design that guarantees electrical continuity between all metallic components
- Simplified in-line inspection and maintenance made possible by top-ent y design
- Compliance with the most severe pollution-control regulations owing to low-emission valves

SPECIFICATIONS

Sizes: DN 50 to 1400; NPS 1 13⁄16 to 16¾
Press: PN 20 to 420; Class 150 to 2500; API 2000 to 10 000
Temp: -196°C to 400°C (-320°F to 750°F)

Refer to VBEEBR1009 or VBENBR1010 at flowse ve.com/library.

Your Partner in Safety – Valves for O_2 Service

The inherent danger of oxygen and oxygen-enriched applications poses particular safety hazards to your plant and personnel. Flowserve can help mitigate these risks. Our global network of oxygen-trained personnel is ready to work with you to ensure the valves used in your process meet or exceed industry requirements for safety and performance. Whether your application calls for on-off or control valves, Flowserve can provide consistently safe results.

Big Max BX2001

BUTTERFLY

Ideal for precision throttling and on-off applications, especially in lighter-weight piping systems, the Flowserve family of butterfly valves is often specifi d for its versatility. Outstanding throttling accuracy for process control is achieved through low-friction, erosion-resistant sealing surfaces with very low operating torques. A broad range of applications can be met via metal- and soft-seated designs as well as lined versions for corrosive and hygienic applications.

Butterfly – Quick Reference

Product	Sub-Type	Sizes	Pressures	Temperatures
Big Max® BX2001	Double-Offset	DN 50 to 900 NPS 2 to 36	PN 10 to 40 Class 150 and 300	-73°C to 288°C (-100°F to 550°F)
TX3	Triple-Offset	DN 80 to 1500 NPS 3 to 60	PN 20 to 260 Class 150 to 1500	-196°C to 820°C (-320°F to 1500°F)
Torex™	Triple-Offset	DN 80 to 700 NPS 3 to 28	PN 10 to 40 Class 150 and 300	-30°C to 350°C (-22°F to 662°F)
BTV	Lined	DN 50 to 600 NPS 2 to 24	PN up to 10 Up to 150 psi	177°C (350°F)
Slimseal®	Lined	DN 50 to 600 NPS 2 to 24	PN 10 to 20 Class 125 to 150	-10°C to 140°C (14°F to 284°F)

BUTTERFLY

Durco

DOUBLE-OFFSET

Big Max BX2001

High-performance, all-purpose valve designed for precise throttling control or on-off service with lighter weight piping systems and less expensive, energy-efficient actu tors.

- Broad application versatility via numerous design options: wafer and lug bodies; standard PFA, optional UHMWPE and fire-sealed versions; and multiple packing options
- Reduced fugitive emissions through triple-leak protection of primary stem seal plus two optional secondary seals
- Increased capacity and improved fl w control with low-profile double-offset disc
- Improved personnel and plant safety with anti-blowout protection per API 609

SPECIFICATIONS

Sizes: DN 50 to 900; NPS 2 to 36
Press: PN 10 to 40; Class 150 and 300
Temp: -73°C to 288°C
(-100°F to 550°F)

Refer to literature DVENTB0039
at flowse ve.com/library.

Durco

TRIPLE-OFFSET

TX3

The TX3 boasts reliable, long-lasting, zero-leakage shutoff — even in gas applications. It has obtained numerous industry certific tions, so it can be used around the world. Multiple valve body configur tions available.

- Greater process control with API 598 Zero Leakage (bubble-tight) shutoff assured by triple-offset design and laminated metal-graphite seat seal
- Extended service life and outstanding throttling accuracy due to low operating torque resulting from the low-friction, low-wear elliptical sealing surfaces
- Environmental compliance achieved by packing options that meet stringent fugitive emissions requirements
- Improved safety with API 607 fire-safe design plus API 609/ASME B16.34 anti-blowout shaft

SPECIFICATIONS

Sizes: DN 80 to 1500; NPS 3 to 60
Press: PN 20 to 260; Class 150 to 1500
Temp: -196°C to 820°C
(-320°F to 1500°F)

Refer to literature DVENBR0061
at flowse ve.com/library.

NAF

TRIPLE-OFFSET

Torex

High-performance, triple-offset, metal- or soft-seated butterfly valve frequently used for isol tion or on-off applications, but equally suitable for control, especially on high-fl w, low-pressure applications.

- Longer service life provided by triple-offset design, which minimizes seat wear during opening and closing
- Minimized pressure loss and low energy costs due to tight shut-off
- Low installation costs enabled by compact wafer design and low weight
- Improved safety assured by Safety Integrity Level (SIL) 3 and IEC 61508 certific tions
- Increased uptime — even in difficult media and demanding pressures — through excellent design, materials and performance characteristics

SPECIFICATIONS

Sizes: DN 80 to 700; NPS 3 to 28
Press: PN 10 to 40 Class 150 and 300
Temp: -30°C to 350°C (-22°F to 662°F)

Refer to literature Fk41.42
at flowse ve.com/library.

Durco

LINED

BTV

Reliable, leak-free service valve designed for a wide range of demanding requirements in corrosive chemical applications and process industries.

- Reduced downtime through the standard lined body and disc that defends against the most corrosive chemicals
- Lower maintenance costs from the triple-seal design and live-loaded shaft seal that never needs adjustment
- Increased application flexibility provided by a large selection of metal discs for use when greater protection is required
- Increased abrasion resistance in applications up to 93°C (200°F) with optional UHMWPE disc and body

SPECIFICATIONS

Sizes: DN 50 to 600; NPS 2 to 24
Press: PN up to 10; up to 150 psi
Temp: up to 177°C (350°F)

Refer to literature DVENBR0020 at flowse ve.com/library.

Serck Audco®

LINED

Slimseal

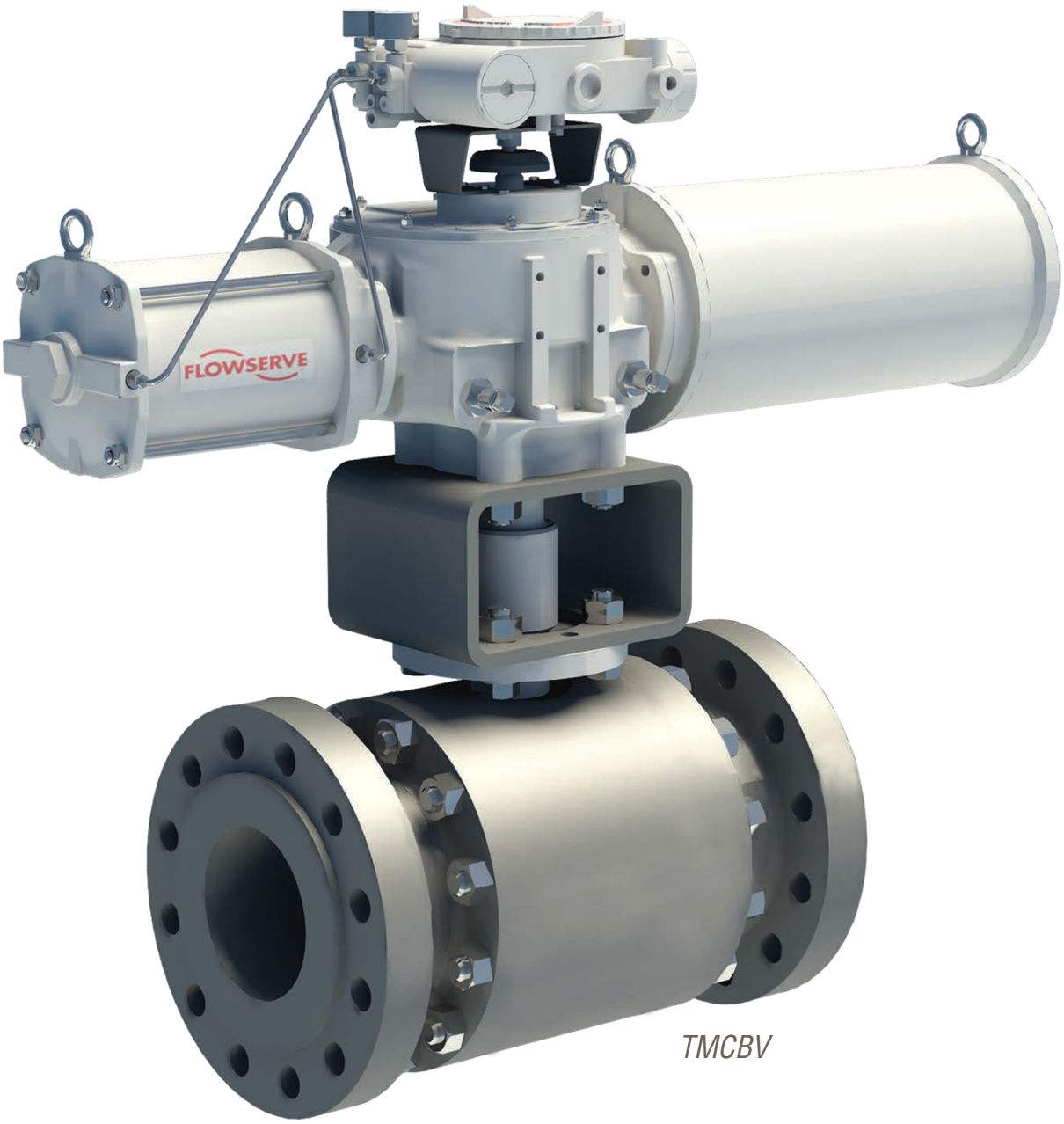
High-performance, “fit and forget” wafer-type valve with integrally molded body liner designed specifically for corrosive services and hygienic applications.

- Increased uptime compared to loose liners resulting from integrally molded elastomer body liner that is not prone to stretching
- Low maintenance requirements from liner construction that is designed to last throughout the entire valve lifecycle
- Reduced operating costs due to primary and secondary stem seal that prevents ingress of foreign material into valve
- Installation speed and simplicity enabled by a gasket that is integral to the body, and the body liner that eliminates potential for damage to expensive seats

SPECIFICATIONS

Sizes: DN 50 to 600; NPS 2 to 24
Press: PN 10 to 20; Class 125 to 150
Temp: -10°C to 140°C (14°F to 284°F)

Refer to literature SRENTB0006 at flowse ve.com/library.



TMCBV

ROTARY CONTROL

Long life in severe conditions characterizes this flexible range of plug, ball and butterfly control valves. Precision control can be realized across a range of harsh applications, including fibrous slurries, entrained particles, steam and high-pressure/temperature liquids and gases. Users find numerous performance advantages, from reduced cavitation and flashing to low noise levels, as well as safety assurances from tight shut-off features and designs certifi d to the latest, global safety standards.

Rotary Control – Quick Reference

Product	Sub-Type	Sizes	Pressures	Temperatures
MaxFlo® 4	Eccentric Plug	DN 25 to 300 NPS 1 to 12	PN 10 to 63 Class 150 to 600	-100°C to 400°C (-148°F to 750°F)
ShearStream™ HP	Segmented Ball	DN 25 to 400 NPS 1 to 16	PN 10 to 63 Class 150 to 600	-46°C to 316°C (-50°F to 600°F)
Setball™	Segmented Ball	DN 25 to 700 NPS 1 to 28	PN 10 to 40 Class 150 to 300	-30°C to 250°C (-22°F to 482°F)
Setball SF	Segmented Ball	DN 25 to 250 NPS 1 to 10	PN 10 to 40 Class 150 to 300	-30°C to 250°C (-22°F to 482°F)
Valdisk	High-Performance Butterfl	DN 50 to 750 NPS 2 to 30	PN 10 to 400 Class 150 to 2500	-196°C to 649°C (-320°F to 1200°F)
Valdisk TX3	High-Performance Butterfl	DN 80 to 1500 NPS 3 to 60	PN 20 to 260 Class 150 to 1500	-196°C to 820°C (-320°F to 1500°F)
Torex	High-Performance Butterfl	DN 80 to 700 NPS 3 to 28	PN 10 to 40 Class 150 and 300	-30°C to 350°C (-22°F to 662°F)
TMCBV	Trunnion-Mounted Control Ball	DN 75 to 1400 NPS 3 to 56	Class 150 to 2500 API 3000, 5000, 10 000	-196°C to 450°C (-320°F to 842°F)
Trunnball DL	Trunnion-Mounted Control Ball	DN 150 to 900 NPS 6 to 36	PN 10 to 40 Class 150 to 300	-30°C to 250°C (-22°F to 482°F)
CPT	Floating Control Ball	DN 8 to 100 NPS ¼ to 4	PN 20 to 110 Class 150 to 600	-29°C to 427°C (-20°F to 800°F)
Duball DL	Floating Control Ball	DN 25 to 400 NPS 1 to 16	PN 10 to 40 Class 150 to 300	-30°C to 350°C (-22°F to 482°F)

ROTARY CONTROL

ECCENTRIC PLUG

MaxFlo 4

Cost-competitive, high-performance general service control valve designed for applications demanding higher rangeability, precise control and higher fl w capacity.

Valtek

- Economical performance with the highest rated C_v (as much as 70% more than competitors), which sometimes allows for smaller sizes to be used
- Longer service life and more precise control enabled by the robust polygon shaft/plug connection
- Low maintenance costs due to double-offset eccentric plug design that reduces seat wear while providing reliable Class IV (metal seat) and VI (soft seat) shutoff
- Improved safety with superior shaft blow-out protection from the ASME B16.34 shaft design

SPECIFICATIONS

Sizes: DN 25 to 300; NPS 1 to 12
Press: PN 10 to 63; Class 150 to 600
Temp: -100°C to 400°C
(-148°F to 750°F)

Refer to literature VLENBR0064
at flowse ve.com/library.

SEGMENTED BALL

ShearStream HP

Rugged segmented ball valve designed to withstand harsh, particle-entrained processes found in the power, chemical, and oil and gas industries.

Valtek

- Increased uptime enabled by a durable, long-lasting design that easily handles abrasive, erosive and corrosive fluids
- Broad application versatility enabled by exceptional control and rangeability
- High-capacity and large turndown performance due to unrestricted straight-through port design
- High-pressure drop capability with the optional spring-loaded, heavy-duty seat, which provides reliable Class IV (metal seat) and Class VI (resilient UHMWPE seat) shutoff

SPECIFICATIONS

Sizes: DN 25 to 400; NPS 1 to 16
Press: PN 10 to 63; Class 150 to 600
Temp: -46°C to 316°C (-50°F to 600°F)

Refer to literature VLEEBR0027
at flowse ve.com/library.

SEGMENTED BALL

Setball

Cost-competitive general service V-port ball valve that offers excellent rangeability and high-fl w capacity.

NAF

- High control accuracy over wide range and under severe conditions provided by V-shaped sector
- Low lifecycle and maintenance costs due to the ability to use low operating torque actuators
- Versatile design that combines the best control characteristics of ball and butterfly valves, allowing it to function as a control and shutoff valve
- Application versatility made possible by specialized materials and stem seal options

SPECIFICATIONS

Sizes: DN 25 to 700; NPS 1 to 28
Press: PN 10 to 40; Class 150 to 300
Temp: -30°C to 250°C (-22°F to 482°F)

Refer to literature Fk 41.51(19)
at flowse ve.com/library.

SEGMENTED BALL

Setball SF

NAF

Cost-effective general services V-port ball valve that combines compact size, excellent control characteristics and high-fl w capacity.

- Low total cost of ownership provided by compact face-to-face dimension and weight reduction
- Lower operating costs due to dual low-friction bearings and specially designed seat that make it possible to use a smaller actuator
- Environmental regulatory compliance enabled by one-piece, leak-proof, wafer-style body that minimizes leakage paths
- Optimum control performance provided by a stem with a splined transmission to the ball sector
- High-performance in a compact size due to direct actuator mounting

SPECIFICATIONS

Sizes: DN 25 to 250; NPS 1 to 10
Press: PN 10 to 40; Class 150 to 300
Temp: 30°C to 250°C (-22°F to 482°F)

Refer to literature NFENTB4156 at flowse ve.com/library.

HIGH-PERFORMANCE BUTTERFLY

Valdisk

Valtek

Heavy-duty design engineered for high-capacity and low-pressure loss. Ideal for fibrous slurries liquids, and gas and steam applications under extreme pressures and temperatures.

- High-performance throttling, even in large pressure drops close to the seat, enabled by high-thrust cylinder actuator coupled with eccentric-cammed disc
- Greater throttling accuracy assured by low breakout torque provided by jam-lever toggle seating
- Superior process control with bi-directional, bubble-tight shutoff at high and low pressure drops
- Reduced maintenance costs made possible by double-offset disc design, which minimizes seat and disc wear plus reduces leakage

SPECIFICATIONS

Sizes: DN 50 to 750; NPS 2 to 30
Press: PN 10 to 400; Class 150 to 2500
Temp: -196°C to 649°C
(-320°F to 1200°F)

Refer to literature VLATB010 at flowse ve.com/library.

HIGH-PERFORMANCE BUTTERFLY

Valdisk TX3

Valtek

The TX3 boasts reliable, long-lasting, zero-leakage shutoff — even in gas applications. It has obtained numerous industry certific tions, so it can be used around the world. Multiple valve body configur tions available.

- Greater process control with API 598 zero-leakage (bubble-tight) shutoff assured by triple-offset design and laminated metal-graphite seat seal
- Extended service life and outstanding throttling accuracy due to low operating torque resulting from the low-friction, low-wear elliptical sealing surfaces
- Environmental compliance achieved by packing options that meet stringent fugitive emissions requirements
- Improved safety with API 607 fire-safe design plus API 609/ASME B16.34 anti-blowout shaft

SPECIFICATIONS

Sizes: DN 80 to 1500; NPS 3 to 60
Press: PN 20 to 260; Class 150 to 1500
Temp: -196°C to 820°C
(-320°F to 1500°F)

Refer to literature VLENBR0061 at flowse ve.com/library.

ROTARY CONTROL

HIGH-PERFORMANCE BUTTERFLY

Torex

NAF

High-performance, triple-offset, metal- or soft-seated butterfly valve Frequently used for isolation or on-off applications but equally suitable for control, especially on high-fl w, low-pressure applications.

- Longer service life provided by triple-offset design which minimizes seat wear during opening and closing
- Cost-effectiveness provided by compact wafer design and low weight
- Improved safety assured by Safety Integrity Level (SIL) 3 and IEC 61508 certific tions
- Increased uptime — even in difficult media and demanding pressures — through excellent design, materials and performance characteristics

SPECIFICATIONS

Sizes: DN 80 to 700; NPS 3 to 28
Press: PN 10 to 40; Class 150 and 300
Temp: -30°C to 350°C (-22°F to 662°F)

Refer to literature Fk 41.42(17) at flowse ve.com/library.

TRUNNION-MOUNTED CONTROL BALL

TMCBV

Valbart

Cost-efficient compact gas valve that provides excellent fl w capacity and high rangeability.

- Improved plant and personnel safety through excellent noise attenuation provided by industry-proven technologies
- Installation ease in tight piping runs enabled by small valve size
- Cost savings due to small actuator and lightweight pipe supports
- High-fl w capacity offered in compact design via small valve and actuator sizes, system support and isolation

SPECIFICATIONS

Sizes: DN 75 to 1400; NPS 3 to 56
Press: Class 150 to 2500;
API 3000, 5000 and 10 000
Temp: -196°C to 450°C
(-320°F to 842°F)

Refer to literature VLENBR0067 at flowse ve.com/library.

TRUNNION-MOUNTED CONTROL BALL

Trunnball DL

NAF

Full-port process ball valve well suited for the most challenging operating conditions. Frequently used for isolation or on-off applications, but equally suitable for control.

- Improved plant and personnel safety provided by the Z-trim option's excellent cavitation control and noise reduction
- Reduced maintenance enabled by spring-loaded stem seal packing
- Broad application flexibility facilit ted by the extensive size range
- Optimum controllability through the use of a sturdy blowout-proof stem that provides high torque transmission with minimal mechanical backlash

SPECIFICATIONS

Sizes: DN 150 to 900; NPS 6 to 36
Press: PN 10 to 40; Class 150 to 300
Temp: -30°C to 250°C (-22°F to 482°F)

Refer to literature NFENTB4168 at flowse ve.com/library.

Worcester

FLOATING CONTROL BALL

CPT

Rugged and accurate general service valve designed for use in harsh throttling conditions and applications requiring precise computer controls.

- Extremely accurate control through efficient straight-through fl w, rotary shaft sealing and bubble-tight shutoff
- Smooth, stable throttling control due to lubricating action of special coating on ball and TFE/graphite impregnation throughout the thickness of the characterized seat
- Reduced maintenance costs and time due to the use of fewer parts
- Precise fit to m tch unique control needs through virtually limitless seat designs

SPECIFICATIONS

Sizes: DN 8 to 100; NPS ¼ to 4
Press: PN 20 to 110; Class 150 to 600
Temp: -29°C to 427°C (-20°F to 800°F)

Refer to literature WCENBR1001 at flowse ve.com/library.

NAF

FLOATING CONTROL BALL

Duball DL

Rugged, high-performance general service valve designed for operating conditions where severe demands are made on the design, materials and performance. Available with metal or soft seats.

- Lower maintenance costs and time as well as improved safety with spring-loaded stem seal packing
- High performance enabled by the direct actuator mounting capabilities of the Turnex actuator
- Excellent control, noise reduction and cavitation enabled by unique Z-trim option
- Easy installation and replacement as a result of the off-center joint face of the valve body

SPECIFICATIONS

Sizes: DN 25 to 400; NPS 1 to 16
Press: PN 10 to 40; Class 150 to 300
Temp: -30°C to 350°C (-22°F to 482°F)

Refer to literature NFENTB4167 at flowse ve.com/library.

Fast and Accurate Valve Selection and Sizing

Significantly reduce control valve sizing and selection errors and improve decision accuracy in record time with *Performance!™ Valve Sizing and Selection Suite.* It puts the power of on-demand control valve selection and sizing at your fingertips With minimal application data — expected fl w, pressure, temperature, process media and line size — *Performance!* identifies the Fl wserve control valve, actuators and positioners best suited for your application and services conditions. It's the right tool for the finding the right product — the first time every time.

Mark One

LINEAR CONTROL

Ideal for high-accuracy flow control, the Flowserve family of globe/angle linear control valves can be applied from general service to severe applications for both gas and liquids. They are ideal for frequent operation due to their excellent position accuracy and repeatability. Precision control is repeatedly achieved via longer strokes and assured actuator response. Users can satisfy a range of requirements, with choices ranging from cryogenic and high-temperature designs to low noise and anti-cavitation trims.

Linear Control – Quick Reference*

Product	Sub-Type	Sizes	Pressures	Temperatures
Mark One™	Linear Globe/Angle	DN 15 to 915 NPS ½ to 36	PN 10 to 400 Class 150 to 2500	-196°C to 815°C (-320°F to 1500°F)
Mark One Three-Way	Linear Globe/Angle	DN 15 to 300 NPS ½ to 12	PN 10 to 400 Class 150 to 2500	-196°C to 400°C (-320°F to 1500°F)
Mark One-X	Linear Globe/Angle	DN up to 300 NPS up to 12	PN 50 to 100 Class 300 to 600	-196°C to 815°C (-320°F to 1500°F)
Mark 100	Linear Globe/Angle	DN 150 to 915 NPS 6 to 36	PN 10 to 100 Class 150 to 600	-196°C to 815°C (-320°F to 1500°F)
Mark 200	Linear Globe/Angle	DN 50 to 750 NPS 2 to 30	PN 160 to 400 Class 900 to 2500	-196°C to 815°C (-320°F to 1500°F)
Mark Two™	Linear Globe/Angle	DN 15 to 150 NPS ½ to 6	PN 10 to 400 Class 150 to 2500	-196°C to 815°C (-320°F to 1500°F)
Mark Eight™	Linear Globe/Angle	DN 25 to 500 NPS 1 to 20	PN 10 to 400 Class 150 to 2500	-196°C to 815°C (-320°F to 1500°F)
FlowTop™ GS	Linear Globe/Angle	DN 15 to 150 NPS ½ to 6	PN 10 to 40 Class 150 to 300	-46°C to 425°C (-50°F to 797°F)
FlowTop	Linear Globe/Angle	DN 15 to 400 NPS ½ to 16	PN 10 to 40 Class 150 to 300	-46°C to 425°C (-50°F to 797°F)

** Additional products shown on next page*

Linear Control – Quick Reference, cont'd.

Product	Sub-Type	Sizes	Pressures	Temperatures
HpFlow 011000 and 015000	Linear Globe/Angle	NW 16 to 24 NPS ½ to 1	ND 325 to PN 4000 Class 600 to 60 000 psi	-40°C to 250°C (-40°F to 482°F)
LinedFlow™ 132000	Linear Globe/Angle	DN 15 to 150 NPS ½ to 6	PN 16 Class 150	-20°C to 200°C (-4°F to 392°F)
TotalFlow 035000	Linear Globe/Angle	DN 25 to 200 NPS 1 to 8	PN 16 to 400 Class 150 to 2500	-196°C to 700°C (-321°F to 1292°F)
TotalFlow 335000	Linear Globe/Angle	DN 25 to 200 NPS 1 to 8	PN 63 to 250 Class 600 to 1500	-196°C to 700°C (-40°F to 1292°F)
ColdFlow 041000A	Linear Globe/Angle	DN 25 to 200 NPS 1 to 8	PN 16 to 100 Class 150 to 600	-196°C to 100°C (-321°F to 212°F)
ColdFlow 341000	Linear Globe/Angle	DN 4 to 200 NPS 0.16 to 8	PN 16 to 63 Class 150 to 400	-269°C to 100°C (-452°F to 212°F)
SmallFlow™ 080000	Linear Globe/Angle	NPS ¼	PN 400 Class 2500	-40°C to 700°C (40°F to 1292°F)
SmallFlow 385000	Linear Globe/Angle	DN 15 to 25 NPS ½ to 1	PN 16 to 400 Class 150 to 2500	-196°C to 700°C (-321°F to 1292°F)
CleanFlow™ 191000	Linear Globe/Angle	DN 15 to 100 NPS ½ to 4	PN 16 to 25 Class 150	-40°C to 150°C -40°F to 302°F
DrainFlow 051000	Linear Globe/Angle	DN 15 to 200 NPS ½ to 8	PN 16 to 40 Class 150 to 300	-40°C to 200°C (-40°F to 392°F)

LINEAR CONTROL

LINEAR GLOBE/ANGLE

Mark One

Valtek

Superior performance in liquid and gaseous services, with easy, fast and inexpensive maintenance.

- Reliable performance provided by the position accuracy, repeatability and assured response from the positioner plus the stiff and high-thrust, spring-cylinder actuator
- Significant pplication flexibility offered by a broad solutions envelope and a wide variety of trim options to eliminate cavitation damage and abate noise
- Installation and maintenance ease resulting from compact, light-weight package
- Lower maintenance and spare inventory costs facilitated by the clamped-in seat and top-entry trim plus a high degree of parts interchangeability

SPECIFICATIONS

Sizes: DN 15 to 915; NPS ½ to 36
Press: PN 10 to 400; Class 150 to 2500
Temp: -196°C to 815°C
(-320°F to 1500°F)

Refer to literature VLENTB0001 at flowse ve.com/library.

LINEAR GLOBE/ANGLE

Mark One Three-Way

Valtek

A three-way version of the Mark One, this valve is used for combining or diverting service. Like the Mark One, it offers superior performance in liquid and gaseous services in simple, rugged design.

- Reliable performance provided by the position accuracy, repeatability and assured response from the positioner plus the stiff and high-thrust, spring-cylinder actuator
- Enhanced process control due to exceptionally tight shutoff
- Reduced inventory carrying costs owing to a high degree of interchangeability with Mark One Series valves
- Fast, easy and inexpensive maintenance facilitated by compact, lightweight body and actuator package plus clamped-in seat and top-entry trim

SPECIFICATIONS

Sizes: DN 15 to 300; NPS ½ to 12
Press: PN 10 to 400; Class 150 to 2500
Temp: -196°C to 400°C
(-320°F to 752°F)

Refer to literature VLENTB0001 at flowse ve.com/library.

LINEAR GLOBE/ANGLE

Mark One-X

Valtek

The Mark One-X offers a cost-effective means of installing a small valve in a much larger line without line reducers or expanders. It is identical to a standard Mark One except for its body, which has expanded outlets.

- Lower valve and installation costs made possible by using a smaller, lighter valve and eliminating line expanders and reducers (plus their associated welding and radiography requirements)
- Reliable performance provided by the position accuracy, repeatability and assured response from the positioner plus the stiff and high-thrust, spring-cylinder actuator
- Reduced downtime with clamped-in seat and self-aligning seat ring
- Decreased inventory carrying costs from a high degree of interchangeability with Mark One Series valves

SPECIFICATIONS

Sizes: DN up to 300; NPS up to 12
Press: PN 50 to 100; Class 300 to 600
Temp: -196°C to 815°C
(-320°F to 1500°F)

Refer to literature VLATB100 at flowse ve.com/library.

LINEAR CONTROL

LINEAR GLOBE/ANGLE

Mark 100

Valtek

A large control valve designed for larger size applications. Suited for maximum capacity C_v and severe applications in both gas and liquid services.

- Cost-effective performance, as higher C_v capacity allows for smaller valve sizes
- Superior process control made possible by long stroke lengths, the position accuracy, repeatability and assured response from the positioner, and the stiff and high-thrust, spring-cylinder actuator
- Reduced downtime with the clamped-in seat and self-aligning seat ring
- Severe service application versatility provided by a wide variety of noise abatement and anti-cavitation trims

SPECIFICATIONS

Sizes: DN 150 to 915; NPS 6 to 36
Press: PN 10 to 100; Class 150 to 600
Temp: -196°C to 815°C
(-320°F to 1500°F)

Refer to literature FCATB0100
at flowse ve.com/library.

LINEAR GLOBE/ANGLE

Mark 200

Valtek

Designed for gas and liquid control while significantly reducing noise and c vitation. Ideal for high-fl w, high-pressure and extreme temperature applications in the oil and gas and power industries.

- Cost-effective and significantly smaller and lighter design th t outperforms competing brands
- Greater severe service protection with finer control provided by larger galleries and longer strokes
- Improved safety and reduced maintenance costs derived from a broad spectrum of severe service trim solutions for noise abatement and cavitation control
- Easy, low-cost maintenance and extremely tight shutoff made possible by the clamped-in seat and self-aligning seat ring

SPECIFICATIONS

Sizes: DN 50 to 400; NPS 2 to 16
Press: PN 160 to 400;
Class 900 to 2500
Temp: -196°C to 815°C
(-328°F to 1500°F)

Refer to literature VLENTB0200
at flowse ve.com/library.

LINEAR GLOBE/ANGLE

Mark Two

Valtek

Fabricated from bar stock, the Mark Two is an extremely versatile automatic control valve. It is available in many different configur tions with short lead times, especially for high-pressure classes or special alloys.

- Application versatility arising from numerous body styles, end connections, bonnet types and materials of construction
- Reduced maintenance owing to top-entry trim with clamped-in seat ring and double stem-guided design, which eliminates contact between the plug and seat retainer
- Parts interchangeability with Mark One Series valves
- Available cryogenic extended bonnet handles temperatures down to -253°C (-423°F)

SPECIFICATIONS

Sizes: DN 15 to 150; NPS ½ to 6
Press: PN 10 to 400; Class 150 to 2500
Temp: -196°C to 815°C
(-320°F to 1500°F)

Refer to literature VLATB106
at flowse ve.com/library.

LINEAR GLOBE/ANGLE

Mark Eight

Valtek

The Mark Eight features a unique Y-style globe body that provides higher fl w capacities and less process turbulence than conventional globe valves.

- Lower valve recovery factor and higher C_v per given size over traditional globe style valves due to the nearly straight-through passage of the Y-style body
- Significantly reduced noise and vibr tion owing to less restrictive body style, which generates less line turbulence
- Easy, low-cost maintenance and extremely tight shutoff made possible by clamped-in seat and self-aligning seat ring
- Decreased inventory carrying costs from a high degree of interchangeability with Mark One Series valves

SPECIFICATIONS

Sizes: DN 25 to 500; NPS 1 to 20
Press: PN 10 to 400; Class 150 to 2500
Temp: -196°C to 815°C
(-320°F to 1500°F)

Refer to literature VLENTB0008 at flowse ve.com/library.

LINEAR GLOBE/ANGLE

FlowTop GS

Valtek

The FlowTop GS control valve (types V746 and V748) is a fully integrated valve-actuator-instrumentation package for continuous process fl w loop control throughout the plant.

- High fl w rates with excellent rangeability, repeatability and fine control
- Standard clamped seat rings offer tight shut-off and simple removal; no galling problems related to threaded seat rings
- Direct-mounted digital positioners do not require pneumatic tubing (air-to-open)
- Wide application range owing to trim and material options
- Quick installation and simple setup by maintenance technicians without the need for instrument or process engineering skills
- Anti-noise and anti-cavitation trim designs available

SPECIFICATIONS

Sizes: NPS ½ to 6 (DN 15 to 150)
Press: Class 150 to 300 (PN 10 to 40)
Temp: -46°C to 425°C (-50°F to 797°F)

Refer to literature VLENTB8610 at flowse ve.com/library.

LINEAR GLOBE/ANGLE

FlowTop

Valtek

The FlowTop control valve (types V726, V738, V740) is a high-performance, general application valve coupled with the high-thrust FlowAct pneumatic diaphragm actuator and an engineered threaded seat ring, enabling tight shut-off.

- Superior control in liquid and gaseous services due to the integrated design of valve body, pneumatic actuator and digital positioner
- Digital positioners are direct-mounted without the need for pneumatic tubing (air-to-open)
- Application versatility and reduced spare inventories owing to modular design
- Low total cost of ownership derived from rugged design and inexpensive maintenance
- Anti-noise and anti-cavitation trim designs available

SPECIFICATIONS

Sizes: NPS ½ to 16 (DN 15 to 400)
Press: Class 150 to 300 (PN 10 to 40)
Temp: -46°C to 425°C (-50°F to 797°F)

Refer to SAENTBV738, SAENTBV740, SAENTBV726 at flowse ve.com/library.

Giants of Offshore Production

When building the world's largest FPSOs, capable of producing 500 000 barrels of oil per day, ExxonMobil chose Flowserve pump and valve control systems for its Kizomba A and B flo ting platforms. Drawing on decades of offshore experience, Flowserve provided 74 high-performance pump systems and 360 control valves. Most were custom engineered to accommodate the weight and space parameters of the project.

Kämmer

LINEAR GLOBE/ANGLE

HpFlow 011000 and 015000

Split-body control valves well-suited for high-pressure (HpFLow 015000) and extreme-pressure (HpFlow 011000) services in the chemical industry and injection applications. Available in numerous materials.

- Reliable high-pressure and extreme-pressure performance made possible by unique split-body design that allows seat to be clamped between body parts
- Application flexibility enabled by a wide range of vailable materials, plus high-pressure (IG standard) or ASME flange connections
- Longer service life and reduced noise provided by multistage, high-pressure letdown valve option

SPECIFICATIONS

Sizes: NW 16 to 24; NPS ½ to 1
Press: ND 325 to PN 4000;
Class 600 to 60 000 psi
Temp: -40°C to 250°C (-40°F to 482°F)

Refer to literature KMEEBR1120 at flowse ve.com/library.

Kämmer

LINEAR GLOBE/ANGLE

LinedFlow 132000

This plastic-lined valve for corrosive applications features an advanced PTFE bellows design, enabling a standard pressure rating of PN 16. Ideal for chemical and mining applications.

- Economical operation due to high-quality lining materials and increased fl w capacity
- Broad application versatility assured by a wide variety of liner materials, including PTA, FEP, PP, PVDF ETFE and antistatic PFA
- Improved plant and personnel safety from anti-blowout stem design, plus superior connection between body and liner
- Reliable and consistent performance as a result of excellent reproduceable trims, even for very small coefficient of flow (C_V) values
- Ease of maintenance and replacement provided by threaded plug and seat design

SPECIFICATIONS

Sizes: DN 15 to 150; NPS ½ to 6
Press: PN 16; Class 150
Temp: -20°C to 200°C (-4°F to 392°F)

Refer to literature KMENBR3221 at flowse ve.com/library.

Kämmer

LINEAR GLOBE/ANGLE

TotalFlow 035000

The TotalFlow 035000 is the most versatile Kämmer globe valve design. It is suitable for general service applications with special requirements and more. Custom modific tions and variations available on request.

- Robust, reliable performance with broad flexibility made possible via a variety of body and material configur tions (ANSI or DIN in globe, angle or three-way valve designs)
- Greater process control assured by excellent control accuracy, rangeability and repeatability
- Severe service application versatility provided by a wide variety of noise abatement and anti-cavitation trims
- Environmental compliance with German clean air act (TA-Luft)

SPECIFICATIONS

Sizes: DN 25 to 200; NPS 1 to 8
Press: PN 16 to 400; Class 150 to 2500
Temp: -196°C to 700°C
(-321°F to 1292°F)

Refer to literature KMENBR3520 at flowse ve.com/library.

Kämmer

LINEAR GLOBE/ANGLE

TotalFlow 335000

Designed for medium- and high-pressure applications where threaded seats are not acceptable — especially in the oil and gas, power and chemical industries — this valve complements the Valtek Mark One and Severe Service Multi-Z valve series.

- Low initial cost, installation ease and broad application flexibility made possible by modular parts and material configur tions
- Ease of maintenance in extreme temperatures, without special tools, enabled by retained seat design
- Greater process control via clamped seat with cage-guided plug head
- Longer, industry-leading service life from superior bellows seal designs capable of exceeding one million cycles (depending on pressure and temperature)
- Severe service application versatility provided by a wide variety of noise abatement and anti-cavitation trims

SPECIFICATIONS

Sizes: DN 25 to 200; NPS 1 to 8
Press: PN 63 to 250; Class 600 to 1500
Temp: -196°C to 700°C
(-40°F to 1292°F)

Refer to literature KMENBR3530 at flowse ve.com/library.

Kämmer

LINEAR GLOBE/ANGLE

ColdFlow 041000A

An updated version of the proven ColdFlow 041000 low-temperature control valve series, improving performance for air separation units and LNG plants. Optional soft seat inserts available for non-oxygen applications.

- Greater process control with lower heat transfer via improved plug and plug-guiding design
- Low-temperature performance made possible by extended bonnet that protects packing, gaskets and seals from cryogenic temperatures
- Extreme temperature capability down to -196°C (-321°F; 77°K) with optional gaskets and packings
- Ease of maintenance facilitated by top-entry design in valves up to DN 100 and NPS 4, plus modular configur tion

SPECIFICATIONS

Sizes: DN 25 to 200; NPS 1 to 8
Press: PN 16 to 100; Class 150 to 600
Temp: -196°C to 100°C
(-321°F to 212°F)

Refer to literature KMENTB4114 at flowse ve.com/library.

LINEAR CONTROL

Kämmer

LINEAR GLOBE/ANGLE

ColdFlow 341000

Cryogenic control valves for helium liquefic tion and other liquefied gases t temperatures as low as 269°C (-452°F; 4°K). Used in accelerator research institutes as well as fusion reactors.

- Extremely low-temperature and vacuum capabilities enabled by body and extension design
- Ease of maintenance via top-entry design with integrated seat, plus modular configur tion
- Superior sealing provided by standardized PCTFE plug tip
- Lower energy consumption due to minimized heat transfer and water vapor transmission
- Reliable performance assured by metal bellows seal

SPECIFICATIONS

Sizes: DN 4 to 200; NPS 0.16 to 8
Press: PN 16 to 63; Class 150 to 400
Temp: -269°C to 100°C
(-452°F to 212°F)

Refer to literature KMDETB4104 at flowse ve.com/library.

Kämmer

LINEAR GLOBE/ANGLE

SmallFlow 080000

This micro-fl w valve (NPS ¼) with a compact and lightweight actuator is perfect for laboratory, pilot plant, industrial R&D and chemical injection applications. The proven market standard for micro-fl w valves.

- High-precision controlling, even in restricted spaces, thanks to compact design
- Greater process control guaranteed by precise, reproduceable C_V trims down to $6.3x10^{-5}$, measured and calibrated individually
- Application flexibility made possible by a wide range of bo y materials, including steel and high alloys
- High- and low-temperature capabilities with various bonnet options
- High-pressure connections or weld ends available on request

SPECIFICATIONS

Sizes: NPS ¼
Press: PN 400; Class 2500
Temp: -40°C to 700°C (40°F to 1292°F)

Refer to literature KMENTB8020 at flowse ve.com/library.

Kämmer

LINEAR GLOBE/ANGLE

SmallFlow 385000

A ½-in or 1-in version of the proven Kämmer low- and micro-fl w valve technologies, suitable for most low-fl w applications.

- Greater process control guaranteed by precise, reproduceable C_V trims down to $6.3x10^{-5}$ and up to 4.7, measured and calibrated individually
- Longer service life from hydroformed bellows with up to three walls
- Suitable for liquid nitrogen services down to -196°C (-321°F) with cryogenic extension option
- Compliance with fugitive emissions requirements up to PN 250 provided by bellows seal option

SPECIFICATIONS

Sizes: DN 15 to 25; NPS ½ to 1
Press: PN 16 to 400; Class 150 to 2500
Temp: -196°C to 700°C
(-321°F to 1292°F)

Refer to literature KMENBR5000 at flowse ve.com/library.

Kämmer

LINEAR GLOBE/ANGLE

CleanFlow 191000

Automatic sanitary control valves for batch sequencing and production-scale bioprocessing in food and beverage, biotech, pharmacy and other applications requiring sterile valves.

- Compliance with cleaning in place (CIP), sanitizing in place (SIP) and other standards assured by optimized body design with no pits, cracks or pockets
- Hygienic and aseptic performance enabled by modular design
- Superior process control and longer service life in hygienic, food and beverage applications made possible by PTFE stem guide and self-lubricating bearings
- Pharmaceutical, biotechnology and ultra-clean capabilities, with or without test ports for leak detection, available with aseptic configur tions

SPECIFICATIONS

Sizes: DN 15 to 100; NPS ½ to 4
Press: PN 16 to 25; Class 150
Temp: -40°C to 150°C
(-40°F to 302°F)

Refer to literature KMEEBR9123
at flowse ve.com/library.

Kämmer

LINEAR TANK BOTTOM

DrainFlow 051000

A highly flexible tank flush valve design pable of being adapted to any vessel, with numerous trim and customization options. Also available as a control valve.

- Broad application versatility made possible by a diverse range of configur tions and special designs, including bellows seal option, normalizing fins pocket-free body, steam jacketing or retracting plug
- Ease of maintenance from compact, lightweight design that allows in-line access under the tank
- High-temperature capability above 200°C (392°F) with flexible gr phite body gasket and packing option

SPECIFICATIONS

Sizes: DN 15 to 200; NPS ½ to 8
Press: PN 16 to 40; Class 150 to 300
Temp: -40°C to 200°C (-40°F to 392°F)

Refer to literature KMEEBR5120
at flowse ve.com/library.

Mark 100
with Stealth trim

SEVERE SERVICE CONTROL

Longer service life and lower maintenance costs are made possible through precision-engineered valve and trim options — even in corrosive, erosive and high-velocity applications. A range of advanced anti-erosion, noise reduction and anti-cavitation selections neutralizes the detrimental wear and tear that too often reduce valve life or lead to failures. Maximum flexibility is achieved through severe service products that incorporate a range of material, pressure and temperature options.

Severe Service Control Valves – Quick Reference

Product	Sub-Type	Sizes	Pressures	Temperatures
Survivor™	Anti-Erosion	DN 25 to 600 NPS 1 to 24	PN 20 to 420 Class 150 to 2500	-10°C to 400°C (14°F to 752°F)
Multi-Z	Cavitation Elimination	DN 25 to 200 NPS 1 to 8	PN 63 to 400 Class 300 to 2500	-10°C to 400°C (14°F to 752°F)

Severe Service Control Trim – Quick Reference*

Product	Sub-Type	Base Valve	Sizes	K_v (C_v) Range
MegaStream™	Noise Reduction	Valtek Mark Series	DN 25 to 900 NPS 1 to 36	4 to 8737 (5 to 10 100)
Stealth™	Noise Reduction	Valtek Mark Series	DN 80 to 900 NPS 3 to 36	to 3547 (4100)
TMCBV N2 and D1	Noise Reduction	Valbart TMCBV	DN 80 to 1400 NPS 3 to 56	117 to 77 850 (135 to 90 000)
Z-Trim™	Noise Reduction	Setball, Duball DL and Trunnball DL	DN 40 to 500 NPS 1½ to 20	4 to 65 000 (5 to 75 000)
CavControl™	Cavitation Control	Valtek Mark Series	DN 25 to 600 NPS 1 to 24	1.3 to 865 (1.5 to 1000)

** Additional products shown on next page*

Severe Service Control Trim – Quick Reference, cont'd.

Product	Sub-Type	Sizes	Pressures	Temperatures
TMCBV C2 and C1	Cavitation Control	Valbart TMCBV	DN 100 to 1400 NPS 4 to 56	4 to 65 000 (5 to 75 000)
ChannelStream™	Cavitation Elimination	Valtek Mark Series	DN 40 to 900 NPS 1½ to 36	5 to 623 (6 to 720)
DiamondBack™	Cavitation Elimination	Valtek Mark Series	DN 40 to 400 NPS 1½ to 16	2 to 1773 (3 to 2050)
SideWinder™	Cavitation Elimination	Valtek Mark Series	DN 15 to 100 NPS ½ to 4	0.078 to 8.425 (0.09 to 9.74)

ANTI-EROSION

Survivor

Valtek

Reliable solutions designed for use in the harshest conditions — erosion, corrosion, slurry, high-velocity, and even flashing pplications.

- High-fl w capacity ensured by sweep angle design that minimizes particle erosion damage on the body
- Reduced maintenance and longer service life enabled by oversized gallery that decreases fluid velocit , minimizing erosion damage
- Reliable, long-lasting performance made possible with optional ceramic trim materials, providing the highest level of erosion resistance, even in flashing sonic velocity fl w with abrasive solids
- Application-specific efficie y assured by custom-engineering

SPECIFICATIONS

Sizes: DN 25 to 600; NPS 1 to 24
Press: PN 20 to 420; Class 150 to 2500
Temp: -10°C to 400°C (14°F to 752°F)

Refer to literature VLENTB0036 at flowse ve.com/library.

CAVITATION ELIMINATION

Multi-Z

Valtek

The Multi-Z valve delivers durable multistage cavitation elimination and precision control, even in applications where entrained solids are a problem.

- Particulate tolerant design accommodates very high-pressure drops, eliminating cavitation through multistage pressure drop
- High rangeability and tight control with precision-machined plugs
- Tight leakage protection with a shielded seat protected from high fluid velocities while closing and opening

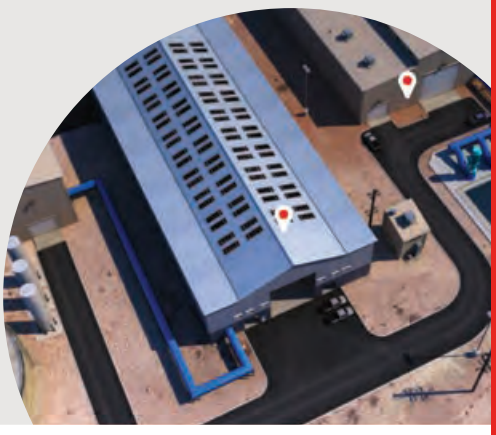
SPECIFICATIONS

Sizes: DN 25 to 200; NPS 1 to 8
Press: PN 63 to 400; Class 300 to 2500
Temp: -10°C to 400°C (14°F to 752°F)

Refer to literature VLENTB1631 at flowse ve.com/library.

Explore Flowserve VirtualPlant

Quickly find the pumps valves, seals and actuation best suited for your plant with Flowserve VirtualPlant. 3D models of various plant types within the oil and gas, chemical, power, water and general industries make it easy for you to see which Flowserve products are used in key units and applications. Quick access to product literature, videos and user instructions helps you to select the ideal products for your specific application requirements. Begin exploring now at **https://virtualplant.flowse ve.com**



NOISE REDUCTION

MegaStream

Valtek

MegaStream reduces control valve noise and vibration in a wide range of gas applications through staging, frequency shifting, attenuation and velocity control.

- Improved personnel safety due to noise attenuation up to 30 dBa
- Longer valve and system life enabled by reducing downstream noise and vibration
- Cost-effective, reliable and long-lasting performance derived from heavy-duty, nested cylinder design
- Low installation costs enabled by interchangeability with standard Mark Series seat retainers

SPECIFICATIONS

Base Valve: Valtek Mark Series
Sizes: DN 25 to 900; NPS 1 to 36
K_v (C_v) Range: 4 to 8737 (5 to 10 100)
Flow Direction: Under the plug
Pressure Stages: 1 to 7

Refer to literature FCENBR0067 at flowserve.com/library.

NOISE REDUCTION

Stealth

Valtek

Stealth combines new advances in noise control with proven technologies to create the most effective device capable of eliminating noise in the most demanding services.

- Improved personnel safety due to significant noise reduction — by as much as 40 dBa — resulting from the combined effect of six noise-, velocity- and pressure-control mechanisms
- Longer valve and system life enabled by reducing downstream noise and vibration
- Increased valve capacity due to optimized flow path, which reduces exit turbulence
- Cost-competitive solution made possible by stacked disc construction

SPECIFICATIONS

Base Valve: Valtek Mark Series
Sizes: DN 80 to 900; NPS 3 to 36
K_v (C_v) Range: to 3547 (4100)
Flow Direction: Under the plug
Pressure Stages: 6 to 20

Refer to literature FCENBR0067 at flowserve.com/library.

NOISE REDUCTION

TMCBV N2 and D1

Valbart

These economical trim options offer cavitation- and noise-control options based on proven Flowserve MegaStream technology.

- Broad application flexibility enabled by TMCBV system, offering a wide range of exclusive trims for gas applications
- High rangeability allows one valve to handle a range of operating parameters
- Lower total cost of ownership made possible by smaller, lighter valves requiring less expensive actuators and pipe supports
- Greater personnel safety from noise attenuation up to 20 dBA

SPECIFICATIONS

Base Valve: Valbart TMCBV
Sizes: DN 100 to 1400; NPS 4 to 56
K_v (C_v) Range: 117 to 77 850 (135 to 90 000)
Pressure Stages: 1 to 4

Refer to VLENBR0067 or VBENTB0068 at flowserve.com/library.

NOISE REDUCTION

Z-Trim

NAF

Z-Trim combines the benefits of an advanced control valve with the simplicity of a ball valve Most effective with low to medium pressure drops, the Z-Trim excels at eliminating noise in high fl w services.

- Innovative ball trim design provides effective noise attenuation where pressure drops are high, and still delivers the high capacity expected from a ball valve
- Improved personnel safety due to noise attenuation up to 17 dBa
- Increased reliability and reduced maintenance in applications with entrained media owing to self-cleaning design
- Installation and retrofit costs are kept l w, as only one part must be changed

SPECIFICATIONS

Base Valve: Setball, Duball DL and Trunnball DL
Sizes: DN 40 to 500; NPS 1.5 to 20
C_v Range: 58 to 25 537
Flow Direction: Bidirectional
Pressure Stages: 1 to 5

Refer to literature FCENBR0067 at flowse ve.com/library.

CAVITATION CONTROL

CavControl

Valtek

A cost-effective trim that minimizes cavitation damage to valve components with a special seat retainer that controls the location and concentrates vapor bubble implosion away from metal parts.

- Lower maintenance costs plus improved reliability, performance and service life due to innovative design that controls damage by isolating cavitation away from metal components
- Low cost of ownership and simplified maintenance made possible by high degree of parts interchangeability with other valve models
- Broad application versatility enabled by characterization option

SPECIFICATIONS

Base Valve: Valtek Mark Series
Sizes: DN 25 to 600; NPS 1 to 24
K_v (C_v) Range: 1.3 to 865 (1.5 to 1000)
Flow Direction: Over the plug
Pressure Stages: 1

Refer to literature FCENBR0068 at flowse ve.com/library.

CAVITATION CONTROL

TMCBV C2 and C1

Valtek

These cost-saving trim options provide effective cavitation control based on proven Flowserve CavControl technology.

- Extended valve life and reduced wear due to engineered design that directs cavitation away from critical surfaces
- Broad application flexibility enabled by TMCBV system that offers a wide range of exclusive trims for liquid applications
- Lower total cost of ownership made possible by smaller, lighter valves requiring less expensive actuators and pipe supports
- Improved personnel safety resulting from a reduction in hydrodynamic noise by as much as 15 dBA

SPECIFICATIONS

Base Valve: Valbart TMCBV
Sizes: DN 100 to 1400; NPS 4 to 56
K_V (C_V) Range: 4 to 65 000 (5 to 75 000)
Pressure Stages: 1

Refer to VLENBR0067 or VBENTB0068 at flowse ve.com/library.

SEVERE SERVICE CONTROL

Valtek

CAVITATION ELIMINATION

ChannelStream

ChannelStream trim prevents cavitation from forming and minimizes hydrodynamic noise in the most severe liquid applications.

- Reduced maintenance and extended service life assured by cavitation-eliminating design, even in the most difficult pplications
- Increased efficien y from staged pressure drops
- Low cost of ownership made possible by high degree of parts interchangeability with conventional Mark One valves
- Broad application flexibility vailable with characterization option

SPECIFICATIONS

Base Valve: Valtek Mark Series
Sizes: DN 40 to 900; NPS 1½ to 36
K_v (C_v) Range: 5 to 623 (6 to 720)
Flow Direction: Over the plug
Pressure Stages: 2 to 6

Refer to literature FCENBR0068 at flowse ve.com/library.

Valtek

CAVITATION ELIMINATION

DiamondBack

The most technologically advanced anti-cavitation design in the industry, the Valtek DiamondBack uses staged pressure drops to eliminate cavitation, even in the most demanding services.

- Reduced maintenance and long service life assured by cavitation-eliminating design, which minimizes damage, even in the most difficult pplications
- Low cost of ownership and extended service life from erosion-minimizing design
- Even greater service life with optional tungsten carbide trim that also minimizes damage from erosion
- Quick and easy maintenance enabled by easy-to-clean stacked disc design

SPECIFICATIONS

Base Valve: Valtek Mark Series
Sizes: DN 40 to 400; NPS 1½ to 16
K_v (C_v) Range: 2 to 1773 (3 to 2050)
Flow Direction: Over the plug
Pressure Stages: 3 to 6

Refer to literature VLENBR0005 at flowse ve.com/library.

Valtek

CAVITATION ELIMINATION

SideWinder

SideWinder is a unique solution that delivers durable multi-stage cavitation elimination and precision control in high pressure drop, small fl w applications.

- Reduced maintenance and extended service life assured by cavitation-eliminating design, even in the most difficult pplications
- Capable of eliminating cavitation in high pressure drop, small fl w applications
- Capable of tolerating small particulate
- Axial fl w design with low clearance fl w for precise control at low openings

SPECIFICATIONS

Base Valve: Valtek Mark Series
Sizes: DN 15 to 100; NPS ½ to 4
K_v (C_v) Range: 0.078 to 8.425 (0.09 to 9.74)
Flow Direction: Over the plug
Pressure Stages: 5 to 18

Refer to literature FCENBR0068 at fl wserve.com/library.

Equiwedge
MSIV/MFIV

GATE

Reliable, tight shutoff and low-pressure drop operation characterize the Flowserve range of gate valves. Flexible wedge, split wedge, slab gate and double-disk configurations cover a range of requirements to meet any user need, from general service to severe conditions with gross thermal transients or dual-phase fluids. Plant personnel are kept safe through the application of fast-acting valves manufactured to ASME B16.34, ASME Section III and RCC-M design codes.

Gate – Quick Reference

Product	Sub-Type	Sizes	Pressures	Temperatures
Equiwedge™ MSIV/MFIV	Flexible Split Wedge	DN 100 to 1050 NPS 4 to 42	PN 110 to 420 Class 600 to 2500	-29°C to 566°C (-20°F to 1050°F)
Equiwedge	Flexible Split Wedge	DN 65 to 900 NPS 2½ to 36	PN 110 to 610 Class 600 to 3600	-29°C to 650°C (-20°F to 1200°F)
Flex Wedge	Flexible Wedge	DN 65 to 600 NPS 2½ to 24	PN 20 to 260 Class 150 to 1500	-29°C to 566°C (-20°F to 1050°F)
Double Disk	Parallel Slide	DN 15 to 600 NPS ½ to 24	PN 20 to 325 Class 150 to 1888	-29°C to 566°C (-20°F to 1050°F)
Split Wedge	Split Wedge	DN 15 to 50 NPS ½ to 2	PN 20 to 140 Class 150 to 800	-29°C to 566°C (-20°F to 1050°F)
Slab Gate	Slab	DN 50 to 1600 NPS 2 to 64	PN 20 to 420 Class 150 to 2500	-100°C to 400°C (-148°F to 750°F)

GATE

Edward®

FLEXIBLE SPLIT WEDGE

Equiwedge MSIV/MFIV

Compliant with ASME Section III and RCC-M design codes, this valve is the industry standard for fast-acting, reliable isolation of main steam or feedwater lines.

- Plant and personnel safety assured by verifiable gas/hydraulic actu tor design, which can close the valve within 3–5 seconds of receipt of signal
- Maximized actuator readiness made possible by self-contained energy storage and critical component redundancies
- Extended service life enabled by simplified modular design with no external hose or piping connections and a 12-year maintenance cycle
- Environmental and functional qualific tions per IEEE and ASME QME-1 requirements

SPECIFICATIONS

Sizes: DN 100 to 1050; NPS 4 to 42
Press: PN 110 to 420;
Class 600 to 2500
Temp: -29°C to 566°C
(-20°F to 1050°F)

Refer to literature EVENCT0004 at flowse ve.com/library.

Edward

FLEXIBLE SPLIT WEDGE

Equiwedge

A large-bore gate valve with body-guided split wedges, offering superior leak tightness and performance.

- Maximized MTBF and lower total cost of ownership derived from optimized component flexibility th t reduces component stress from thermal binding
- Minimized valve leakage enabled by disk guidance and optimized gate design, ensuring tight seating
- Longer component life with cast and forged offerings incorporating the latest in hard-facing welding processes

SPECIFICATIONS

Sizes: DN 65 to 900; NPS 2½ to 36
Press: PN 110 to 610;
Class 600 to 3600
Temp: -29°C to 650°C
(-20°F to 1200°F)

Refer to literature EVENBR1005 at flowse ve.com/library.

Anchor/Darling®

FLEXIBLE WEDGE

Flex Wedge

Flexible wedge gate valve with a single-piece optimized gate designed to minimize seat leakage.

- Broad versatility of nuclear applications enabled by a wide range of sizes and pressure classes
- Additional versatility ensured by compatibility with most actuation methods, including handwheel/bevel gear, electric, pneumatic and hydraulic
- Reliable operation under extreme plant scenarios ensured by seismic qualific tions

SPECIFICATIONS

Sizes: DN 65 to 600; NPS 2½ to 24
Press: PN 20 to 260; Class 150 to 1500
Temp: -29°C to 566°C
(-20°F to 1050°F)

Refer to literature EVENCT0004 at flowse ve.com/library.

PARALLEL SLIDE

Double Disk

Providing tight shutoff under the most severe conditions, this exclusive disk and wedge design resists effects of extreme temperature, gross thermal transients, high and low differential pressures, and dual-phase fluids

Anchor/Darling

- Improved personnel safety made possible by bonnet design, which allows easy access to valve internals while minimizing radiation exposure
- Reliable closing, smooth operation and long service life enabled by design that minimizes accumulation of sediment and sludge
- Lower maintenance time and costs thanks to simple part design, parts interchangeability and in-line maintenance capability

SPECIFICATIONS

Sizes: DN 15 to 600; NPS ½ to 24
Press: PN 20 to 325; Class 150 to 1888
Temp: -29°C to 566°C
(-20°F to 1050°F)

Refer to literature EVENCT0004 at flowse ve.com/library.

SPLIT WEDGE

Split Wedge

Compact gate valve design with body-guided, two-piece gates provides reliable operation and sealing.

Anchor/Darling

- Reliable sealing assured by brazed-in seat
- Economical performance from rugged design that smoothes fl w transitions to minimize fl w turbulence
- Longer service life from stronger, oversized stem and graphite packing, providing stronger disc-to-stem connection and less wear
- Reduces cost and maintenance with ADVanseal pressure sealing system, which eliminates leakage

SPECIFICATIONS

Sizes: DN 15 to 50; NPS ½ to 2
Press: PN 20 to 140; Class 150 to 800
Temp: -29°C to 566°C
(-20°F to 1050°F)

Refer to literature EVENCT0004 at flowse ve.com/library.

SLAB

Slab Gate

Cost-competitive, high-performance general service control valve designed for applications demanding higher rangeability, precise control and higher fl w capacity.

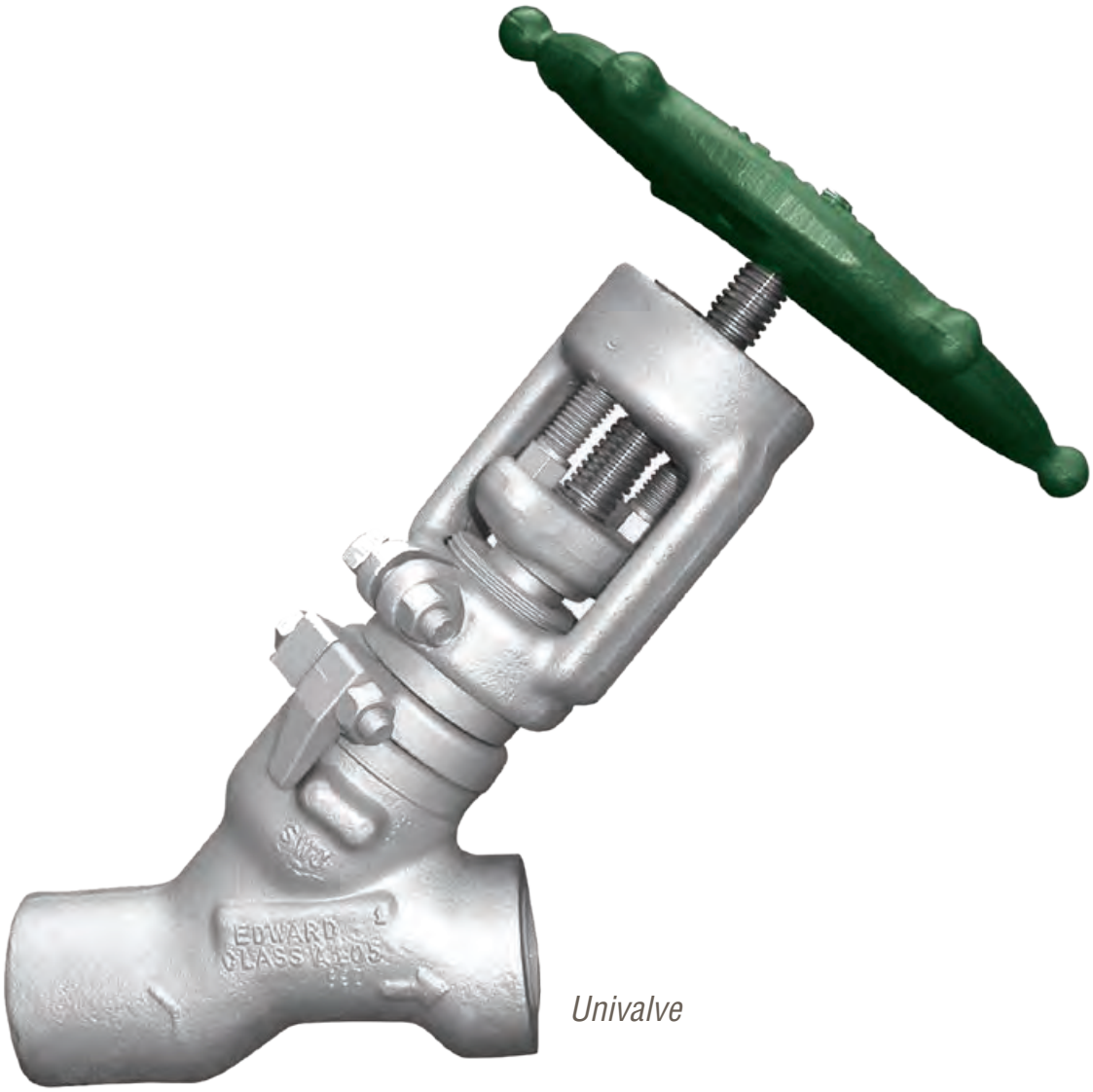
Valbart

- Economical performance with the highest rated C_v (up to 70% more than competitors), which sometimes allows for smaller sizes to be used
- Longer service life and more precise control enabled by the robust polygon shaft/plug connection
- Low maintenance costs due to double-offset eccentric plug design that reduces seat wear while providing reliable Class IV (metal seat) and VI (soft seat) shutoff
- Improved safety with superior shaft blow-out protection from the ASME B16.34 shaft design

SPECIFICATIONS

Sizes: DN 25 to 300; NPS 1 to 12
Press: PN 10 to 63; Class 150 to 600
Temp: -100°C to 400°C
(-148°F to 750°F)

Refer to literature VLENBR0064 at flowse ve.com/library.



Univalve

GLOBE

Maintaining a safe plant environment and extending service life — that's what's engineered into every Flowserve globe valve. Whether it's fail-safe response in nuclear plants or reliable performance in high-temperature/pressure boiler plant services, every Flowserve globe valve incorporates special features to maximize performance. Optimized flow passages and smooth transitions reduce pressure drop and destructive turbulence.

Globe – Quick Reference*

Product	Sub-Type	Sizes	Pressures	Temperatures
Flite-Flow® Main Steam Isolation	Y-Pattern	DN 600 to 850 NPS 24 to 34	PN 110 to 260 Class 600 to 900	-29°C to 565°C (-20°F to 1050°F)
Flite-Flow	Y-Pattern	DN 65 to 800 NPS 2½ to 32	PN 50 to 760 Class 300 to 4500	-29°C to 650°C (-20°F to 1200°F)
Univalve®	Y-Pattern	DN 15 to 100 NPS ½ to 4	PN 290, 460 and 760 Class 1690, 2680 and 4500	-29°C to 816°C (-20°F to 1500°F)
Edward Bolted Bonnet	Y-Pattern	DN 8 to 50 NPS ¼ to 2	PN 130 and 260 Class 800 and 1500	-29°C to 565°C (-20°F to 1050°F)
Edward Blow-off	Y-Pattern	DN 25 to 65 NPS 1 to 2½	PN 50 to 420 Class 300 to 2500	-29°C to 565°C (-20°F to 1050°F)
1878 Y-Pattern	Y-Pattern	DN 15 to 50 NPS ½ to 2	PN 20 to 325 Class 150 to 1878	-29°C to 371°C (-20°F to 700°F)
Anchor/Darling Y-Pattern	Y-Pattern	DN 15 to 600 NPS ½ to 24	PN 20 to 260 Class 150 to 1500	-29°C to 565°C (-20°F to 1050°F)

** Additional products shown on next page*

Globe – Quick Reference, cont'd.

Product	Sub-Type	Sizes	Pressures	Temperatures
Edward Bolted Bonnet	T-Pattern	DN 15 to 50 NPS ½ to 2	PN 110 and 260 Class 600 and 1500	-29°C to 538°C (-20°F to 1000°F)
1878 T-Pattern	T-Pattern	DN 15 to 50 NPS ½ to 2	PN 20 to 325 Class 150 to 1878	-29°C to 371°C (-20°F to 700°F)
Anchor/Darling T-Pattern	T-Pattern	DN 65 to 60 NPI 2½ to 24	25 to 260 Class 150 to 1500	-29°C to 565°C (-20°F to 1050°F)

Y-PATTERN

Flite-Flow Main Steam Isolation

Edward

High-performance, service-proven technology designed for use when Y-pattern globe valves are chosen for nuclear applications.

- Standards compliance achieved via construction per ASME Section III design code
- Plant and personnel safety assured by single-stored energy system, redundant control systems and verifiable 2–10-second fail-safe response, regardless of main steam system conditions or loss of electrical power
- Increased reliability with functional verific tion prior to plant startup or during outages
- High efficien y due to optimized fl w path plus integrated actuator
- Environmental and functional qualific tions per IEEE requirements

SPECIFICATIONS

Sizes: DN 600 to 850; NPS 24 to 34
Press: PN 110 to 260; Class 600 to 900
Temp: -29°C to 565°C
(-20°F to 1050°F)

Refer to literature EVENCT0004 at flowse ve.com/library.

Y-PATTERN

Flite-Flow

Edward

Reliable, stop and stop-check valve designed to provide maximum fl w capacity and minimum leakage in high-pressure, high-temperature applications.

- Increased uptime via engineered design with optimized fl w passages to minimize fl w direction changes and reduce pressure drop
- High performance achieved by rigid body design to minimize body distortions and reduce leakage
- Minimized leakage through precise disc alignment between disc and seat
- Longer service life from detached design that minimizes body stress for increased body and hard-facing lifetime

SPECIFICATIONS

Sizes: DN 65 to 800; NPS 2½ to 32
Press: PN 50 to 760; Class 300 to 4500
Temp: -29°C to 650°C
(-20°F to 1200°F)

Refer to literature EVENCT0002 at flowse ve.com/library.

Y-PATTERN

Univalve

Edward

High-performance globe valve designed for maximum fl w capacity and minimum leakage in high-pressure, high-temperature applications.

- Increased uptime via engineered design with optimized fl w passages to minimize fl w direction changes and reduce pressure drop
- High performance achieved by rigid body design to minimize distortions and reduce leakage
- Minimized leakage between seat and disc through machined construction of body bore and hard-faced seat in a single operation to ensure tight seating
- Longer service life from design that eliminates side thrust issues and prevents misalignment, galling and stem bending

SPECIFICATIONS

Sizes: DN 15 to 100; NPS ½ to 4
Press: PN 290, 460 and 760;
Class 1690, 2680 and 4500
Temp: -29°C to 816°C
(-20°F to 1500°F)

Refer to literature EVENCT0001 at flowse ve.com/library.

GLOBE

Edward

Y-PATTERN

Edward Bolted Bonnet

Durable, high-performance small bore globe valve with a bolted-bonnet design for improved maintenance.

- Increased uptime from construction material hardness with a low coefficient of friction that results in reduced torque, minimal stem wear and elimination of galling
- Lower maintenance costs due to bolted bonnet, four-bolt design
- Longer service life from integral hardened seat and secondary stem which provide positive shutoff, extended seat life and leak protection
- Improved plant and personnel safety through rugged, knobbed hand wheel that provides sure grip, even when wearing gloves

SPECIFICATIONS

Sizes: DN 8 to 50; NPS ¼ to 2
Press: PN 130 and 260
Class 800 and 1500
Temp: -29°C to 565°C
(-20°F to 1050°F)

Refer to literature EVENCT0001 at flowse ve.com/library.

Edward

Y-PATTERN

Edward Blow-off

High-performance, blow-off valve designed for applications requiring intermittent operation to remove accumulated sediment from equipment and piping, or rapidly lower the boiler water level.

- Standards compliance assured by design that meets ASME boiler code criteria in a wide variety of applications
- Increased reliability via forged steel construction that withstands the rigors of intermittent use
- High-pressure, high-temperature performance assured through design, construction material graduations through increasing class sizes

SPECIFICATIONS

Sizes: DN 25 to 65; NPS 1 to 2½
Press: PN 50 to 420; Class 300 to 2500
Temp: -29°C to 565°C
(-20°F to 1050°F)

Refer to literature EVENCT0001 at flowse ve.com/library.

Anchor/Darling

Y-PATTERN

1878 Y-Pattern

Versatile, reliable Y-pattern globe valve designed with ideal size and weight parameters to deliver maximum utility when new or replacement Class 150 to 1878 valves are required.

- Lower operating costs and high inventory flexibility due to vers tility of one valve designed to operate in three pressure classes
- Standards compliance assured by design that meets ASME Section III, Class 1, 2 and 3 design codes
- Increased durability via a one-piece, low-profile investment cast body/yoke assembly that results in smooth fl w passages
- Reduced maintenance with T-head stem design that enables easy changing of disc
- Functional qualific tions per pressure Class 1878 (intermediate) requirements

SPECIFICATIONS

Sizes: DN 15 to 50; NPS ½ to 2
Press: PN 20 to 325; Class 150 to 1878
Temp: -29°C to 371°C (-20°F to 700°F)

Refer to literature ADENBR0002 at flowse ve.com/library.

Y-PATTERN

Anchor/Darling Y-Pattern

Anchor/Darling

High-performance, investment cast globe valve designed to minimize destructive turbulence in a variety of demanding throttling applications.

- Increased uptime via large radius curves in body design to ensure smooth transitions and eliminate abrupt changes in fluid directio
- Lower maintenance costs enabled by no-weld design and rapid change kit
- Broad application versatility provided by Y, angle and Y-angle pattern valve options and wide range of pressure configur tions
- Functional qualific tions per pressure Class 1878 (intermediate) requirements

SPECIFICATIONS

Sizes: DN 15 to 600; NPS ½ to 24
Press PN 20 to 260; Class 150 to 1500
Temp: -29°C to 565°C
(-20°F to 1050°F)

Refer to literature EVENCT0004 at flowse ve.com/library.

When and Where You Need Us

Flowserve customers never have to look far for support. Our network of manufacturing facilities, design centers of excellence, strategically located Quick Response Centers and on-site customer resources ensures you'll receive timely responses to your critical repair needs, engineering challenges, routine maintenance support and product upgrade requirements. In addition, our commitment to localization drives employment and training, creating a skilled workforce near our customers' locations.

T-PATTERN

Edward Bolted Bonnet

Edward

High-performance, small-bore stop valve designed with four-bolt, bolted-bonnet design for reliability and reduced maintenance; angle pattern models are also available.

- Increased uptime from construction material hardness with a low coefficient o friction that results in reduced torque, minimal stem wear and elimination of galling
- Longer service life from integral hardened seat and secondary stem, which provide positive shutoff, extended seat life and leak protection
- Improved plant and personnel safety through rugged, knobbed hand-wheel that provides sure grip, even when wearing gloves
- High-fl w performance enabled by optimized fl w passages that minimize fl w direction changes and reduce pressure drops

SPECIFICATIONS

Sizes: DN 15 to 50; NPS ½ to 2
Press: PN 110 and 260;
Class 600 and 1500
Temp: -29°C to 538°C
(-20°F to 1000°F)

Refer to literature EVENCT0001 at flowse ve.com/library.

GLOBE

Anchor/Darling

T-PATTERN

1878 T-Pattern

Rugged, one-piece, low-profile globe valve constructed with precision cast bo y/yoke assembly using the latest investment casting techniques.

- Reduced maintenance with lower, non-rotating stem with T-head design that facilitates disc removal and replacement
- Standards compliance assured by design that meets ASME Section III, Class 1, 2 and 3 design codes
- Increased durability via a one-piece, low-profile investment-cast body/yoke assembly that results in smooth fl w passages
- Functional qualific tions per pressure Class 1878 (intermediate) requirements
- Application versatility provided by three disc styles: quick-open plug, parabolic and cage type

SPECIFICATIONS

Sizes: DN 15 to 50; NPS ½ to 2
Press: PN 20 to 325; Class 150 to 1878
Temp: -29°C to 371°C (-20°F to 700°F)

Refer to literature EVENCT0004 at flowse ve.com/library.

Anchor/Darling

T-PATTERN

Anchor/Darling T-Pattern

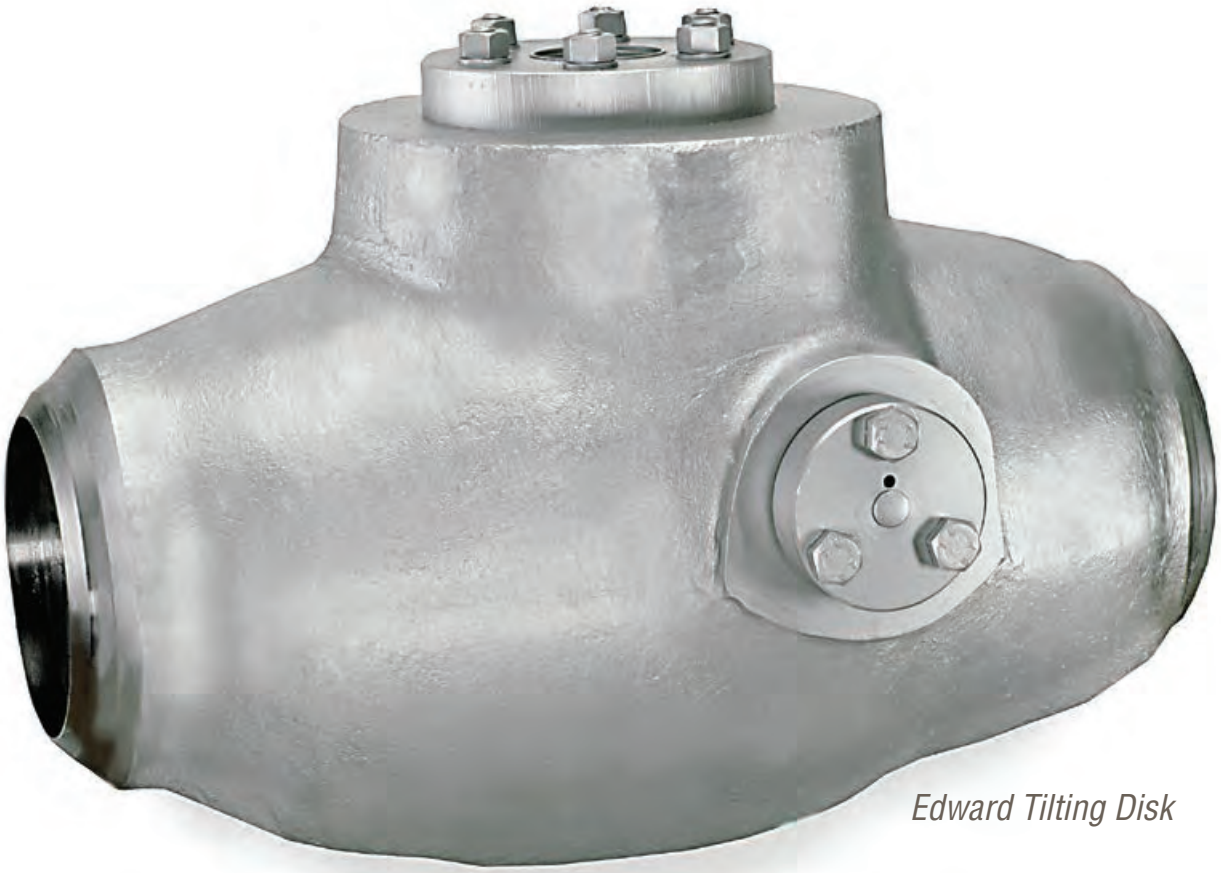
High-performance, cast-stop valve designed to minimize destructive turbulence in a variety of demanding throttling applications.

- Increased uptime via large radius curves in body design to ensure smooth transitions and eliminate abrupt changes in fluid directio
- Broad application versatility in high-temperature, high-pressure applications enabled by wide range of pressure and size options
- Longer service life from body and plug designed to minimize cavitation
- Available with functional qualific tions per pressure Classes 150 through 1500 for nuclear service

SPECIFICATIONS

Sizes: DN 65 to 600; NPS 2½ to 24
Press: PN 20 to 260; Class 150 to 1500
Temp: -29°C to 565°C
(-20°F to 1050°F)

Refer to literature EVENCT0004 at flowse ve.com/library.



Edward Tilting Disk

CHECK

Leak-free, tight sealing, protection against reverse flow and minimal flow direction changes are at the core of Flowserve check valve designs. A broad range of configurations that includes piston, tilting disc, spring-loaded disc and dual-plate models meets the critical, high-temperature/pressure demands of the world's major industries. Customers can carefully match application requirements through myriad valve body, seat and disc options.

Check – Quick Reference*

Product	Sub-Type	Sizes	Pressures	Temperatures
Flite-Flow	Piston (Lift)	DN 65 to 800 NPS 2½ to 32	PN 50 to 760 Class 300 to 4500	-29°C to 650°C (-20°F to 1200°F)
Univalve	Piston (Lift)	DN 15 to 100 NPS ½ to 4	PN 290, 460 and 760 Class 1690, 2680 and 4500	-29°C to 816°C (-20°F to 1500°F)
Edward Bolted Bonnet	Piston (Lift)	DN 15 to 50 NPS ½ to 2	PN 110 to 260 Class 600 and 1500	-29°C to 538°C (-20°F to 1000°F)
1878 Piston Check	Piston (Lift)	DN 15 to 50 NPS ½ to 2	PN 110, 150, 260 and 325 Class 600, 900, 1500 and 1878	38°C to 371°C (100°F to 700°F)
Anchor/Darling Piston (Lift) Check	Piston (Lift)	DN 65 to 600 NPI 2½ to 24	PN 20 to 260 Class 150 to 1500	-29°C to 565°C (-20°F to 1050°F)
1878 Swing Check	Swing	DN 15 to 50 NPS ½ to 2	PN 110, 150, 260 and 325 Class 600, 900, 1500 and 1878	-29°C to 371°C (-20°F to 700°F)
Anchor/Darling Swing Check	Swing	DN 65 to 600 NPI 2½ to 24	PN 20 to 260 Class 150 to 1500	-29°C to 565°C (-20°F to 1050°F)

** Additional products shown on next page*

Check – Quick Reference, cont'd.

Product	Sub-Type	Sizes	Pressures	Temperatures
Edward Tilting Disk	Tilting Disk	DN 65 to 600 NPS 2½ to 24	PN 110 to 760 Class 600 to 4500	-29°C to 650°C (-20°F to 1200°F)
Anchor/Darling Tilting Disk	Tilting Disk	DN 65 to 600 NPS 2½ to 24	PN 20 to 260 Class 150 to 1500	-29°C to 565°C (-20°F to 1050°F)
NAF Check	Tilting Disk	DN 40 to 1000 NPS 1½ to 24	PN 20 to 40 Class 150 to 300	-30°C to 350°C (-22°F to 662°F)

PISTON (LIFT)

Flite-Flow

Rugged, large bore, cast body, piston check valve designed to operate in critical high-pressure and high-temperature environments.

Edward

- Increased uptime and longer service life due to integral Stellite seating surfaces
- Improved reliability and service integrity via body-guided disc design to ensure tight sealing and check valve protection in the event of fluid back flow
- Superior fl w performance enabled by streamlined fl w shapes that reduce pressure drops and support full lift
- Broad application versatility in high-temperature, high-pressure applications enabled by wide range of pressure and size options

SPECIFICATIONS

Sizes: DN 65 to 800; NPS 2½ to 32
Press: PN 50 to 760; Class 300 to 4500
Temp: -29°C to 650°C
(-20°F to 1200°F)

PISTON (LIFT)

Univalve

Reliable piston check valve designed for high-temperature and high-pressure uses in a variety of environments.

Edward

- Increased uptime from the use of anti-thrust rings in the body-guided disc, which eliminates misalignment and galling
- Greater process control due to integral hard-surfaced seat, which allows positive shutoff and seat life
- Enhanced service integrity through optimum fl w shape that minimizes fl w direction changes and pressure drops
- Lower operating costs enabled by a die-formed, flexible gr phite gasket seated to a prescribed bonnet torque that provides a reliable seal

SPECIFICATIONS

Sizes: DN 15 to 100; NPS ½ to 4
Press: PN 290, 460 and 760;
Class 1690, 2680 and 4500
Temp: -29°C to 816°C
(-20°F to 1500°F)

Refer to literature EVENCT0004 at flowse ve.com/library.

PISTON (LIFT)

Edward Bolted Bonnet

Durable, small bore check valve, forged and equipped with a bolted cover design to enable easy maintenance.

Edward

- Increased uptime from the use of anti-thrust rings in the body-guided disc, which eliminates misalignment and galling
- Greater process control due to integral hard-surfaced seat, which allows positive shutoff and extends seat life
- Lower maintenance costs due to bolted bonnet, four-bolt design
- Longer service life from positive metal-to-metal stop design that prevents over-compression of the gasket
- Optimized fl w passages minimize fl w direction changes and reduce pressure drops

SPECIFICATIONS

Sizes: DN 15 to 50; NPS ½ to 2
Press: PN 110 and 260;
Class 600 and 1500
Temp: -29°C to 538°C
(-20°F to 1000°F)

CHECK

PISTON (LIFT)

1878 Piston Check

Anchor/Darling

High-performance 1878 piston check valve designed for low leakage rate testing (LLRT) and available with EPR/EPDM resilient seated discs.

- Lower operating and inventory costs due to versatility of one valve designed to operate in three pressure classes
- Standards compliance assured by design that meets ASME Section III, Class 1, 2 and 3 design codes
- Improved reliability and service integrity from investment cast body construction that results in contoured, smooth fl w path and high C_v
- Improved reliability enabled by lightweight disc and non-cobalt seat ring
- Functional qualific tions per pressure class 1878 (intermediate) requirements

SPECIFICATIONS

Sizes: DN 15 to 50; NPS ½ to 2
Press: PN 110, 150, 260 and 325; Class 600, 900, 1500 and 1878
Temp: -29°C to 371°C (-20°F to 700°F)

Refer to literature EVENCT0004 at fl wserve.com/library.

PISTON (LIFT)

Anchor/Darling Piston (Lift) Check

Anchor/Darling

Versatile lift check valves designed for low or pulsating fl w applications where pressure drop through the valve is not critical.

- Broad application flexibility provided by the variety of vailable body types
- High performance ensured by cast body with large radius curves designed to optimize internal fl w passages and minimize pressure drops
- Improved reliability and service integrity via body-guided disc design to ensure tight sealing and check valve protection in the event of fluid back flow
- Rapid operation made possible by equalizer lines that connect the bonnet area above the disc to the downstream port to improve disc lift and eliminate dash-pot effect

SPECIFICATIONS

Sizes: DN 65 to 600; NPI 2½ to 24
Press: PN 20 to 260; Class 150 to 1500
Temp: -29°C to 565°C (-20°F to 1050°F)

Refer to literature EVENCT0004 at flowse ve.com/library.

Quality Defined by ou

Flowserve quality systems are designed to align with the customer definition of qualit . We apply process-based, data-centric methods to every level of our supply chain to ensure reliable quality and timely fulfillment of order requirements We call this our Results-driven Initiative on Safety and Quality (RISQ), and it comprises more than 3200 employees worldwide, each committed to providing the quality products and services your operations demand.

SWING

1878 Swing Check

Anchor/Darling

Rugged, specialized swing check valve optimally designed for use in reactor penetration and isolation applications.

- Rapid disassembly/reassembly during maintenance and repair that minimizes exposure to radiation
- Environmental/regulatory compliance and improved plant safety due to ALARA-compliant design
- Functional qualific tions per ratings in accordance with ASME Section III, Class 1 pressure class 1878 (intermediate) requirements
- Greater process control through available dual-seat disc design for leak-free sealing at both high- and low-pressure differentials

SPECIFICATIONS

Sizes: DN 15 to 50; NPS ½ to 2
Press: PN 110, 150, 260 and 325;
Class 600, 900, 1500 and 1878
Temp: -29°C to 371°C (-20°F to 700°F)

Refer to literature EVENCT0004 at flowse ve.com/library.

SWING

Anchor/Darling Swing Check Valve

Anchor/Darling

All-purpose swing check valve provides economical reverse-fl w protection for piping system applications where fl w is relatively constant.

- Broad application and installation versatility via option to install in horizontal or vertical lines (with fl w up)
- Low initial cost and low ongoing costs due to ease of maintenance
- Functional qualific tions per ratings in accordance with ASME Section III
- Greater process control through available dual-seat disc design for leak-free sealing at both high- and low-pressure differentials
- Reliable performance enabled by design that ensures tight sealing

SPECIFICATIONS

Sizes: DN 65 to 600; NPI 2½ to 24
Press: PN 20 to 260; Class 150 to 1500
Temp: -29°C to 565°C
(-20°F to 1050°F)

Refer to literature EVENCT0004 at flowse ve.com/library.

TILTING DISK

Edward Tilting Disk

Edward

Designed to close as quickly as possible, this large-bore valve minimizes loud, damaging slamming and vibration noises caused by high-velocity reverse fl w in high-pressure and high-temperature applications.

- Greater process control assured by precision-machined cover and integral hard-surfaced seats
- Fast shutoff response facilitated by counterweighted dome-shaped disk, low-friction pivots and enclosed torsion springs
- Long, reliable service in high pressures and temperatures due to preloaded pressure-energized flexible gr phite composite
- Easy installation and alignment made possible by adjustable hinge pin

SPECIFICATIONS

Sizes: DN 65 to 600; NPS 2½ to 24
Press: PN 110 to 760;
Class 600 to 4500
Temp: -29°C to 650°C
(-20°F to 1200°F)

Refer to literature EVENCT0002 at flowse ve.com/library.

TILTING DISK

Anchor/Darling Tilting Disk

Anchor/Darling

Designed for applications requiring assured operability and controlled closure, the Anchor/Darling Tilting Disk check valve also maintains the disc open in the best position to minimize pressure drop.

- High-efficien y performance from differential seat angles, ensuring better seal with low seating force, plus hydrofoil profile for extra stabilit
- Longer service life enabled by valve design, which causes disc stops to impact body away from sealing surfaces
- Reduced downtime via easily replaceable seal-welded seat rings that minimize distortion from body stress

SPECIFICATIONS

Sizes: DN 65 to 600; NPS 2½ to 24
Press: PN 20 to 260; Class 150 to 1500
Temp: -29°C to 565°C
(-20°F to 1050°F)

Refer to literature EVENCT0004 at flowse ve.com/library.

TILTING DISK

NAF Check

NAF

A cost-effective compact tilting disc check valve. Unique design gives excellent tightness and minimizes water-hammering.

- Low total cost of ownership provided by compact face-to-face dimension — invaluable where space is limited
- Reduced handling costs and easier installation thanks to low weight
- Reliability and regulatory compliance assured by tightness that exceeds API 598 standards
- Longer service life with optional spring, which reduces risk of damage from water-hammer effect in liquid media

SPECIFICATIONS

Sizes: DN 40 to 1000; NPS 1½ to 24
Press: PN 20 to 40; Class 150 to 300
Temp: -30°C to 350°C (-22°F to 662°F)

Refer to literature Fk 30.70 and Fk 30.71 at flowse ve.com/library.

Durco G4

PLUG

The range of plug valve applications is broad, and the Flowserve portfolio reliably addresses the vast majority of requirements. High temperatures and pressures. Corrosive or dirty media. Lethal, toxic and sub-zero fluids. Our family of plug valves delivers low energy consumption through low-torque designs and safe operation with tight shutoff performance. High levels of uptime are achieved through pressure-balanced designs. Absolute shutoff requirements can be addressed by double-isolation models or non-lubricated designs, depending on application.

Plug – Quick Reference*

Product	Sub-Type	Sizes	Pressures	Temperatures
Mach 1™	Non-Lubricated	DN 25 to 200 NPS 1 to 8	PN 10, 16, 25, 40 and 100 Class 150, 300 and 600	-46°C to 274°C (-50°F to 525°F)
G4	Non-Lubricated	DN 15 to 450 NPS ½ to 20	PN 10, 16, 25 and 40 Class 150 and 300	-46°C to 288°C (-50°F to 550°F)
G4BZ-HF	Non-Lubricated	DN 15 to 450 NPS ½ to 20	PN 10, 16, 25 and 40 Class 150 and 300	-46°C to 288°C (-50°F to 550°F)
Multiport Series — Steel and Iron	Lubricated	NPS ½ to 12 DN 15 to 300	PN 20 to 420; Class 150 to 2500; 150 to 400 CWP (iron)	to 450°C (232°F)
Super Nordstrom® — Steel	Lubricated	NPS ½ to 4 DN 15 to 100	Class 150 to 600	-29°C to 177°C (-20°F to 350°F)
Bolted Gland — Iron	Lubricated	NPS 6 to 36 DN 150 to 900	120 to 500 CWP	-29°C to 177°C (-20°F to 350°F)
Bolted Gland — Steel	Lubricated	NPS 6 to 12 DN 150 to 300	Class 150	-29°C to 177°C (-20°F to 350°F)
Dynamic Balance® — Iron	Lubricated	NPS 4 to 20 DN 100 to 500	150 to 200 CWP	-29°C to 177°C (-20°F to 350°F)

** Additional products shown on next page*

Plug – Quick Reference, cont'd.

Product	Sub-Type	Sizes	Pressures	Temperatures
Dynamic Balance — Steel	Lubricated	NPS 1 to 30 DN 25 to 750	Class 150 to 2500	-46°C to 816°C (-50°F to 1500°F)
Super Nordstrom Two-Bolt Cover — Iron	Lubricated	NPS ½ to 5 DN 15 to 125	200 CWP	-29°C to 93°C (-20°F to 200°F)
Super Nordstrom Two-Bolt Cover — Steel	Lubricated	NPS ¾ to 4 DN 20 to 100	13.7 bar (200 psi)	-29°C to 93°C (-20°F to 200°F)
DIPV — Double-Isolation	Lubricated	DN 15 to 600 NPS ½ to 24	PN 20 to 420 Class 150 to 2500 API 2000 to 10 000	-46 to 375°C (-51 to 700°F)
Double-Isolation — Steel	Lubricated	DN 50 to 300 NPS 2 to 12	Class 150 to 2500	-46°C to 232°C (-50°F to 450°F)
Screwed Gland Type — Iron	Lubricated	DN 15 to 100 NPS ½ to 4	200 to 800 CWP	-29°C to 178°C (-20°F to 353°F)
Taper Plug	Lubricated	DN 15 to 300 NPS ½ to 12	to PN 50 to Class 300	-20°C to 250°C (-5°F to 480°F)
Super-H	Lubricated	DN 15 to 300 NPS ½ to 36	PN 20 to 420 Class 150 to 2500 API 2000 to 10 000	-46°C to 375°C (-51°F to 700°F)
TIPV — Twin Isolation	Lubricated	DN 15 to 600 NPS ½ to 24	PN 20 to 420 Class 150 to 2500 API 2000 to 10 000	-46°C to 375°C (-51°F to 700°F)
T4E	Lined	DN 15 to 300 NPS ½ to 12	PN 16 Class 150 to 300	-29°C to 204°C (-20°F to 400°F)

NON-LUBRICATED

Mach 1

Durco

All-purpose, non-lubricated Sleeveline plug valve designed to provide reliable service with consistent, lower torques for cost-effective actuation.

- Dependable, tight shutoff and in-line seal adjustment from tapered plug design
- Reduced actuation costs from lower constant turning torques owing to unique plug and sleeve design
- Lower maintenance costs with in-line seat replacement
- High-temperature and high-pressure capabilities to 274°C (525°F) and Class 600 (derated)
- Ease of operation enabled by ISO 5211 mounting pad with universal flange and double-D plug stem that accepts most standard actuation

SPECIFICATIONS

Sizes: DN 25 to 200; NPS 1 to 8
Press: PN 10, 16, 25, 40 and 100; Class 150, 300 and 600
Temp: -46°C to 274°C (-50°F to 525°F)

Refer to literature DVATB0030 at flowse ve.com/library.

NON-LUBRICATED

G4

Durco

Reliable, versatile Sleeveline plug valve designed for the most corrosive and difficult chemical se vices where drop-tight shutoff is an absolute requirement.

- Dependable, tight shutoff and in-line seal adjustment from tapered plug design
- Lower maintenance costs due to design that utilizes two adjuster fasteners that permit in-line seal adjustments under pressure within seconds
- Low fugitive emissions through fluoropolymer reverse-lip di phragm that provides a pressure-activated, self-energizing dynamic and static stem seal
- Compatibility with a range of Automax™ actuators and other instrumentation
- Options for lethal, toxic and sub-zero fluid se vices plus process control and high fl w requirements

SPECIFICATIONS

Sizes: DN 15 to 450; NPS ½ to 20
Press: PN 10, 16, 25 and 40; Class 150 and 300
Temp: -46°C to 288°C (50°F to 550°F)

Refer to literature DVENBR0024 at flowse ve.com/library.

NON-LUBRICATED

G4BZ-HF

Durco

Reliable, HF alkylation plug value preferred at refineries throughout the world when drop-tight shutoff is an absolute requirement.

- Corrosion-resistant Monel M35-1 and API 607 fire-sealed construction ideal for refine y applications that include HF and H_2SO_4 alkylation
- Dependable, tight shutoff and in-line seal adjustment from tapered plug design
- Low fugitive emissions through fluoropolymer reverse-lip di phragm that provides a pressure-activated, self-energizing dynamic and static stem seal
- Ease of operation enabled by compatibility with a wide range of Automax actuators and other instrumentation

SPECIFICATIONS

Sizes: DN 15 to 450; NPS ½ to 20
Press: PN 10, 16, 25 and 40; Class 150 and 300
Temp: -46°C to 288°C (-50°F to 550°F)

Refer to literature DVENTB0025 at flowse ve.com/library.

PLUG

Nordstrom

LUBRICATED

Multiport Series – Steel and Iron

Dynamic Balance (steel), Super Nordstrom (steel) and Nordstrom Iron multiport plug valves are extremely efficient and designed for applications that ordinarily require two to four straightway valves.

- Low inventory carrying costs and convenient operations as a result of the simplified piping that eliminates the need for other fitting
- Broad application use via the ports and stops that can be arranged to fit required operating conditions
- Greater process control by eliminating waste, overpressure on equipment or incorrect mixtures due to the convenient design
- Efficient oper tion facilitated by the sealant grooves, which provide consistent lubrication while protecting against corrosion

SPECIFICATIONS

Sizes: NPS ½ to 12; DN 15 to 300
Press: PN 20 to 420; Class 150 to 2500; 150 to 400 CWP (iron)
Temp: to 450°C (232°F)

Refer to literature NVABR0014 at flowse ve.com/library.

Nordstrom

LUBRICATED

Super Nordstrom – Steel

Well-tested, economical line of super-steel plug valves that provides dependable operations and eliminates the need for field readjustments

- Greater process control provided by the bubble-tight shutoff and predictable torque
- Increased uptime provided by the precisely controlled vertical lifting of the plug, which eliminates its wedging without affecting tight shutoff
- Durable performance via the specially shaped weather seal that protects the stem, gland and packing from hostile environments and corrosion
- Reliable operation enabled by the Sealdport™ sealant grooving system, designed to give complete distribution of pressurized sealant to seating surfaces

SPECIFICATIONS

Sizes: NPS ½ to 4, DN 15 to 100
Press: Class 150 to 600
Temp: -29°C to 177°C (-20°F to 350°F)

Refer to literature NVENBR1004 at flowse ve.com/library.

Nordstrom

LUBRICATED

Bolted Gland – Iron

Reliable bolted gland iron valve for applications in high-stress environments, such as gas, HVACI, wastewater, oil, steam and more.

- Reduced downtime as a result of sealant channels that provide lubrication and protect the seating surface against corrosion, erosion or accumulation of solids
- Greater process control provided by leak-free, easy turning performance of the gland, which flexe
- High-pressure performance made possible by the heavy-wall body, which can withstand higher-than-line sealant pressure and expected line stresses
- Reliable operation enabled by the Sealdport sealant grooving system, designed to give complete distribution of pressurized sealant to seating surfaces

SPECIFICATIONS

Sizes: NPS 6 to 36; DN 150 to 900
Press: 120 to 500 CWP
Temp: -29°C to 177°C (-20°F to 350°F)

Refer to literature NVENBR1003 at flowse ve.com/library.

LUBRICATED

Bolted Gland – Steel

Nordstrom

Reliable bolted gland steel valve for applications in high-stress environments, such as gas, HVACI, wastewater, oil, steam and more.

- Reduced downtime provided by fixed-adjustment gland which allows for quick field adjustments if necessa y
- Personnel safety and ease of maintenance resulting from double ball checks, which maintain pressure in the enclosed grooving system and prevent back pressure on the sealant chamber
- Greater process control provided by leak-free, flexible metal sealing di phragm
- Reliable operation enabled by the Sealdport sealant grooving system, designed to give complete distribution of pressurized sealant to seating surfaces

SPECIFICATIONS

Sizes: NPS 6 to 12; DN 150 to 300
Press: Class 150
Temp: -29°C to 177°C (-20°F to 350°F)

Refer to literature NVENBR1004 at flowse ve.com/library.

LUBRICATED

Dynamic Balance – Iron

Nordstrom

Dependable and durable iron plug valve that eliminates the problems often associated with conventional plug valves.

- Increased uptime due to pressure-balanced plug, which ensures predictable torque, even under high differential, vibration and thermal cycling
- Greater process control enabled by the stainless steel spring, which preloads to prevent vibration and thermal cycling
- Reduced maintenance derived from the equal pressure above and below the plug and port created by the balanced holes on both ends
- Reliable operation enabled by the Sealdport sealant grooving system, designed to give complete distribution of pressurized sealant to seating surfaces

SPECIFICATIONS

Sizes: NPS 4 to 20; DN 100 to 500
Press: 150 to 200 CWP
Temp: -29°C to 177°C (-20°F to 350°F)

Refer to literature NVENBR1003 at flowse ve.com/library.

LUBRICATED

Dynamic Balance – Steel

Nordstrom

Dependable and durable steel plug valve that eliminates the problems often associated with conventional plug valves.

- Increased uptime due to pressure-balanced plug, which ensures predictable torque, even under high differential, vibration and thermal cycling
- Reliable performance in hostile environments provided by the anti-friction coating weather seal that provides superior corrosion resistance
- Reduced downtime with pressure-energized stem seals
- Broadest range of sizes, pressure classes and materials
- Reliable operation enabled by the Sealdport sealant grooving system, designed to give complete distribution of pressurized sealant to seating surfaces

SPECIFICATIONS

Sizes: NPS 1 to 30; DN 25 to 750
Press: Class 150 to 2500
Temp: -46°C to 816°C (-50°F to 1500°F)

Refer to literature NVENBR1004 at flowse ve.com/library.

PLUG

LUBRICATED

Super Nordstrom Two-Bolt Cover – Iron

Nordstrom

Economical two-bolt cover iron valve designed to withstand the harsh gas industry environment and provide corrosion protection.

- Cost-effective design that eliminates external leakage without the use of costly accessories to protect exposed threaded stems
- Ease of operations and maintenance through the use of valves that can be operated with standard 2-inch square wrench and adapter
- Increased uptime enabled by the thermally bonded, low-friction plug coating that creates low operating torque
- Greater process control through the sealant jacking that ensures positive operation and drop-tight closure

SPECIFICATIONS

Sizes: NPS ½ to 5; DN 15 to 125
Press: 200 CWP
Temp: -29°C to 93°C (-20°F to 200°F)

Refer to literature NVENBR1003 at flowse ve.com/library.

LUBRICATED

Super Nordstrom Two-Bolt Cover – Steel

Nordstrom

Highly reliable, two-bolt cover steel valve providing all the well-known Nordstrom features for the gas industry in a design that can be welded in-line.

- Ease of installation provided by weld ends that permit installation directly into welded gas-distribution lines
- Improved resistance to fracture from ground movement provided by the increased strength and ductility compared to flanged iron valve
- Highly reliable operation provided by the coated, tapered iron plug, which has exceptionally low coefficient of friction and separ tes the metal plug and body
- Longer service life due to the corrosion protection provided by the weather seal and internal stops, which eliminate the trash pocket between the cover and stem

SPECIFICATIONS

Sizes: NPS ¾ to 4; DN 20 to 100
Press: 13.7 bar (200 psi)
Temp: -29°C to 93°C (-20°F to 200°F)

Refer to literature NVENBR1004 at flowse ve.com/library.

LUBRICATED

DIPV – Double-Isolation

Serck Audco

Reliable, double-isolation plug valve with two independent obturators in a single body; ideal for double block and bleed applications.

- Improved plant and personnel safety assured by double-isolation design that allows the operator to verify valve isolation before carrying out maintenance
- A cost-, space- and weight-saving alternative to a double block and bleed system using two valves in series
- Installation ease from compact design with the same face-to-face dimension as a single valve, often replacing it without the need for pipe work modific tions
- Greater process control via pressure-balanced design that provides true bubble-tight, double- isolation capability within a single valve body

SPECIFICATIONS

Sizes: DN 15 to 600; NPS ½ to 24
Press: PN 20 to 420; Class 150 to 2500; API 2000 to 10 000
Temp: -46°C to 375°C (-51°F to 700°F)

Refer to literature SRENTB0001 at flowse ve.com/library.

LUBRICATED

Double-Isolation – Steel

Nordstrom

High-performance, double-isolation steel plug valve designed for critical shutoff applications where absolute shutoff is required for safety, environmental or process reasons.

- Broad application versatility due to robust design, making valve well-suited for isolation in compressor, pump, meter, water or gas injection system applications
- Improved plant and personnel safety assured by double-isolation design
- Installation ease from compact design with the same face-to-face dimension as a single valve
- Greater process control via proven Dynamic Balance pressure-balanced and sealing technology to prevent unequal pressure above/below the plug
- Low lifecycle costs compared to two single valves

SPECIFICATIONS

Sizes: DN 50 to 300; NPS 2 to 12
Press: Class 150 to 2500
Temp: -46°C to 232°C (-50°F to 450°F)

Refer to literature NVENBR1016 at flowserve.com/library.

LUBRICATED

Screwed Gland Type – Iron

Nordstrom

Rugged, dependable, quarter-turn plug valve designed to require no adjustments in the field once the plug has been carefully adjusted by valve assembler.

- Increased uptime via controlled plug motion design provided by the flexing of spring washers
- Greater process control enabled by tapered plug that is lapped individually with its matching body, providing perfect seating contact
- Longer service life assured by positive rotary action and sealant channels that protect the seating surfaces
- Positive operation and drop-tight closure ensured by sealant jacking and thermally bonded, low-friction plug coating for low operating torque

SPECIFICATIONS

Sizes: DN 15 to 100; NPS ½ to 4
Press: 200 to 800 CWP
Temp: -29°C to 178°C (-20°F to 353°F)

Refer to literature NVENBR1003 at flowserve.com/library.

LUBRICATED

Taper Plug

Serck Audco

Reliable, standard type taper plug valve designed for general isolation purposes in a variety of liquid, gaseous and slurry services. Available in cast iron and steel to suit application.

- Greater process control via tapered plug design that offers leak tightness while maintaining smooth valve operation
- Longer service life through tapered seat surfaces of the plug and body that prevent exposure to line fluid when valve is in the open positio
- Increased reliability due to the straight fl w path design that minimizes pressure loss by allowing very little resistance to fl w

SPECIFICATIONS

Sizes: DN 15 to 300; NPS ½ to 12
Press: to PN 50; to Class 300
Temp: -20°C to 250°C (-5°F to 480°F)

Refer to SRENTB0002 and SRENTB0003 at flowserve.com/library.

PLUG

LUBRICATED

Super-H

Serck Audco

Rugged, pressure-balanced plug valve designed for demanding oil and gas isolation applications where bubble-tight shutoff and reliable operation are critically important.

- High reliability and certainty of zero-leakage sealing down the line achieved by large, metal-to-metal seat mating areas and precise seat mating procedures
- Increased uptime from pressure-balanced plug design that utilizes pressure to balance the forces acting on the plug and prevent taper locking
- Lower maintenance costs via in-line maintainable design that allows sealant to be injected with the valve in any position and under pressure
- Longer service life assured by seats that are protected against line media while the valve is open

SPECIFICATIONS

Sizes: DN 15 to 1050; NPS ½ to 42
Press: PN 20 to 420; Class 150 to 2500; API 2000 to 10 000
Temp: -46°C to 375°C (-51°F to 700°F)

Refer to literature SRENTB0004 at flowse ve.com/library.

LUBRICATED

TIPV – Twin Isolation

Serck Audco

Reliable, double-isolation plug valve with two independent obturators in a single body; ideal for double block and bleed applications.

- Improved plant and personnel safety assured by double-isolation design that allows the operator to verify valve isolation before carrying out maintenance
- Cost-, space- and weight-saving alternative to double block and bleed system using two valves in series; same face-to-face as a single valve in Class 600 and above
- Lower maintenance costs via in-line maintainable design that allows sealant to be injected with the valve in any position and under pressure
- Greater process control via pressure-balanced design that provides true bubble-tight, double-isolation capability within a single valve body

SPECIFICATIONS

Sizes: DN 15 to 600; NPS ½ to 24
Press: PN 20 to 420; Class 150 to 2500; API 2000 to 10 000
Temp: -46°C to 375°C (-51°F to 700°F)

Refer to literature SRENTB0005 at flowse ve.com/library.

Reduced Cost of Ownership

We get it. Reducing equipment total cost of ownership is critical to improving your bottom line. Flowserve has helped more than 200 strategic alliance partners reduce their equipment ownership costs through programs that address asset management and optimization, engineering and technical services, education and training, and aftermarket parts and services. In fact, one customer with seven refineries is projected to s ve in excess of $20 million over five years

Durco

LINED

T4E

Durco T4E valves provide maximum corrosion resistance while eliminating product contamination at a reasonable cost. Available with pneumatic or electric actuators for on-off or modulating control applications.

- Cost-effective alternative to high-alloy body materials
- Reliable performance in extreme service conditions such as severe cycling, vacuum applications, and elevated temperatures ensured by T-slots and anchor holes that provide strong attachment of lining to body and plug
- Efficient high-fl w capacity due to large ports, which reduce friction losses and pressure drop
- Easy maintenance with in-line adjustment; no disassembly is required to restore seating

SPECIFICATIONS

Sizes: DN 15 to 300; NPS ½ to 12
Press: PN 16; Class 150 to 300
Temp: -29°C to 204°C (-20°F to 400°F)

Refer to literature DVENBR0066 at flowse ve.com/library.