

# Jamesbury™ Wafer-Sphere™ butterfly valves for vacuum service

For vacuum applications, Wafer-Sphere high-performance butterfly valves offer not only the conventional butterfly valve advantages of compactness, minimum amount of surface area exposed to the vacuum and simplicity of design, but also the tight shut-off and long cycle life resulting from the Wafer-Sphere valves unique construction.

Standard Wafer-Sphere valves are rated for vacuum services down to  $2 \times 10^{-2}$  Torr, with a specially prepared high vacuum valve available for lower applications, as indicated in **Table 1**.

## Features

### Positive shut-off

- Jamesbury™ flexible lip seat design provides positive shut-off throughout the full pressure/vacuum rating range of the valve while minimizing out-gassing problems characteristic of resilient materials. High vacuum valves are guaranteed to have a leakage rate not to exceed  $1 \times 10^{-5}$  std. cc/sec. of helium.

### High cycle life

- An offset shaft and disc arrangement causes the disc to lift away from the seat to provide for extremely long cycle life while enhancing sealing ability.

### Two versions available

- Standard Wafer-Sphere valves are offered for vacuums to  $2 \times 10^{-2}$  Torr. For services below that, a high vacuum valve is available, specially cleaned, tagged and sealed in polyethylene bags.

### Special testing and certification available

- High vacuum valves can be tested on a helium mass spectrometer with a maximum sensitivity of  $2 \times 10^{-10}$  std. cc/sec. and certified to have a leakage rate not to exceed  $1 \times 10^{-5}$  std. cc/sec. of helium.

## Vacuum and recommended temperature ratings

TABLE 1 Wafer-Sphere Butterfly Valves		
Type of valve	Xtreme™ Seat & Carbon Filled Enhanced PTFE Seal	Vacuum rating
Standard valves* All sizes and styles	-50°F to +500°F (-45°C to +260°C)	$2 \times 10^{-2}$ Torr
High Vacuum valves All sizes and styles	+20°F to +300°F (-6.67°C to +126.67°C)	Below $2 \times 10^{-2}$ Torr

\* **NOTE:** Standard valves with PTFE seat & seal are rated to -50°F to +400°F (-45°C to +204°C)

## Pressure conversion table

	POUNDS PER SQUARE INCH (psi)		KILOGRAMS PER SQUARE CENTIMETER (kg/cm <sup>2</sup> )		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 (Torr)		
↑ PRESSURE ↓	3	18		1.266	100	500	6	36	100	900		↑ USE STANDARD VALVES ↓
	2	16	0.141	1.125	50	450	3	33		800		
ATMOSPHERE	0	14.7	0	1.033	0	406.8	0	29.92	0	760	760,000	
↑ VACUUM ↓	2	14	0.141	0.984	50	350	3	27	100	700		
	3	12	0.281	0.844	100	300	6	24	200	600		
	4	10		0.703			9	21		500		
	14.6996	.0004 or 4 x 10 <sup>-4</sup>	1.03297	.00003 or 3 x 10 <sup>-5</sup>	406.79	.01 or 1 x 10 <sup>-2</sup>	29.91	.0008 or 8 x 10 <sup>-4</sup>	759.98	.02 or 2 x 10 <sup>-2</sup>	20	
	2 x 10 <sup>-7</sup>		1.36 x 10 <sup>-8</sup>		5 x 10 <sup>-6</sup>		4 x 10 <sup>-7</sup>		1 x 10 <sup>-5</sup>	.01 or 1 x 10 <sup>-2</sup>	↓ USE HV or HVC VALVES ↑	
	14.7	0	1.033	0	406.8	0	29.92	0	760	0		

### How to order Wafer-Sphere butterfly valves for vacuum service

High vacuum type 815 and 830 Wafer-Sphere valves have the letters "HV" succeeding the body designation, i.e., Figure 815LHV-11-2236X2. Certified high vacuum valves use the letters "HVC."

For complete ordering information on Wafer-Sphere high performance butterfly valves refer to Bulletin W101-6.

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