



## JAMESBURY® Valve Solutions for Chlor-Alkali Processing

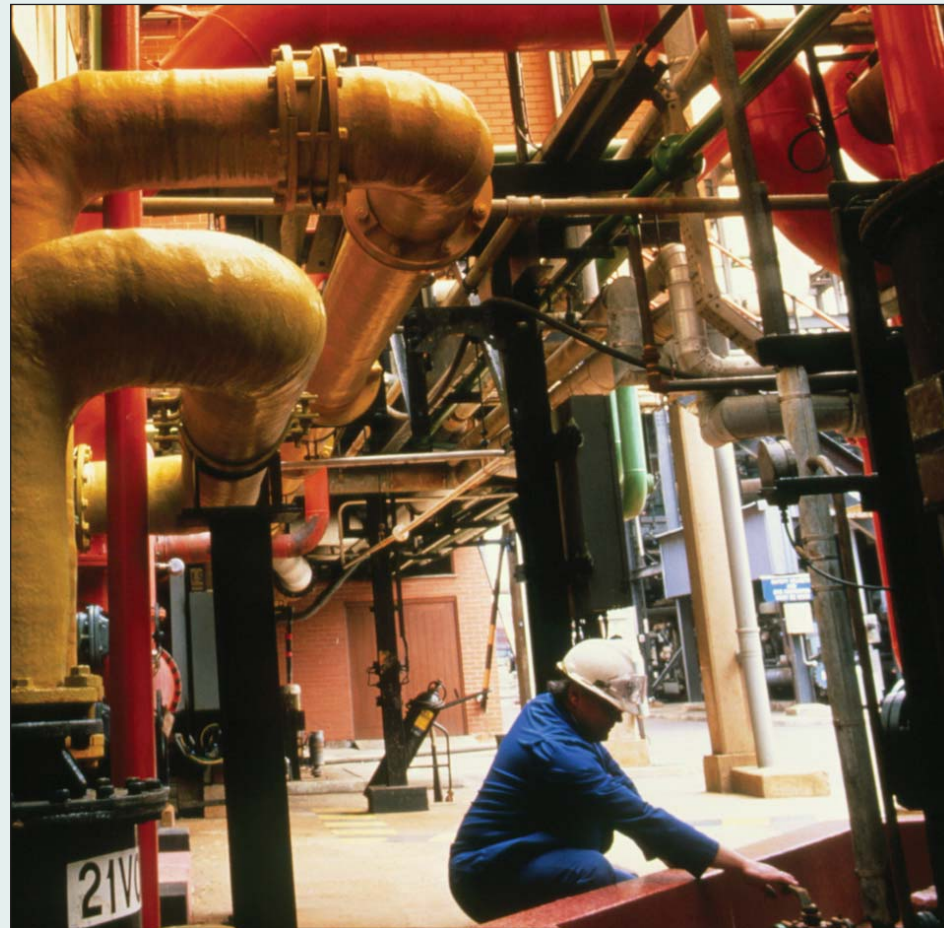
**JAMESBURY® Helps Your Environmental Strategy Succeed.**

Reliable process containment and elimination of emissions at every stage of your chlor-alkali process operation is key to successfully meeting rigorous environmental safety standards. Once again, JAMESBURY valves' sensitivity to industry requirements, and reputation for process reliability, get the job done.

- All stem seals are tested and qualified to ISO 15848 or EPA Method 21 emission containment standards.
- Flanged, threaded and weld-end valves comply with all standards and specifications for chlor-alkali processing including ANSI, ASTM, API, MSS, ISO ASME and Chlorine Institute Pamphlet 6.
- Comprehensive foundry qualification and cast component quality program ensures metallurgy is consistent with ASTM material requirements.
- 100% hydrostatic shell testing assures the structural integrity of castings to retain pressurized liquid and gaseous Cl<sub>2</sub>.
- 100% seat testing (both directions) assures containment of liquid and gaseous chlorine for critical isolation and safety shut off applications.

JAMESBURY 3-point valve stem seals have undergone a 50,000 cycle test with 200°C (392°F) thermal transient to ensure tightness to 35 PPM Helium at ambient – and 3.5 PPM Helium at temperature – under dynamic cycling conditions. The valves are Helium Mass Spectrometer qualified.

# Chlor-Alkali Processes Demand The Most Reliable Valves. Period.



There can be no compromises when it comes to automated and modulating control valves in chlor-alkali processing. The same is true for your manual valves. They have to operate safely, consistently and efficiently at all times. Whether it's chemical treatment, caustic evaporation, chlorine cooling, drying, compression, liquefaction or vaporization, your manual, automated and rotary control valves must handle corrosive liquids and gases of widely

varying temperatures and pressures. They must comply with Chlorine Institute Pamphlet 6, rigid chlor-alkali environmental and safety standards and B31.3 Chemical Plant and other related specifications. And they must provide the highest possible performance efficiency cycle after cycle. JAMESBURY valves have had 5 decades of success in delivering chlor-alkali process reliability.

# JAMESBURY® Chlor-Alkali Valve Solutions. A History Of Dependability.

JAMESBURY valves for chlor-alkali applications offer you the ideal solution for easily and safely meeting the grueling demands of this process. Since 1954, JAMESBURY has been developing leading-edge, application-tested valve designs, breakthrough seat and sealing technologies, and advanced automation products specifically for chlor-alkali service. All while delivering

the advantages of a single, experienced chlor-alkali valve and automation source. These include minimized procurement costs, standardized parts and maintenance procedures, and the product engineers to help you meet your operational goals for process uptime and efficiency at the least possible cost.

**ONE-ON-ONE SOLUTIONS**

**“CHLORINE SERVICE VALVES ARE HIGHLY ENGINEERED PRODUCTS AND CANNOT BE CONSIDERED A ROUTINE COMMODITY VALVE APPLICATION.”\***



*Our distribution channels are organized to offer chlor-alkali application experience and products that are conveniently available to meet the unique needs of your manual, automated and modulating control valve requirements. This single point of contact – at a location close to your plant – minimizes procurement and acquisition costs.*

**QUALIFICATION NEVER STOPS**



*We qualify our valves under simulated process conditions in our lab facilities to ensure our products perform to the unique challenges of chlor-alkali service.*

\*The Chlorine Institute, Inc., Pamphlet 6: PIPING SYSTEMS FOR DRY CHLORINE, Edition 15, May 2005

## JAMESBURY® Ball and WAFER-SPHERE® Butterfly Valves. Reliably Efficient.



JAMESBURY manual and discrete automated ball and butterfly valves offer tight shutoff in chlor-alkali liquid and gas applications, exceeding ANSI/FI 70.2 Class 6 standards. Our DOUBLE-SEAL® full and standard bore ball valves provide tight shutoff with minimum flow resistance. Their flexible-lip seat design vents chlorine safely to the high pressure side of the valve in the event of excessive cavity pressure. WAFER-SPHERE high-performance butterfly valves are superior for 3" and larger on/off and proportional control, offering ball valve performance with lower torque and a more efficient automation package.



### DEPENDABLE EMERGENCY SHUT-DOWN

JAMESBURY chlor-alkali valves with the CINTAC Advanced Automation System offer the most reliable shutdown package available for bulk transfer of chlorine. Networking capability with emergency response alerts allow shutdown in the event of:

- Drop or loss of pneumatic or electric power
- Control panel or emergency remote signal
- Motion detection



### SEVERE SERVICE CHLOR-ALKALI APPLICATIONS

EMISSION-PAK® valves for severe chlor-alkali service have live-loaded stem seals that offer multiple sets of packing combined with a lantern ring and monitoring port. Qualified to ISO 15848 for 100,000 cycles, it is intended for the most demanding chlor-alkali applications. The EMISSION-PAK is Helium Mass Spectrometer qualified.

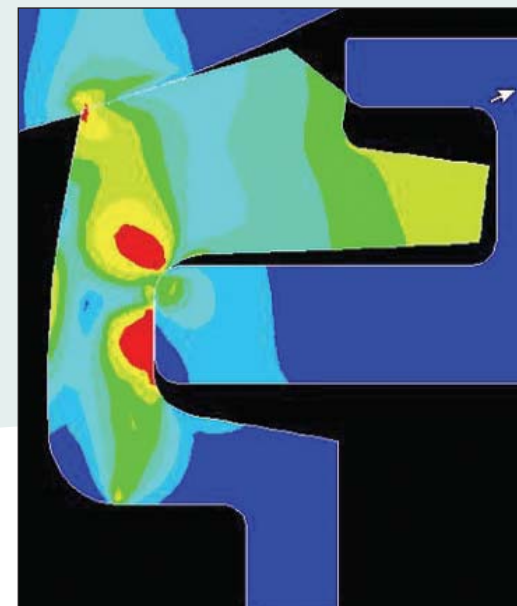
### PAMPHLET 6 CLASS II, III, V AND VI LIQUID AND GAS SERVICE

ASTM A 352 LC3 casting material ( Table 4.8 Valve Material Selection Guide) covers all four cold temperature service classes. EMISSION-PAK assemblies elevate the bonnet surface to minimize icing to the area. The EMISSION-PAK also offers a valve that accommodates insulation. All standard automation linkages and accessories can be mounted.

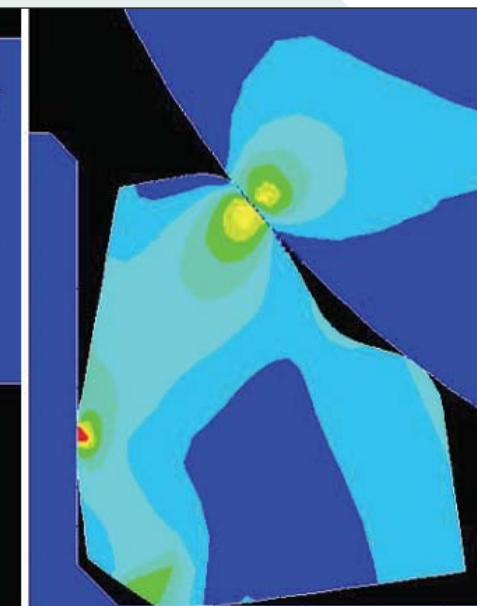
## Chlor-Alkali Valve Seat and Sealing. Bubble Tight. Trouble Free.

JAMESBURY® seat and sealing technology for chlor-alkali service has a reputation built on reliability. Our XTREME® flexible polymeric seats for DOUBLE-SEAL® ball valves and WAFER-SPHERE® high-performance butterfly valves have less permanent deformation, resulting in longer cycle life, enhanced thermal cycle performance and better pressure cycle capability. XTREME seats offer up to a 35% increase in temperature at pressure and up to 75% in pressure at temperature over conventional filled fluorocarbons. This offers valve utilization over greater pressure/temperature envelopes in a broader application range.

WAFER-SPHERE



BALL VALVE



### FLEXIBLE LIP SEAT DESIGN

The flexible lip seat design makes use of the mechanical properties of the seat material and line pressure to increase the effectiveness of the seal. This minimizes seat deflection, compensates for wear, adjusts for temperature and pressure excursions, lowers operating torques, and extends cycle life. The increase in cycle life maximizes process uptime, enhances product quality and minimizes maintenance costs. The end result: greater plant profitability.

### XTREME Advantages

The XTREME seating material is a logical extension of the flexible lip geometry. It expands the valve temperature rating to 260°C (500°F) at a higher pressure rating of 80 Bar (1200 psi).

XTREME material technology increases valve compatibility with a wider range of chlor-alkali process media:

- Cl<sub>2</sub>
- NaOH
- H<sub>2</sub>
- H<sub>2</sub>SO<sub>4</sub>
- KOH
- CNa<sub>2</sub>CO<sub>3</sub>
- Refrigerants
- Steam
- Chill water
- Cooling water

With JAMESBURY, a single seat material covers an application range that may require other manufacturers to use 2 or 3 different materials. This means better use of your inventory, greater control over associated costs, and the elimination of costly errors associated with the misapplication of multiple seat materials.

# Process Efficiency and Reliability Through Automation.

JAMESBURY® delivers increased process performance by integrating high quality, superior performing valves with automation designed for performance benefits based on function.

Process automation requires capabilities that are best addressed by actuators designed specifically for rotary control or remote on/off. Automated assemblies that utilize function based actuators enhance chlor-alkali operations by maximizing process efficiency and uptime.

A range of actuator, communication and positioner options can be effectively packaged with JAMESBURY discrete control and rotary control valves to maximize process efficiency. The CINTAC Automation System combines JAMESBURY actuator expertise with StoneL advanced communication and control system technology, providing reliable and scalable on/off valve networking and communications solutions. Our QXP spring-diaphragm actuators offer excellent extended cycle life for modulating control applications. And our ND9000 intelligent valve controllers, with unique diagnostics and incomparable performance features, ensure end-product quality in chlor-alkali process conditions.



VPVL actuators designed for 1,000,000 cycles and maximum process uptime and efficiency.

REMOTE on/off

MODULATING CONTROL



Spring diaphragm low friction design responds instantly to signal changes for precise modulating control.

CONVENTIONAL VALVE COMMUNICATION FOR MAXIMUM CONTROL

JAMESBURY/StoneL valve communication terminals combine to provide leading-edge, wire-to-wire discrete control communication. A broad array of communications products, with high-reliability sensors and field-proven performance, are available for general-purpose or restrictive hazardous service.



PROPORTIONAL POSITIONERS FOR ROTARY CONTROL VALVES

NP700 and NE700 proportional positioners are designed for cylinder or diaphragm actuators for rotary valves and provide excellent repeatability and accuracy in a wide range of modulating control applications.

Due to the NP700 and NE700 positioner's vibration-resistance, field resistance, ease of calibration, and fast response times, changes in supply pressure and valve load have minimal effect on positioner operation.



## Chlor-Alkali Valve Figure Numbers Based on Chlorine Institute Pamphlet 6 Valve Service Table

### Advanced Discrete and Modulating Control.



#### ADVANCED AUTOMATION SYSTEM

The CINTAC Advanced Automation System integrates actuation with communication for precise, dependable on/off positioning. Tubes, fittings, external switches, solenoid and linkage are eliminated. Solenoid and communication terminals are housed in a corrosion-proof, epoxy-coated Lexan enclosure, making it ideal for chlor-alkali service. Visual position indication is included via a contact free magnetic resistive sensor with no mechanical parts to wear out.



#### ADVANCED INTELLIGENT VALVE CONTROLLER

This provides process control with an advanced control algorithm that reduces variability and enhances process efficiency and quality. Included are diagnostics to facilitate predictive maintenance programs for efficient maintenance. A large population of controllers can be configured from a single location-reducing startup and commissioning cost.

Service Class	BALL VALVES				BUTTERFLY VALVES	
	Class 150 Bulletin B107 -1	Class 300 Bulletin B107-1	Threaded Bulletin B101-2	Weld-End Bulletin B105-1	Class 150 Bulletin W101-6	Class 300 Bulletin W101-6
I	1/2-10" 7150C 31 2271 XTZ1 1/2-10" 7150C 31 2273 XTZ1	1/2-10" 7300C 31 2271 XTZ1 1/2-10" 7300C 31 2273 XTZ1	1/2-2" 9FAC 2271XT 1/2-2" 9FAC 2273XT	1/2-2" 4CBC 2271 XT1 1/2-2" 4CBC 2273 XT1	2 1/2-24" 815LC 11 2271 XZ 2 1/2-24" 815LC 11 2273 XZ	2 1/2-24" 830LC 112271 XZ 2 1/2-24" 830LC 112273 XZ
II	OA	1-3" 7300L1 2671 XTZ4 1-3" 7300L1 2673 XTZ4 (Bulletin B115-4)	OA	OA	OA	OA
III	OA	1-3" 7300L1 2671 XTZ4 1-3" 7300L1 2673 XTZ4 (Bulletin B115-4)	NR	NR	OA	OA
IV	1/2-10" 7150C 31 2271 XTZ1 1/2-10" 7150C 31 2273 XTZ1	1/2-10" 7300C 31 2271 XTZ1 1/2-10" 7300C 31 2273 XTZ1	1/2-2" 9FAC 2271XT 1/2-2" 9FAC 2273XT	1/2-2" ACBC 2271 XT1 1/2-2" ABCB 2273 XT1	2 1/2-24" 815LC 11 2271 XZ 2 1/2-24" 815LC 11 2273 XZ	2 1/2-24" 830LC 112271 XZ 2 1/2-24" 830LC 112273 XZ
V	OA	1-3" 7300L1 2671 XTZ4 1-3" 7300L1 2673 XTZ4 (Bulletin B115-4)	NR	OA	OA	OA
VI	OA	1-3" 7300L1 2671 XTZ4 1-3" 7300L1 2673 XTZ4 (Bulletin B115-4)	NR	NR	OA	OA

OA = On Application, Minimum quantities may apply    NR = Not Recommended    Body Material 22 = A216 WCB    Trim Materials 71 = Monel Ball & Stem  
26 = A352 LC3    73 = Hast C Ball & Stem

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[www.metsoautomation.com](http://www.metsoautomation.com)

## JAMESBURY® Online Support.

Metso Automation provides chlor-alkali process engineers online access to installation, maintenance and operating instructions, and other resources including bills of material, product schematics, a database of valve/actuator assemblies, and other technical information. Contact your local JAMESBURY representative for one-on-one applications assistance.

### Ball Valves

Flanged Standard Bore 7000	B 107-1
Flanged Full Bore Bore 9000	B 107-2
Thread End Valves	B 101-2
Severe Service	B 115-4
Chlorine	B 150-2

### High Performance Wafer

Wafer-Sphere®	W 101-6
Chlorine	W 150-2

### Actuators

VPVL	A111-3
QPX	A110-4

### StoneL Valve Communication

L 911 11/07

### Advanced Automation

CINTAC	A 130-1
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### Pneumatic and Electro-Pneumatic Positioners

NP700 and NE700	7 NE/NP 20
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### Intelligent Valve Controller

ND9000	7 ND91 20
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