



Our Promise:

- Quality
- Reliability
- Performance
- Safety



Metso's *Jamesbury* Products

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“We qualify our products with intense cryogenic, fire, temperature and pressure testing. Only then are they made available for customers.”



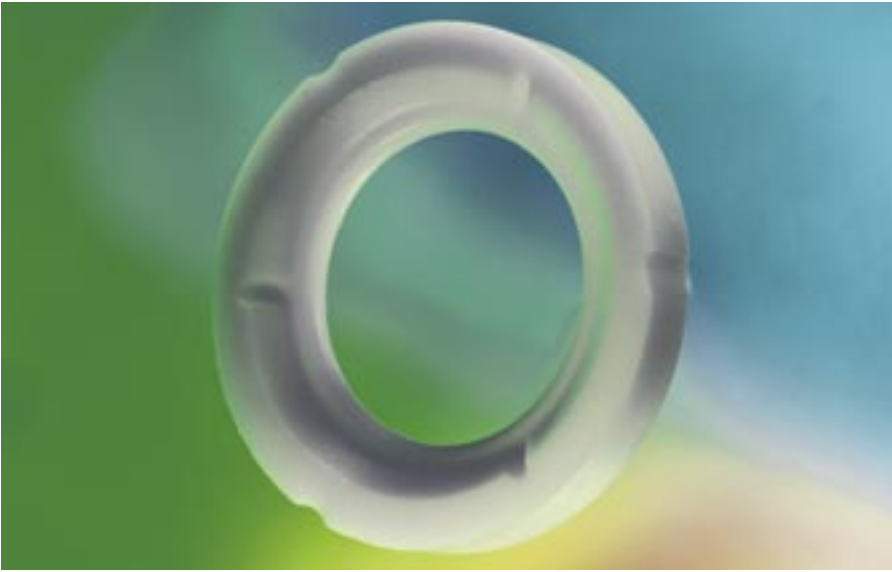
Proven Reliability Leads To Lower Costs

When it comes to valves, we know that one of your most important purchase considerations is reliability. The longer a valve performs without problems, the better. We believe there are no other valve and actuator solutions on the market today that can outperform *Jamesbury* valves.

How can we make such a bold statement? It's our technology. Innovative sealing designs that eliminate leaks. Seat materials that withstand extraordinary extremes in temperature and pressure. Actuation that provides the highest cycle life. All proven in thousands of applications and offering benefits beyond anything offered by our competition.

These are the characteristics for which *Jamesbury* products have been known, for over 60 years. Today, these characteristics and state-of-the-art networking capabilities are the foundation for a whole range of new solutions designed to answer your growing demands for lowest total cost.

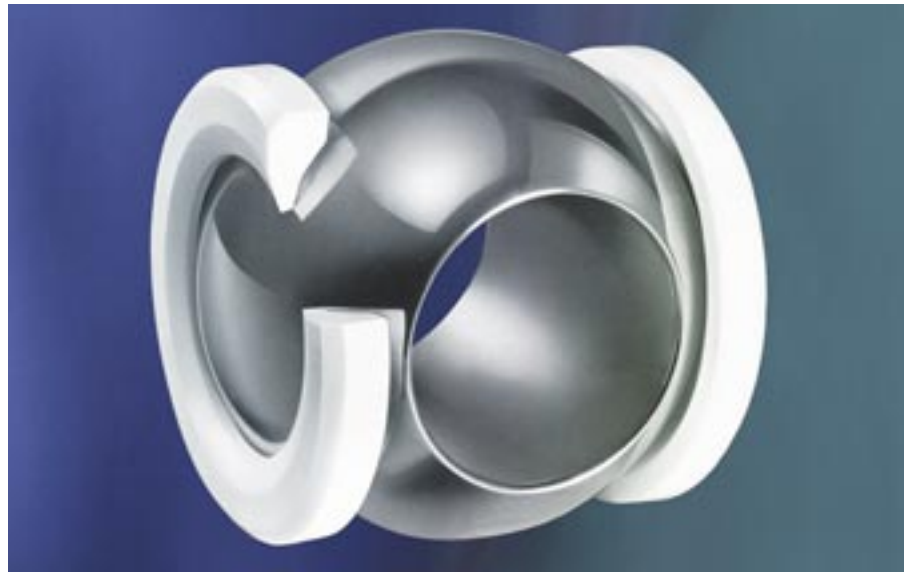
The right valve for the job.
Metso offers a wide range of valve packages
applicable for all types of process conditions.



Jamesbury Ball Valves Standing The Test Of Time

Ask anyone which brand of ball valve continues to perform at the highest level, and the answer you will hear most often is *Jamesbury* ball valves. It's not hard to see why. Look to us for all of your ball valve needs:

- A wide range of application-appropriate valves with proven, cost-saving features.
- Xtreme® sealing technology that opens up a whole new range of applications – with performance and ratings that exceed the competition.
- Sophisticated automation capabilities that are proven to exceed user requirements for cycle life and cost reduction.
- Network-ready capability throughout the product line to cut installation and maintenance costs.
- OEM responsibility for package performance.
- Fugitive emissions compliance to TA-luft, ISO and others
- Service and technical support



- Flexible lip design provides reliable bi-directional shut-off and cavity relief.
- Many body, trim and seat options are available to handle a variety of applications and demanding critical services.
- Fire-Tite® to the requirements of ANSI/API 607 ISO.
- PED and ATEX certified
- Available in 1/2" through 20" (DN 15-500) standard bore flanged ball valves and 1/2" through 24" (DN 15-600) full bore flanged ball valves, ANSI Class 150 and 300.
- A variety of body configurations from floating ball to trunnion-mounted designs.



Flanged Ball Valves

Series 7000 Standard Port And Series 9000 Full Port Flanged Ball Valves

Series 7000 standard port and Series 9000 full port polymeric-seated flanged ball valves provide high flow capacity for isolation and control applications in industries ranging from chemical and petroleum, to power and pulp and paper. These valves offer long-lasting reliable shutoff, and are fire-tested to meet the requirements of ANSI/API-607 and ISO 10497.



Series 7000 Standard Port Ball Valves				
Sizes	Pressure Classes	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1/2" – 20" (DN15-500)	150 300	500°F (260°C)	Carbon Steel 316SS Alloy 20 Monel Hastelloy C	B107-1

Series 9000 Full Port Ball Valves				
Sizes	Pressure Classes	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1/2" – 24" (DN15-600)	150 300	500°F (260°C)	Carbon Steel 316SS Alloy 20 Monel Hastelloy C	B107-2

¹ Consult factory for specific material availability.
Monel is a registered trademark of Inco.
Hastelloy is a registered trademark of Haynes International, Inc.

Threaded-End Ball Valves

Series 4000 Ball Valve

Series 4000 full and standard bore ball valves offer performance and versatility at an economical cost. Three end connections are available: threaded, socket-weld, and butt-weld. The *Fire-Tite* version is standard. It is either CWP-rated with cold working pressures of up to 2000 psi (138 bar) or ANSI Class 600 rated up to 1480 psi (102 bar). It can also meet special requirements for oxygen, NACE, and chlorine.

Series 4000 Standard Port Ball Valves				
Sizes	Max. CWP	Maximum Temperature	Body/Trim Materials	Bulletin
1/2" – 1" (DN15-25)	2500 psi (172 bar)	500°F (260°C)	Carbon Steel 316SS Monel Hastelloy C	B105-1
1 1/4" – 2" (DN32 – 50)	2250 psi (155 bar)			
2 1/2" (DN65)	1000 psi (69 bar)			

Series 4000 Full Port Ball Valves				
Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials	Bulletin
1/2" – 3/4" (DN15 – 20)	2500 psi (172 bar)	500°F (260°C)	Carbon Steel 316SS Monel Hastelloy C	B105-1
1" – 1 1/2" (DN25 – 40)	2250 psi (155 bar)			
2" (DN50)	1000 psi (69 bar)			



Series 2000 Ball Valve

Clincher® Series 2000 ball valves are rugged high performance ball valves designed to handle an extremely wide variety of liquids, gases, and slurries. These valves are available in brass, carbon, and stainless steel. They can be prepared for special service such as oxygen and high-vacuum.

Series 2000 Standard Port Ball Valves				
Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials	Bulletin
1/4"-2" (DN8-50)	800 psi (55 bar)	500°F (260°C)	Carbon Steel 316SS Brass	B102-1



The Eliminator™ Ball Valve

The *Eliminator* ball valve incorporates standard ports, fire-tested performance, rugged actuator support, and flexible-lip seats to provide application versatility that goes beyond many other valves. It is either CWP-rated with cold working pressures of up to 2000 psi (138 bar) or ANSI Class 600 rated up to 1480 psi (102 bar). It can also meet special requirements for oxygen, NACE, and chlorine.

Eliminator Standard Port Ball Valves				
Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials	Bulletin
1/4" – 2" (DN8-50) CWP	2000 psi (138 bar)	500°F (260°C)	Carbon Steel 316SS Monel Hastelloy C	B101-2
1/4" – 2" (DN8 – 50) ANSI-600	1480 psi (102 bar)			



Threaded-End Ball Valves



A-Style Ball Valves

The threaded end A-Style ball valve design incorporates standard ports, fire tested performance, actuator mounting pad, and flexible lip seats for extended cycle life. The A-Style is similar to the *Eliminator*. The A-Style Model D maintains the same end to end dimension as the A-Style Model C and can be used as a direct replacement.

A-Style Ball Valves				
Sizes	Maximum Pressure	Maximum Temperature	Body/Trim Materials	Bulletin
1/4" – 2" (DN8 – 50)	2000 psi (138 bar)	500° F (260° C)	Carbon Steel 316SS Monel Hastelloy C	B100-1

¹ Consult factory for specific material availability.

Value-Line Ball Valves



Series 100 Ball Valve

Series 100 general purpose ball valves feature bubble tight shut-off for industrial and utility services. Ideal for applications where non-relieving seats are acceptable.

Series 100 Ball Valves				
Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1/4" – 2" (DN8 – 50)	2000 psi (138 bar)	450°F (232°C)	Carbon Steel 316SS	B103-5



Series 5H Ball Valve

The *Value-Line* Series 5H 1/4" – 2" (DN8-50) threaded ball valve is the right choice for a wide range of high-pressure fluid and gas applications where superior performance and low cost are equally important. The Series 5H incorporates our unique flexible-lip seat design to provide long-lasting tight shut-off at pressures up to 4500 psi (310 bar) in sizes 1/4" – 1", and 3000 psi (206 bar) in sizes 1 1/4" – 2".

Series 5H Ball Valves				
Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1/4" – 1" (DN8 – 25)	4500 psi (310 bar)	230°F (110°C)	Carbon Steel 316SS	B106-2
1 1/4" – 2" (DN32 – 50)	3000 psi (206 bar)			

Series 3 Ball Valve

Series 3 ball valves have a 3-piece, threaded or socket-weld body design. A range of construction materials provides years of continuous, reliable service in a wide variety of applications. Seat material options handle the vast majority of commonly encountered fluids up to full body rating, including saturated steam up to 250 psi (17 bar). Provides high flow, while minimizing pressure drop. The standard body caps of the Series 3C socket-weld valves are 316 (CF3M) stainless steel when a 316SS valve is specified.

Series 3 Ball Valves				
Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1/2" – 2" (DN15 – 50)	1000 psi (69 bar)	500°F (260°C)	Carbon Steel 316SS	B105-4

¹ Consult factory for specific material availability.



Series 6F Ball Valve

The Series 6F ball valve offers a 2-piece, full port, threaded configuration and 1000 psi pressure rating to make it an ideal choice for applications where tight shut-off and low Δp are required. *Fire-Tite* to API 607, it handles the vast majority of commonly encountered fluids up to full body rating, including saturated steam up to 275 psi (19 bar).

Series 6F Ball Valves				
Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1/2" – 2" (DN15 – 50)	1000 psi (69 bar)	500°F (260°C)	Carbon Steel 316SS	B101-3
3" (DN80)	800 psi (55 bar)			



Series 3000 Ball Valve

Series 3000 ball valves are perfect for applications where positive, long-lasting shut-off is required. Ideal for vent, bypass, sampling and gauge isolation, these valves provide cost-effective shut-off in a wide range of process industry, manufacturing, commercial and OEM services. Seating options permit the handling of many commonly encountered abrasives, steam and applications with wide temperature swings.

Series 3000 Ball Valves				
Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1/4" – 2" (DN8 – 50)	2000 psi (138 bar)	500°F (260°C)	Carbon Steel 316SS	B104-1



Special Service Ball Valves

FM 1051



FM-Approved Electric Interlocking Valve (FM Figure 1051)

Factory Mutual (FM)-Approved for positive shut-off and position indication for fuel light-off of oil or gas burners. The supervisory cock valves provide fast manual actuation, low torque and reliable tight sealing.

Series 2000 Electric Interlocking Valves

Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1/2" – 2" (DN15 – 50)	400 psi (27 bar)	250°F (121°C)	Carbon Steel 316SS	B131-1

Series 4000, Eliminator & A-Style Electric Interlocking Valves

Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1/4" – 2" (DN8 – 50)	2250 psi (155 bar)	250°F (121°C)	Carbon Steel 316SS	B131-1

Series 7000 Electric Interlocking Valves

Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1/2" – 6" (DN15 – 150)	285 psi (19 bar) Class 150	250°F (121° C)	Carbon Steel 316SS	B131-1
	740 psi (51 bar) Class 300			

FM 1052



FM-Approved Safety Shut-Off & Vent Valves (FM Figure 1052)

FM-approved, these valves provide protection against fire and explosive hazards during light-off and operation of fuel-burning equipment. Valves will close rapidly with positive shut-off when electrical signal is interrupted or air pressure is lost.

Series 4000, Eliminator & A-Style Safety Shut-Off Valves

Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1/4" – 2" (DN8 – 50)	1200 psi (83 bar)	300°F (149°C)	Carbon Steel 316SS	B131-2

Series 7000 Safety Shut-Off Valves

Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1/2" – 8" (DN15 – 200)	285 psi (19 bar)	300°F (149°C)	Carbon Steel 316SS	B131-2

Series 9000 Safety Shut-Off Valves

Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1/2" – 6" (DN15– 150)	285 psi (19 bar)	300°F (149°C)	Carbon Steel 316SS	B131-2

¹ Consult factory for specific material availability.

FM-Approved Emergency Shut-Off Heat Activated Valves (FM Figure 1075)

These valves provide emergency shut-off for flammable gases, liquids and toxic fluids where ambient temperatures exceed acceptable limits. FM-approved and available with fusible links for shut off temperatures ranging from 165° F (73° C) to 200° F (93° C) shut-off. Limit switches are available for remote indication of valve position.

Series 2000 Safety Shut-Off Heat Activated Valves

Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1" – 2" (DN25 – 50)	800 psi (55 bar)	500°F (260°C)	Carbon Steel 316SS	B132-1

Series 7000 and 9000 Safety Shut-Off Heat Activated Valves

Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1/2" – 1 1/2" 7000 (DN15 – 40)	285 psi (19 bar) Class 150	500°F (260°C)	Carbon Steel 316SS	B132-1
1/2" – 1" 9000 (DN15 – 25)	740 psi (51 bar) Class 300			

Eliminator Series Safety Shut-Off Heat Activated Valves

Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1/4" – 1 1/4" (DN8 – 32)	2000 psi (138 bar)	500°F (260°C)	Carbon Steel 316SS	B132-1

FM 1075



CSA Approved Gas Shut-off & Vent Valves (CSA Figure 1057)

The *Jamesbury* Figure 1057 Automatic Safety Gas Valves are CSA approved for providing protection against fire and explosive hazards during light-off and operation of gas-burning equipment. When the electrical signal is interrupted or when there is a loss of air pressure, these gas-line valves operate rapidly to isolate or vent gas flow. The units consist of a valve with actuator, limit switch, and solenoid pilot valve, and are approved as an assembly.

Eliminator Series 4000 Gas Shut-Off & Vent Valves

Sizes	Max. Pressure	Minimum Temperature	Body/Trim Materials ¹	Bulletin
1/2" – 2" (DN15 – 50)	200 psi (14 bar)	-40°F (-40°C)	Carbon Steel 316SS	B131-4

Series 7000 Gas Shut-Off & Vent Valves

Sizes	Max. Pressure	Minimum Temperature	Body/Trim Materials ¹	Bulletin
1/2" – 8" (DN15 – 200)	200 psi (14 bar)	-60°F (-51°C)	Carbon Steel 316SS	B131-4

Series 9000 Gas Shut-Off & Vent Valves

Sizes	Max. Pressure	Minimum Temperature	Body/Trim Materials ¹	Bulletin
1/2" – 6" (DN15 – 150)	200 psi (14 bar)	-60°F (-51°C)	Carbon Steel 316SS	B131-4

CSA 1057



¹ Consult factory for specific material availability.



3-Way Flanged Ball Valves

The *Jamesbury* 3-Way ball valves are extremely versatile units of rugged design for diverting or blending flow in a variety of gases or liquids. Bottom ported 3-way ball valves provide a variety of flow paths not commonly found in other 3-way designs. These valves are designed for Class 150 service.

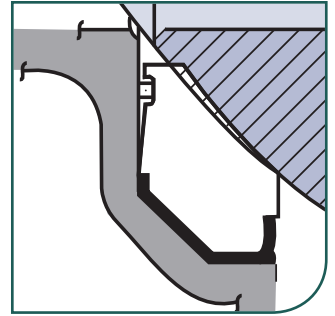
3-Way Flanged Ball Valves				
Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials ¹	Bulletin
2" – 12" (DN50 – 300)	285 psi (19 bar)	300°F (149°C)	Carbon Steel 316SS	B114-1

Bottom Ported 3-Way Flanged Ball Valves				
Sizes	Max. Pressure	Maximum Temperature	Body/Trim Materials ¹	Bulletin
2" – 8" (DN50 – 200)	285 psi (19 bar)	300°F (149°C)	Carbon Steel 316SS	B114-2

Barrier Seat Ball Valves

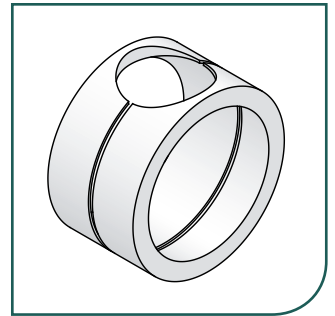
Provides superior performance in handling media involving scale and solid build-up in the valve. Such applications include green and white liquor in pulp mill recovery, oxygen lines in steel mill BOP lines and handling potash fertilizers. Flexible-lip design adjusts for changes in pressure, temperature and wear.

Bulletin: **B151-5**



Cavity Fillers

Cavity fillers are available for full-bore valves. The fillers are TFE and used for sanitary applications and in processes where cross contamination is a concern. Food processing, pharma-chemicals, cosmetics, paints, solvents, finishes and dyes are typical applications where fillers are employed.



Steam Jacketed Ball Valves

Valves with steam jacket are available with either a removable 2 piece bolt-on jacket or a permanent weld-on jacket.

Bulletin: **B151-3**





Steam Service Ball Valves

Standard *Jamesbury* ball valves are an excellent choice for on-off plant steam service.

Bulletin: **B150-1**

Chlorine Service Ball Valves

For both producers and users of chlorine, the unique, flexible-lip design of these valves not only provides tight shut-off, but also flexes and vents chlorine safely to the high-pressure side of the valve when pressure builds up. Valves are constructed of special materials, cleaned and prepared for chlorine service.

Bulletin: **B150-2**

Oxygen Service Ball Valves

A complete line of valves is available for oxygen applications, ranging from air separation to basic oxygen steel furnace systems. To ensure these valves are compatible with oxygen, stringent material cleaning, handling, assembly and packaging procedures are carefully followed.

Bulletin: **B150-3**

Vacuum Service Ball Valves

Jamesbury offers both standard and specially prepared valves for vacuum systems. Proven valve designs coupled with resilient seat materials minimize out-gassing and the need for additional valves for applications below 2×10^{-2} Torr.

Bulletin: **B150-4**

Hydrogen Peroxide Ball Valves

Uniquely designed and prepared to handle the fluid properties of hydrogen peroxide, and keep decomposition to a minimum.

Bulletin: **B150-5**

Double Block And Bleed Valves (DBB)

Valves with non-cavity relieving seats prevent pressurized media from both sides of the valve from entering the body cavity to allow sampling or bleeding. External cavity relief is required for DBB constructions.

Bulletin: **B151-1**

Ball Valve Accessories

Emission-Pak® Assembly

Designed to meet evolving emission regulations. Its double packing and live-loaded mechanism provide consistent packing force and extended cycle life. A quick, easy way of assuring compliance with emissions standards.

Emission-Pak Assembly for 7000 Series Standard Bore Valves				
Sizes	Pressure Class	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1/2" – 6" (15 – 150DN)	Class 150	500°F (260° C)	Carbon Steel Stainless Steel Other Alloys	B115-4
	Class 300			

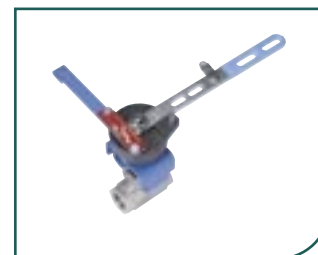
Emission-Pak Assembly for 9000 Series Full Bore Valves				
Sizes	Pressure Class	Maximum Temperature	Body/Trim Materials ¹	Bulletin
1/2" – 6" (15 – 150DN)	Class 150	500°F (260° C)	Carbon Steel Stainless Steel Other Alloys	B115-4
	Class 300			



Spring-Return Handles

Torq-Handle® spring-return handles offer reliable, automatic opening and closing of manual valves in a piping system. Remains in position as long as it's held firmly by hand. Returns to predetermined position when released. Also available with fusible or electrothermal links.

Bulletin: **B160-1**



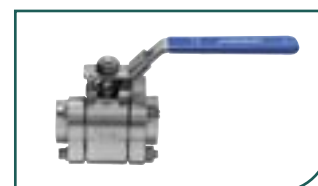
Limit Switches

Available for most 1/4" – 6" (DN8 – 150) manually operated ball and butterfly valves whenever indication of valve position is required. Applications include control of signaling devices and panel lights. Available for FM, CSA, NEMA 4, NEMA 7 and Cenelec applications.



Locking Devices

Locking devices are available to hold a wide range of *Jamesbury* valves inoperative when safety measures are necessary for line maintenance, handling hazardous or valuable fluids, or for applications covered by certain government regulations.



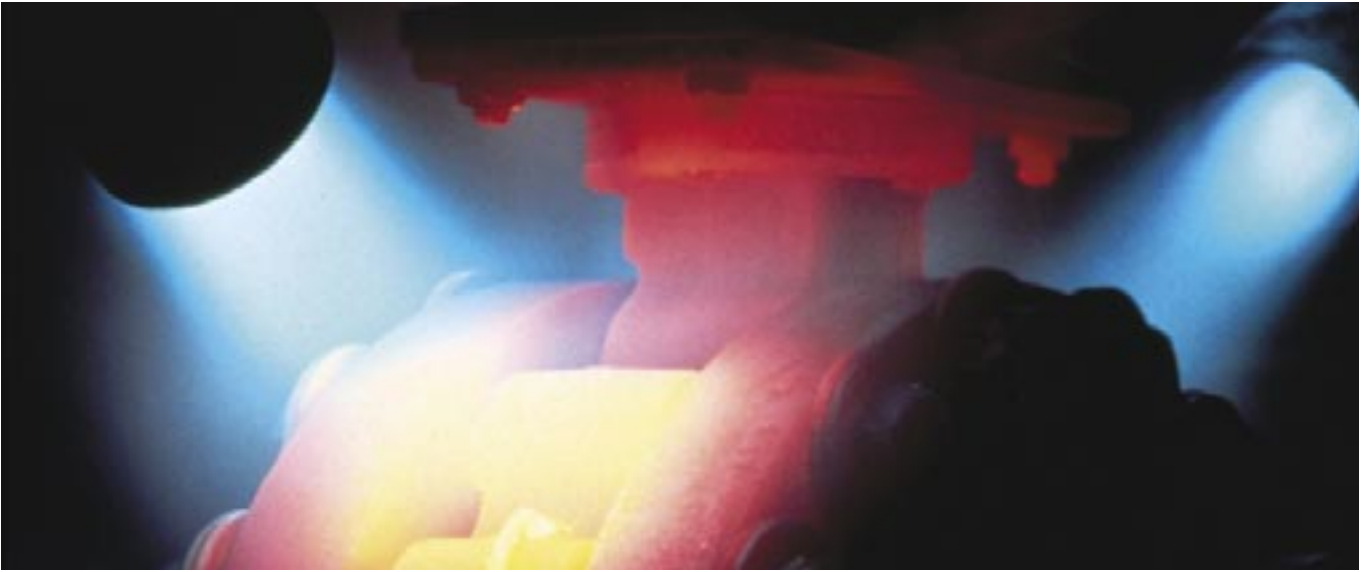
¹ Consult factory for specific material availability.



Jamesbury High-Performance Butterfly Valves Maximizing Cycle Life

The combination of a unique off-center disc, proprietary seat design, *Xtreme* sealing technology, and other features make our *Wafer-Sphere* high-performance butterfly valve a tight-sealing, long-lasting, yet lighter and lower-cost alternative to gate valves and other heavier rotary-type designs.

- Compact size – puts less stress on the piping system.
- Easier maintenance – no need to remove pins, shafts or discs. Insert removes for easy access to the seat. The insert and seat are both self-adjusting.
- Longer cycle life – *Xtreme* seat materials are proven to outperform the competition – life cycle improvements of 500% have been documented.
- Tighter sealing – unique seating principle creates a more reliable bubble-tight seal.
- Wider pressure and temperature range – proprietary *Xtreme* seating materials broaden *Wafer-Sphere* butterfly valve's temperature and pressure applicability – temperatures range from -420°F to 500°F and pressures up to 1480 psi.
- Easier automation – accommodates a variety of actuation options and digital positioners for control service.
- Lower cost-of-acquisition/ownership – a more competitive purchase and installation price than gate and other heavier rotary-type valves.



- Positive shaft retention and blow-out mechanism prevents movement of the shaft past the compression plate.
- Polymeric seat assures positive shut-off, compensating for wear to extend life.
- Easy maintenance — only the insert needs to be removed to replace the seat. The insert and seat are self-aligning.
- *Wafer-Sphere Fire-Tite* valves meet the requirements of API 607 and ISO with a secondary metal seat that ensures tight sealing before, during and after a fire.
- Low output torque requirements allow the use of less costly actuators.
- Available in 150 lb. (Series 815), 300 lb. (Series 830), and 600 lb. (Series 860) pressure classes — in wafer and in single-flanged lugged designs.
- Available in a broad range of materials for standard and special services including chlorine, oxygen, cryogenics and vacuum.



High-Performance Butterfly Valves

Series 815/830/860

Series 815/830/860 valves are available in wafer and single-flanged lugged designs for dead-end service for ANSI class 150, 300 and 600 pressure class applications. All available in both Lugged and Wafer style to meet NACE MR0175 and MR0103.



ANSI Class 150 Series 815 Butterfly Valves						
Sizes	Body Style	Max Press.	Max Temp.	Body/Trim Materials	Seat Materials	Bulletin
2 1/2 – 30" (DN65 – 750)	Wafer	285 psi (19.6 bar)	500°F (260°C)	Carbon Steel 316SS Alloy 20 254SMO® Monel Hastelloy C	Teflon® Xtreme UHMW	W101-6
2 1/2 – 60" (DN65 – 1500)	Lugged					

ANSI Class 150 Series F815 Butterfly Valves						
Sizes	Body Style	Max Press.	Max Temp.	Body/Trim Materials	Seat Materials	Bulletin
3 – 30" (DN80 – 750)	Wafer	285 psi (19.6 bar)	500°F (260°C)	Carbon Steel 316SS Alloy 20 254SMO Monel Hastelloy C	316SS/PTFE 316SS/XT	W101-6
3 – 60" (DN80 – 1500)	Lugged					

ANSI Class 300 Series 830 Butterfly Valves						
Sizes	Body Style	Max Press.	Max Temp.	Body/Trim Materials	Seat Materials	Bulletin
3 – 30" (DN80 – 750)	Wafer	740 psi (51 bar)	500°F (260°C)	Carbon Steel 316SS Alloy 20 254SMO Monel Hastelloy C	Teflon Xtreme UHMW	W101-6
3 – 36" (DN80 – 900)	Lugged					

ANSI Class 300 Series F830 Butterfly Valves						
Sizes	Body Style	Max Press.	Max Temp.	Body/Trim Materials	Seat Materials	Bulletin
3 – 30" (DN80 – 750)	Wafer	740 psi (51 bar)	500°F (260°C)	Carbon Steel 316SS Alloy 20 254SMO Monel Hastelloy C	316SS/PTFE 316SS/XT	W101-6
3 – 36" (DN80 – 900)	Lugged					

Teflon is a registered trademark of E.I. du Pont de Nemours and Company.
254SMO is a registered trademark of Avesta Sheffield.

Series 815/830/860 (Continued)

ANSI Class 600 Series 860 Butterfly Valves						
Sizes	Body Style	Max Press.	Max Temp.	Body/Trim Materials	Seat Materials	Bulletin
3 – 24" (DN80 – 600)	Wafer	1480 psi (102 bar)	500°F (260°C)	Carbon Steel 316SS	<i>Xtreme</i>	W104-1
	Lugged					

ANSI Class 600 Series F860 Butterfly Valves						
Sizes	Body Style	Max Press.	Max Temp.	Body/Trim Materials	Seat Materials	Bulletin
3 – 24" (DN80 – 600)	Wafer	1480 psi (102 bar)	500°F (260°C)	Carbon Steel 316SS	316SS/PTFE	W104-1
	Lugged					



Series 835

Series 835 process-rated ANSI Class 150 high-performance *Wafer-Sphere* butterfly valves are an excellent, cost-effective solution for shut-off pressures up to 100 psi. The Series 835 provides the same long-lasting tight shut-off capability, excellent flow characteristics and long service life as the fully ANSI-rated Series 815.

ANSI Class 150 Series 835 Butterfly Valves						
Sizes	Body Style	Max Press.	Max Temp.	Body/Trim Materials	Seat Materials	Bulletin
30 – 60" (DN750 – 1500)	Lugged	100 psi (6.9 bar)	500°F (260°C)	Carbon Steel 316SS Alloy 20 254SMO Monel Hastelloy C	Teflon <i>Xtreme</i>	W105-1

ANSI Class 150 Series F835 Butterfly Valves						
Sizes	Body Style	Max Press.	Max Temp.	Body/Trim Materials	Seat Materials	Bulletin
30 – 60" (DN750 – 1500)	Lugged	100 psi (6.9 bar)	500°F (260°C)	Carbon Steel 316SS Alloy 20 254SMO Monel Hastelloy C	316SS/PTFE	W105-1





Series K815/K830/K860

Series K815/K830/K860 cryogenic designs offer the same features and benefits, and are designed to operate in cryogenic applications such as air separation to -320° F.

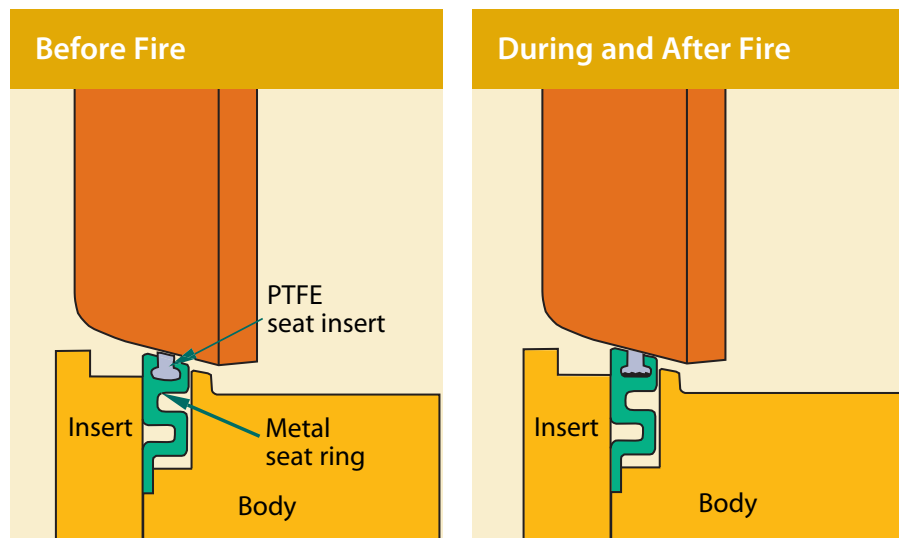
ANSI Class 150 Cryogenic Services Series K815 Butterfly Valves						
Sizes	Body Style	Max Press.	Temp. Range	Body/Trim Materials	Seat Materials	Bulletin
3 – 12" (DN80 – 300)	Wafer	275 psi	-320 – +100°F	316SS	316SS/PTFE	W130-1
	Lugged	(19 bar)	(-196 – 38°C)	Monel		
14 – 30" (DN350 – 750)	Wafer	275 psi	-320 – +100°F	316SS	KEL-F	W130-1
	Lugged	(19 bar)	(-196 – 38°C)	Monel		

ANSI Class 300 Cryogenic Services Series K830 Butterfly Valves						
Sizes	Body Style	Max Press.	Temp. Range	Body/Trim Materials	Seat Materials	Bulletin
3 – 12" (DN80 – 300)	Wafer	720 psi	-320 – +100°F	316SS	316SS/PTFE	W130-1
	Lugged	(49.6 bar)	(-196 – 38°C)	Monel		
14 – 30" (DN350 – 750)	Wafer	720 psi	-320 – +100°F	316SS	KEL-F	W130-1
	Lugged	(49.6 bar)	(-196 – 38°C)	Monel		

ANSI Class 600 Cryogenic Services Series K860 Butterfly Valves						
Sizes	Body Style	Max Press.	Temp. Range	Body/Trim Materials	Seat Materials	Bulletin
3 – 12" (DN80 – 300)	Wafer	1440 psi	-320 – +100°F	316SS	316SS/PTFE	W130-1
	Lugged	(99.3 bar)	(-196 – 38°C)	Monel		

Wafer-Sphere Fire-Tite Butterfly Valves

Wafer-Sphere Fire-Tite valves offer outstanding advantages in providing reliable operation in normal service and when fire strikes. Specifically developed for use in such industries as petroleum refining and distribution, chemical, marine and others. The metal seat ring effectively stops flow through the valve if the PTFE seat is destroyed in the fire. Fire-Tite valves meet the requirements of NACE and are qualified to API-607 and ISO fire testing specifications. Available in Series F815, F830, F860 & F835 models for manual or automatic operation.



Special Service Butterfly Valves

High-Cycle Butterfly Valves

Testing indicates that a combination of components — including *Xtreme* seats, filled enhanced PTFE shaft seals, metal-backed/fabric-lined shaft bearings, PEEK-filled PTFE thrust bearings, and bearing seals — will yield significantly longer life than standard configuration valves.

Steam Service Butterfly Valves

Wafer-Sphere butterfly valves are well-suited for a wide variety of on-off saturated steam applications up to 450 psi.

Bulletin: **W150-1**

Chlorine Service

Wafer-Sphere valves are available specially prepared for chlorine service.

Bulletin: **W150-2**

Oxygen Service Butterfly Valves

A complete line of valves is available for oxygen applications, ranging from air separation to basic oxygen steel furnace systems. To ensure these valves are compatible with oxygen, rigid material cleaning, handling, assembly and packaging procedures are carefully followed.

Bulletin: **W150-3**

Vacuum Service Butterfly Valves

The standard *Wafer-Sphere* valve is capable of vacuum service of 2×10^{-2} Torr. For high-vacuum service, its specially cleaned seat and packing assure a leakage rate of no more than 1×10^{-5} standard cc/sec. of helium. When required, valves can be certified with a helium mass spectrometer.

Bulletin: **W150-4**

Jacketed Butterfly Valves

Wafer-Sphere high-performance butterfly valves are available with welded or bolt-on jackets.

Bulletin: **W151-3**

Hydrogen Peroxide Butterfly Valves

Wafer-Sphere Uniquely designed and prepared to handle the fluid properties of hydrogen peroxide, and keep decomposition to a minimum.

Bulletin: **B150-5**





Jamesbury Actuators

Maximizing Cycle Life & Improving Process Efficiency

Jamesbury actuator solutions provide safe, smooth, and trouble free operation. Their rugged construction and innovative designs provide a cycle life far beyond competitor products.

Electric, Pneumatic & Manual Actuators

Valv-Powr® VPVL

The *Valv-Powr* VPVL actuator is suitable for all process applications. It is a favorite in the chemical industries because of its compact design. It offers several added corrosion treatments such as electroless nickel, hard anodized protection, and PTFE coating.

Valv-Powr VPVL Model D				
Type	Action	Recommended Input	Torque Output	Bulletin
Pneumatic Rack & Pinion	Double Acting	40 – 100 psi (2.7 – 6.9 bar)	6.8 – 4581 ft-lb (3.2 – 6211 N-m)	A111-5 A111-4
	Spring Return	60 – 80 psi (4.2 – 5.5 bar)	3.1 – 1628 ft-lb (6.1 – 2207 N-m)	



Quadra-Powr® X

The *Quadra-Powr* X spring-diaphragm actuator is a unique solution that provides exceptionally smooth and reliable control actuation for 90° rotary valves. It combines the low air pressure requirements of a diaphragm actuator with the high pressure capacity of a piston actuator. The result is smoother, more accurate operation (even at minimal supply pressures), and longer cycle life.

Quadra-Powr X				
Type	Action	Recommended Input	Torque Output	Bulletin
Pneumatic Diaphragm	Spring Return	20 – 100 psi (1.4 – 6.9 bar)	11 – 587 ft-lb (15 – 796 N-m)	A110-4



B-Series

B-Series piston actuators are available in either double-acting or spring-return versions. The Series B1C and B1J provide for mounting in accordance with ISO 5211/1. These actuators offer an extremely long life cycle and are well suited to operate any type of rotary valve. Robust cast iron construction is good for refineries where aluminum is prohibited.

B-Series				
Type	Action	Recommended Input	Torque Output	Bulletin
Pneumatic Piston	Double Acting	43 – 102 psi (3.0 – 7.0 bar)	30 – 75630 ft-lb (41 – 102540 N-m)	6B20
	Spring Return			



M-Series

M-Series actuators are fully enclosed, weather-proof, all-cast-iron and carbon-steel construction. They are factory lubricated for their lifetime, requiring no future lubrication. Each unit includes a pointer to indicate valve position.

M-Series				
Type	Action	Recommended Input	Torque Output	Bulletin
Manual Gear Operated	Handwheel	10 – 151 ft-lb (14 – 205 N-m)	92 – 17770 ft-lb (125 – 24096 N-m)	A100-1





V-Series

V-Series electric actuators are utilized for accurate positioning of dampers and valves in the aerospace, automotive, consumer services, discrete manufacturing, energy, environmental, oil/pipeline, petrochemical, power/utilities, process, recreation, transportation, and water/wastewater industries.

Enclosures: NEMA 4, 4X & 7/9

V-Series				
Type	Action	Available Input Voltages	Torque Output	Bulletin
Electric	Reversing	115/230 VAC	150 – 3000 in-lb (17 – 339 N-m)	A200-1



ADC-Series

ADC-Series back-up powered electric actuators are ideal for accurate positioning of dampers and valves in the aerospace, automotive, consumer services, discrete manufacturing, energy, environmental, oil/pipeline, petrochemical, power/utilities, process, recreation, transportation, and water/wastewater industries.

ADC-Series				
Type	Action	Universal Voltage Input	Torque Output	Bulletin
Back-Up Powered Electric	Reversing	24/115/230 VAC 12/24 VDC	150 – 3000 in-lb (17 – 339 N-m)	A201-1



LCU-Series

LCU offers simple, economical and reliable automatic control of quarter-turn valves.

Enclosures: NEMA 4 & 4X

LCU-Series				
Type	Action	Available Input Voltages	Torque Output	Bulletin
Electric	Unidirectional	24/115/230 VAC 12/24 VDC	150 – 600 in-lb (17 – 68 N-m)	A202-1



LCR-Series

LCR offers simple, economical and reliable automatic control of quarter-turn valves.

Enclosures: NEMA 4 & 4X

LCR-Series				
Type	Action	Available Input Voltages	Torque Output	Bulletin
Electric	Reversing	24/115/230 VAC 12/24 VDC	150 – 600 in-lb (17 – 68 N-m)	A203-1

ESR, I, QX & Q6-Series

ESR, I, QX & Q6-Series electric actuators are utilized for accurate positioning of dampers and valves in the aerospace, automotive, consumer services, discrete manufacturing, energy, environmental, oil/pipeline, petrochemical, power/utilities, process, recreation, transportation, and water/wastewater industries.
Enclosures: NEMA 4, 4X & 7/9

ESR-Series				
Type	Action	Available Input Voltages	Torque Output	Bulletin
Electric – Spring Return	Reversing	115/230 VAC	150 – 600 in·lb (17 – 68 N·m)	A204-1

I-Series				
Type	Action	Available Input Voltages	Torque Output	Bulletin
Electric – Network Capable	Reversing	115/230 VAC	150 – 3000 in·lb (17 – 339 N·m)	A206-1

QX-Series				
Type	Action	Available Input Voltages	Torque Output	Bulletin
Electric	Reversing	12/24 VDC	150 – 3000 in·lb (17 – 339 N·m)	A207-1

Q6-Series				
Type	Action	Available Input Voltages	Torque Output	Bulletin
Electric	Reversing	12 VDC	150 – 600 in·lb (17 – 68 N·m)	A205-1





Valve Monitoring & Communication

Metso offers a full array of Neles® and StoneL® valve monitoring and communication solutions to facilitate connectivity of on-off valves to your plant networks. This provides advanced diagnostics and data collection from on-off valves for improved maintenance decision-making. *Neles* and *StoneL* products integrate high-reliability controllers, solid-state sensors and field-proven two-wire communications to offer new cost-cutting solutions. They are constructed especially for restrictive hazardous areas.

Key capabilities include:

- Solid-state discrete position sensing systems
- Field-based communication integration and networking
- Explosion-proof/flame-proof metallic enclosures
- High-durability engineered resin enclosures
- Environmental encapsulation of electronics
- Pneumatic pilot valve systems
- Mechanical adapting systems



ND9000® Intelligent Valve Controller

This top class valve controller is designed to operate on every control valve actuator and in all industrial areas. Simple configuration through the local user interface eases commissioning activities while advanced diagnostic trending allows for performance optimization and proactive maintenance.

Bulletin: **7ND90 21**

SwitchGuard™ SG9000 Intelligent On/Off Valve Controller

Combining high pneumatics capacity and valve position feedback in an intelligent on/off controller reduces installation costs and allows you to control the valve opening/closing ramp profiles and stroke times. With the addition of unique diagnostics features, you can now follow the condition of your critical on/off valves and practice true predictive maintenance.

Bulletin: **7SG 20**



ValvGuard™ VG9000 Intelligent Safety Valve Controller

A new generation safety valve controller and partial stroke testing device for emergency shutdown valves. The safety valve condition is monitored through diagnostic data gathered during pneumatics tests, partial stroke tests, and emergency trip tests. With market leading pneumatics capacity and integrated limit switches, instrumentation is simplified while mitigating safety risks.

Bulletin: **9VG9 21**



Axiom® Limit Switch For Hazardous Areas and General Purposes

The *Axiom* explosionproof platform, available in epoxy-coated anodized aluminum or stainless steel, will withstand your most challenging plant environments. Its advanced position monitoring and integral pneumatic control offer the ultimate in reliability, convenience, and value.

Bulletin: **7AMI 20**



Quartz® Limit Switch For Hazardous Areas and General Purposes

The new improved *Quartz* is available in explosion/flame proof (QX), intrinsically safe and nonincendive (QN) and general purpose (QG) versions. The robust urethane coated anodized aluminum construction makes this platform extremely durable and well suited for use in corrosive, heavy wash down environments.

Bulletin: **S140-1**



Eclipse® Limit Switch For Hazardous Areas and General Purposes

The new improved *Eclipse* features dual solid state sensors with optional communications integrated into a sealed module. The function module and trigger/indicator attach quickly and conveniently to standard VDI/VDE 3845 (Namur) actuator accessory mounting pads with appropriate mounting kit.

The *Eclipse* series is available in intrinsically safe and nonincendive versions (EN) for hazardous areas with a removable module and in a general purpose completely sealed micro-connector version (EG).

Bulletin: **S140-2**



Hawkeye® Linear Point Sensor

The solid state *Hawkeye* sensor is ideal for point sensing in corrosive and hazardous process environments. The standard red/green LED's also speed your setup and installation by confirming power up and switch status.

The *Hawkeye* is FM and CSA approved for nonincendive applications and intrinsically safe circuits in hazardous areas.

Bulletin: **S140-3**



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