

# DOUBLE-SEAL® BALL VALVES FOR VACUUM SERVICE

Inherent features of the Jamesbury ball valves make them well-suited for vacuum service.

## FEATURES

- Positive sealing - no through-leakage or in-leakage past the stem.
- Full unobstructed flow, decreasing evacuation time when pumping vacuums.
- 90° operation to open or close.
- Wide selection of materials to suit specific service conditions.
- Ability to seal in either direction - suitable for alternating vacuum-pressure processes.
- Resilient materials limited to polymeric seats, minimizing out-gassing problems.

Standard Jamesbury ball valves in all materials and sizes are rated to hold vacuums down to  $2 \times 10^{-2}$  Torr of absolute pressure.

For higher vacuums, Jamesbury high-vacuum series ball valves are recommended. These valves are prepared

with extremely close control of seat and seal tolerances to ensure complete tightness, and with special attention to quality of finished surfaces. Provision is made to vent and evacuate the body cavity. All components are specially cleaned, and valves are tagged, and then sealed in polyethylene bags.

Vacuum valves are guaranteed to have a leakage rate not to exceed  $1 \times 10^{-5}$  std.cc/sec. of helium. If required, high-vacuum valves can be tested and certified for this figure with a helium mass spectrometer having maximum sensitivity of  $2 \times 10^{-10}$  std.cc./sec.

Listed below are vacuum ratings and recommended temperature ranges of both standard and high-vacuum ball valves with PTFE or XTREME™ seats and PTFE or TFM stem seals.

Type of Valve	Temperature Range	Vacuum Rating
Standard valves- all sizes and styles	-50°F to +400°F -46°F to +204°C	To $2 \times 10^{-2}$ Torr
High-vacuum valves- all sizes and styles	0°F to +300°F -18°C to +149°C	Below $2 \times 10^{-2}$ Torr

	Pounds per square inch (psi)		Kilograms per square inch (kg/cm)		Inches of water column (in. wc)		Inches of mercury (in. hg)		Millimeter of mercury (mm hg)		Microns (Torr x 1000)	Valve applications
	Gage	Absolute	Gage	Absolute	Gage	Absolute	Gage	Absolute	Gage	Absolute		
Pressure	3	18		1.266	100	500	6	36	100	900		
	2	16		1.125	50	450	3	33		800		
Atmosphere	0	14.7	0	1.033	0	406.8	0	29.92	0	760	760,000	
		14		0.984				27		700		
	2			0.141	50	350	3		100			
	3	12		0.844	100	300	6	24		600		
	4						9	21		500		
	5	10		0.703								
	14.6996	.0004 or $4 \times 10^{-4}$	1.03297	.00003 or $3 \times 10^{-5}$	406.79	.01 or $1 \times 10^{-2}$	29.91	.0008 or $8 \times 10^{-4}$	759.98	.02 or $2 \times 10^{-2}$	20	
		$2 \times 10^{-7}$		$1.36 \times 10^{-2}$		$5 \times 10^{-6}$		$4 \times 10^{-7}$		$1 \times 10^{-5}$	.01 or $1 \times 10^{-2}$	
Vacuum											0	
	14.7	0	1.033	0	406.8	0	29.92	0	760	0	0	

## HOW TO ORDER

Specify the vacuum version of Eliminator® and Series 4000, 5000, 6000, 7000, or 9000 valves by inserting the the letter "V" ("VC" for certified valves) before the figure numbers designating the body type. For example, Style 7150V.

## Installation Instructions, Maintenance and Operation

IMO's (Installation, Maintenance, and Operating instructions) or AMI's (Assembly, Mounting, and Installation instructions) are shipped with the products. Additional copies of these instructions are available. Call your local Metso Automation Distributor, or visit our web site.

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