

Safe and reliable valve solutions

for chlor-alkali processing





Chlor-alkali processes demand the highest reliability

Chlor-alkali processing requires highly reliable valve performance across both manual and automated installations. Automated and modulating control valves, as well as manual valves, must operate safely, consistently, and efficiently at all times.

Safety and compliance are critical

Across multiple process stages – such as chemical treatment, caustic evaporation, chlorine cooling, drying, compression, liquefaction, and vaporization – valves must withstand corrosive liquids and gases under widely varying temperatures and pressures.

To meet operational and safety expectations, valves must also support compliance with Chlorine Institute Pamphlet 6, rigid chlor-alkali environmental and safety standards,

B31.3 Chemical Plant requirements, and other industry-related specifications. Reliable performance over an extended period and repeated cycles remains a central expectation in chlor-alkali valve service.

Our portfolio from trusted valve technology brands is positioned as a solution developed through decades of chlor-alkali service experience, with a long history of process reliability in the industry.

Our portfolio from trusted valve technology brands is positioned as a solution developed through decades.



Emissions and environment in focus

Reliable process containment and the elimination of emissions at all stages of chlor-alkali operation are critical in meeting strict environmental and safety requirements. In chlor-alkali service, reliability is closely linked to valve sealing performance, structural integrity, and qualification to recognized emission and service standards.

Our offering supports emissions requirements through the following measures and design qualifications:

All stem seals in adherence to emission containment standards

- ISO 15848 and API 641 low emission certified

Valves (flanged, threaded, and weld-end) comply with applicable chlor-alkali specifications

- Including ANSI, ASTM, API, MSS, ISO, ASME, and Chlorine Institute Pamphlet 6

Comprehensive foundry qualification and cast component quality program

- Ensures metallurgy consistency with ASTM material requirements

Containment of liquid/gaseous chlorine for critical isolation and safety shutoff

100% hydrostatic shell testing

- Verified structural integrity of castings to retain pressurized liquid and gaseous Cl_2

100% seat testing

- Jamesbury valves exceed the tightest requirements ensuring a bi-directional zero-bubble sealing in all sizes



Flow control technologies for chlor-alkali processing

Our valve technologies for chlor-alkali service are designed to support safe and consistent operation under demanding process conditions. For almost a century, we have focused on developing application-tested valve designs, breakthrough seat and sealing technologies, and automation products intended specifically for chlor-alkali service.

This dedication also delivers benefits for those using a single chlor-alkali valve and automation source, for example minimized procurement costs, standardized parts and maintenance procedures, and access to product engineering resources to support uptime and efficiency objectives.

High-performance ball and butterfly valves

Our manual and discrete automated ball and butterfly valves provide tight shutoff in chlor-alkali liquid and gas applications and exceed ANSI/FCI 70.2 Class 6 standards. Double-Seal™ full and standard bore ball valves combine tight shutoff with minimal flow resistance, while the flexible-lip seat design safely vents chlorine to

the high-pressure side if excessive cavity pressure occurs. For 3" and larger on/off and proportional control applications, our Jamesbury™ Wafer-Sphere™ high-performance butterfly valves provide ball valve performance with lower torque and a more efficient automation package.

Severe service chlor-alkali applications

Jamesbury™ Emission-Pak™ valves for severe service incorporate live loaded stem seals with multiple sets of packing, a lantern ring, and a monitoring port. These assemblies are qualified for ISO 15848 and are intended for demanding chlor-alkali applications. The Jamesbury™ Emission-Pak™ is also Helium Mass Spectrometer qualified.

Pamphlet 6 Service Class Coverage

ASTM A 352 LC3 casting material (Table 4.8 Valve Material Selection Guide) covers all four cold temperature service classes: Pamphlet 6 Class II, III, V, and VI liquid and gas service. Additionally, our Emission-Pak assemblies elevate the bonnet surface to minimize icing, accommodate insulation, and allow standard automation linkages and accessories to be mounted.

Advanced valve seat and sealing technologies

Our approach to seat and sealing technology for chlor-alkali service is reliability-driven. Jamesbury™ Xtreme™ flexible polymeric seats for Double-Seal ball valves and Jamesbury™ Wafer-Sphere™ high-performance butterfly valves are designed to reduce permanent deformation, supporting longer cycle life, improved thermal cycle performance, and better pressure cycle capability.

The Xtreme seats give our Jamesbury ball valves up to a 35% increase in temperature at pressure, and up to a 75% increase in pressure at temperature, compared with conventional filled fluorocarbons. This expands valve utilization across broader pressure/temperature envelopes and a wider application range.

Flexible lip seat design

The flexible lip seat design uses the mechanical properties of the seat material and line pressure to increase sealing effectiveness. This design approach minimizes seat deflection, compensates for wear, adjusts for temperature and pressure excursions, lowers operating torques, and ultimately extends cycle life. In operational terms, extended cycle life supports improved uptime, enhanced product quality, and reduced maintenance costs.

In operational terms, extended cycle life supports improved uptime, enhanced product quality, and reduced maintenance costs.

Jamesbury™ Xtreme™ material technology and media compatibility

Jamesbury™ Xtreme™ expands valve temperature rating to full Class 150 and Class 300 up to 260°C (500°F) at 26.2 bar / (380 psi). It also increases compatibility with chlor-alkali process media, including:

- Cl_2
- H_2
- KOH
- NaOH
- H_2SO_4
- CNa_2CO_3
- Refrigerants
- Steam
- Chill water
- Cooling water

Automation for process efficiency and reliability

We integrate high-quality valves and actuators with automation designed for advanced performance. The optimal actuator, communication, and positioner options can be

packaged with all our discrete control and rotary control valves to maximize process efficiency.

Actuation and communication

Our actuator expertise, combined with Stonel™ advanced communication and control system technology, provides reliable and scalable on/off valve networking and communications solutions. Our communications products are equipped with high-reliability sensors and field-proven performance for general-purpose or restrictive hazardous service. Also, our Jamesbury™ Quadra-Powr™ X spring-diaphragm actuators offer excellent extended cycle life for modulating control applications.

Smart controllers and positioners

And finally, our Neles™ NDX™ and ND9000™ intelligent valve controllers, with unique diagnostics and incomparable performance features, ensure end-product quality in all chlor-alkali process conditions. Our proportional positioners for rotary control valves, Neles positioners, offer repeatability and accuracy across modulating control applications. Due to vibration resistance, field resistance, ease of calibration, and fast response times, changes in supply pressure and valve load have a minimal impact on positioner operation.

Chlorine hydrogen processing

Product information	Jamesbury ball valves				Jamesbury butterfly valves	
	Class 150 Flanged	Class 300 Flanged	Class 600 Thread End Up to 11/2"	Class 800 Weld End Up to 11/2"	Class 150 Lugged	Class 300 Lugged
	Series 7150 Bulletin B107-1	Series 7300 Bulletin B107-1	Series Eliminator Bulletin B101-2	Series 4000 Bulletin B105-1	Series 815 Bulletin W101-6	Series 830 Bulletin W101-6
						
Class I	7150C 31 2271 XTZ1 7150C 31 2273 XTZ1	7300C 31 2271 XTZ1 7300C 31 2273 XTZ1	9FAC 2271 XT 9FAC 2273 XT	4CBC 2271 XT1 4CBC 2273 XT1	815LC 11 2271 XZ 815LC 11 2273 XZ	830LC 11 2271 XZ 830LC 11 2273 XZ
Class II	7150C 31 2671 XTZ4 7150C 31 2673 XTZ4	7300C 31 2671 XTZ4 7300C 31 2673 XTZ4	9FAC 2671 XT 9FAC 2673 XT	4CBC 2671 XT5 4CBC 2673 XT5	815LC 11 2671 XZ 815LC 11 2673 XZ	830LC 11 2671 XZ 830LC 11 2673 XZ
Class III	7150C 31 2671 XTZ4 7150C 31 2673 XTZ4	7300C 31 2671 XTZ4 7300C 31 2673 XTZ4	NR	NR	815LC 11 2671 XZ 815LC 11 2673 XZ	830LC 11 2671 XZ 830LC 11 2673 XZ
Class IV	7150C 31 2271 XTZ1 7150C 31 2273 XTZ1 Limit 285 psig (1)	7300C 31 2271 XTZ1 7300C 31 2273 XTZ1	9FAC 2271 XT 9FAC 2273 XT	4CBC 2271 XT1 4CBC 2273 XT1	815LC 11 2271 XZ 815LC 11 2273 XZ Limit 285 psig (1)	830LC 11 2271 XZ 830LC 11 2273 XZ
Class V	7150C 31 2271 XTZ4 7150C 31 2273 XTZ4 Limit 285 psig (1)	7300C 31 2671 XTZ4 7300C 31 2673 XTZ4	9FAC 2671 XT 9FAC 2673 XT	4CBC 2671 XT5 4CBC 2673 XT5	815LC 11 2271 XZ 815LC 11 2273 XZ Limit 285 psig (1)	830LC 11 2671 XZ 830LC 11 2673 XZ
Class VI	7150C 31 2271 XTZ4 7150C 31 2273 XTZ4 Limit 285 psig (1)	7300C 31 2671 XTZ4 7300C 31 2673 XTZ4	NR	NR	815LC 11 2271 XZ 815LC 11 2273 XZ Limit 285 psig (1)	830LC 11 2671 XZ 830LC 11 2673 XZ

See product bulletins for coding details

NR = Not Recommended by Chlorine Institute Pamphlet 6 design recommendations
 Note 1 = Service Class IV, V and VI maximum pressure is higher than the ASME Class 150 pressure rating, pressures within the ASME Class 150 rating are acceptable

Body material
 22 = A216 WC6
 26 = A352 LC3

Trim material
 71 = Monel ball & stem
 73 = Hastelloy C™ Ball & Stem

Service class	Fluid state	Pressure, psig	Pressure, kPa	Temperature, °F	Temperature, °C
Class I	Gas only	Vacuum to 150	Vacuum to 1034	-20 to 300	-29 to 149
Class II	Gas only	Vacuum to 150	Vacuum to 1034	-50 to 300	-46 to 149
Class III	Gas only	Vacuum to 150	Vacuum to 1034	-150 to 300	-101 to 149
Class IV*	Gas or liquid	Vacuum to 300	Vacuum to 2068	-20 to 300	-29 to 149
Class V	Gas or liquid	Vacuum to 300	Vacuum to 2068	-50 to 300	-46 to 149
Class VI	Gas or liquid	Vacuum to 300	Vacuum to 2068	-150 to 300	-101 to 149

* Piping classes corresponding to the fluid state "gas or liquid" are to be used for all liquid-only lines and gas lines where the possibility of liquid entry exists or where there is the possibility that gas in a line may liquefy.

Valves for chlor-alkali processing

Product information

Jamesbury Valv-Powr VPVL series actuator



Jamesbury Quadra-Powr QPX actuator, Jamesbury 800 series butterfly valve



Stonel Quartz limit switch



Neles ValvGuard VG9000 intelligent safety solenoid with PST on a Neles pneumatic cylinder actuators, series B1



Valvcon™ electric actuator, Jamesbury 800 series butterfly valve



Jamesbury MGR manual actuator, 800 series butterfly valve



Neles pneumatic cylinder actuator, series B1



Jamesbury Quadra-Powr QPX actuator



Stonel Axiom integrated solenoid switch with optional Bluetooth® technology



Jamesbury Eliminator standard port ball valve



Jamesbury 4000 series ball valve



Jamesbury 7000 series ball valve



Customer benefits

- Reduce risk of unintended releases with true bi-directional valves using flexible lip cavity relief design
- Reduce maintenance complexity with OEM linkages
- Extend plant runtime with our alloys for corrosive medias
- Reduce plant emissions with our certified low emission packing designs

Valmet is a global technology leader serving process industries. We work together with our customers throughout the entire lifecycle, delivering cutting-edge technologies and services as well as mission-critical automation and flow control solutions.



Valmet Flow Control Oy

flowcontrol@valmet.com

For more information, please visit
valmet.com/flowcontrol

To find the location nearest to you,
please scan here:

