

# HB SERIES Ultra-High Purity Bellows Valves



## PRODUCT APPLICATIONS

This HB stainless steel (bellows design) valve series<sup>†</sup> is intended for bulk gas distribution service where containment, cleanliness and purity are of utmost importance.

*Applications for these valves include:*

- High-purity gas distribution system control
- High-purity gas valves for point-of-use service
- Superior containment and cleanliness for your most critical valve applications
- Use with inert and most toxic gases

▶ PRODUCT FEATURES	CONSTRUCTION MATERIALS
<ul style="list-style-type: none"> <li>▶ Bellows Design for Ultra-High Purity and Long Cycle Life</li> <li>▶ Compact Design</li> <li>▶ Ultra Smooth Seat Holder for Cleanliness</li> <li>▶ Electropolished Wetted Surfaces to 10 Ra Max (Optional surface finishes available)</li> <li>▶ New Seat Design with Minimal CTFE Volume</li> <li>▶ Maximum Leak Rate of <math>1 \times 10^{-10}</math> scc He/sec for Bellows Seal and CTFE Seat Insert*</li> <li>▶ Inboard and Across the Seat Leak Tested with 100% Helium</li> <li>▶ 1/4" Purge Connections and Purge Valves are Integral in Valve Body, 1/2" Available</li> <li>▶ Assembled and Tested in CLASS 10 Cleanroom</li> <li>▶ Valve Bodies and Tube Stubs are Serialized for Material Certification</li> </ul>	<ul style="list-style-type: none"> <li>Easy Grip Handwheel ●</li> <li>Viton® O-Ring ●</li> <li>316L Bonnet ●</li> <li>303 Stainless Stem ●</li> <li>Electropolished 316L Bellows Flange ●</li> <li>Nickel Foil Seal ●</li> <li>316L Bellows ●</li> <li>316L Barstock Body ●</li> <li>316L Tube Stub ●</li> <li>Electropolished 316L Seat Holder ●</li> <li>CTFE Seat Insert ●</li> </ul>
<ul style="list-style-type: none"> <li>▶ Cleaned For Ultra-High Purity Gas Service</li> <li>▶ Purged and Final Packaged in CLASS 1 Cleanroom Double-Bag Packaging with N<sub>2</sub> Gas Environment Supplied from Liquid Source</li> </ul>	<p style="text-align: center;"><b>HB 1000</b></p>
<p><small>*Excluding Permeation of CTFE</small></p>	

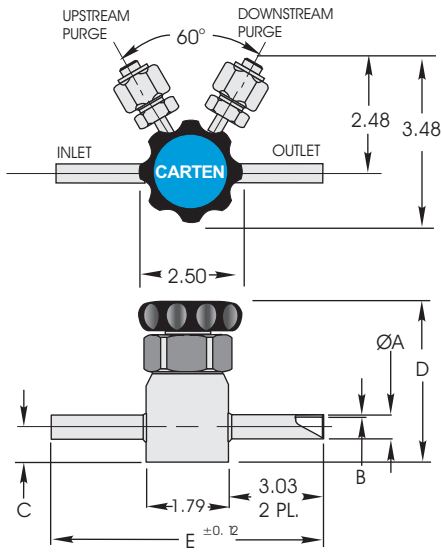
<sup>†</sup>U.S. Patent # D347,882 and other patents worldwide

## HB and GBV SERIES - Technical Data

CONSTRUCTION MATERIAL	Wetted Areas	316L Stainless Steel, Nickel, CTFE	HELIUM LEAK TEST	Inboard/across the seat	1x10 <sup>-10</sup> scc/s He max.	Rated
	Non-Wetted Areas	316L Stainless Steel, Brass (GBV 500 only)			1x10 <sup>-9</sup> scc/s He max.	Std. Production
MAXIMUM OPERATING PRESSURE	HB Series	Vacuum to 375 psi (25 BAR)	Helium leak test performed with 100% He			
OPERATING TEMPERATURE RANGE	HB Series	-22° F (-30°C) to 180° F (82°C)	CLEANLINESS AND PACKAGING	Assembled and tested in CLASS 10 cleanroom. Purged and final packaged in Class 1 cleanroom. Double-bag packaging (2 mil nylon inner bag, 6 mil polyethylene outer bag) with N <sub>2</sub> gas environment supplied from a liquid source.		
FLOW COEFFICIENT (C <sub>v</sub> )	GBV500	1.93	STANDARD FINISH	Electropolished to 10 Ra (0.25 Ra m) on all wetted surfaces		
	HB 751	10.2	OPTIONS	Surface finish - 5 Ra, 20 Ra Particle, moisture, THC and O <sub>2</sub> testing SEM and ESCA testing, Auger analysis Fitting type and location Material: VAR; VIM / VAR, Vespel® seat Handwheel color (Std. Black, GBV White) JIS tube stubs and tube length		
	HB 1000	14.3				
	HB 1501	16.6				
	HB 1502	63.3				
	HB 2000	74.1				
	HB 3004	175.0				
	HB 4000	181.0				
HB 6004	185.0					

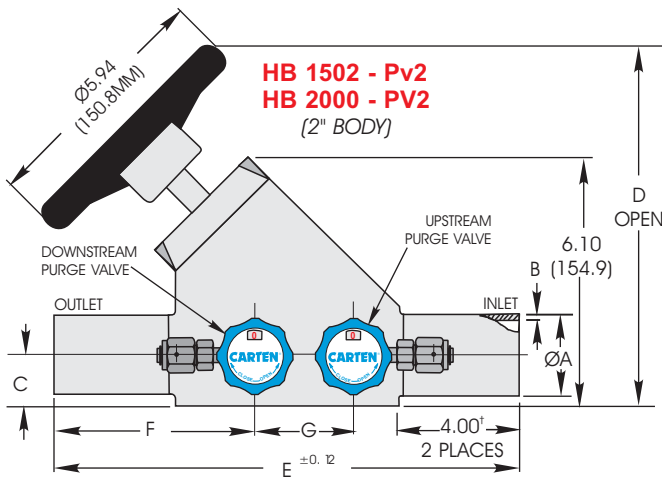
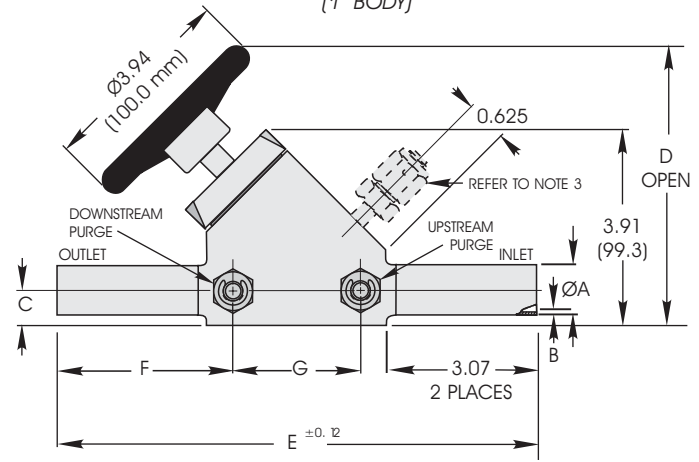
Specifications are subject to change without notice.  
Viton and Vespel are registered trademarks of Dupont Company

# HB and GBV SERIES - Valve Dimensions (1/2" TO 6")



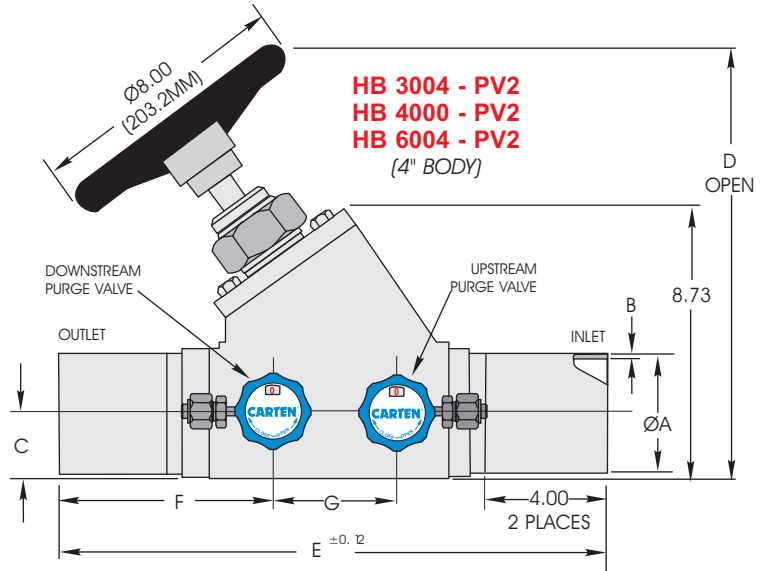
**GBV 500 - PC2**  
(1/2" BODY)

**HB 751 - PC2**  
**HB 1000 - PC2**  
**HB 1501 - PC2**  
(1" BODY)



**HB 1502 - Pv2**  
**HB 2000 - Pv2**  
(2" BODY)

† HB 1502 HAS A 3.00 TUBE LG.



**HB 3004 - PV2**  
**HB 4000 - PV2**  
**HB 6004 - PV2**  
(4" BODY)

Standard purge connections and purge valve sizes are 1/4".

MODEL NO.	A*	B*	C	D	E	F	G	Body Width	Approx. Weight
GBV 500	0.500	0.049	0.715 (18.1mm)	3.75 (95.2mm)	7.84 (199.1mm)	N/A	N/A	2.00 (50.8mm)	2.25 Lb (1.02 Kg)
HB 751	0.750	0.065	0.75 (19.05mm)	5.62 (142.8mm)	11.55 (293.4mm)	4.57 (116.1mm)	2.50 (63.5mm)	2.25 (57.2mm)	5.5 Lb (2.5 Kg)
HB 1000	1.000	0.065	0.75 (19.05mm)	5.62 (142.8mm)	9.57 (243.1mm)	3.58 (90.9mm)	2.50 (63.5mm)	2.25 (57.2mm)	5.5 Lb (2.5 Kg)
HB 1501	1.500	0.065	0.75 (19.05mm)	5.62 (142.8mm)	13.45 (341.6mm)	5.52 (140.2mm)	2.50 (63.5mm)	2.25 (57.2mm)	5.5 Lb (2.5 Kg)
HB 1502	1.500	0.065	1.25 (31.75mm)	8.63 (219.2mm)	15.42 (391.7mm)	7.03 (178.6mm)	2.50 (63.5mm)	3.38 (85.8mm)	20.0 Lb (9.08 Kg)
HB 2000	2.000	0.065	1.25 (31.75mm)	8.63 (219.2mm)	13.50 (342.9mm)	6.07 (154.2mm)	2.50 (63.5mm)	3.38 (85.8mm)	20.0 Lb (9.08 Kg)
HB 3004	3.000	0.065	2.12 (53.8mm)	13.93 (353.8mm)	25.62 (650.7mm)	10.43 (264.9mm)	4.25 (107.9mm)	5.12 (130.0mm)	50 Lb (22.6 Kg)
HB 4000	4.000	0.083	2.12 (53.8mm)	13.93 (353.8mm)	17.90 (454.7mm)	6.57 (166.9mm)	4.25 (107.9mm)	5.12 (130.0mm)	50 Lb (22.6kg)
HB 6004	6.000	0.109	2.12 (53.8mm)	13.93 (353.8mm)	32.98 (837.7mm)	14.11 (358.4mm)	4.25 (107.9mm)	5.12 (130.0mm)	55 Lb (25.0Kg)

\*Metric tube sizes and wall thicknesses are available on request.

REV. 99-1

NOTE 1: All tolerances are ±0.06 in. unless otherwise stated

NOTE 2: Dimensional drawings shown are for reference only. Please contact the manufacturer for customer drawings showing updated dimensions.

NOTE 3: Optional downstream purge connection available on all HB models.

CARTEN CONTROLS INC.