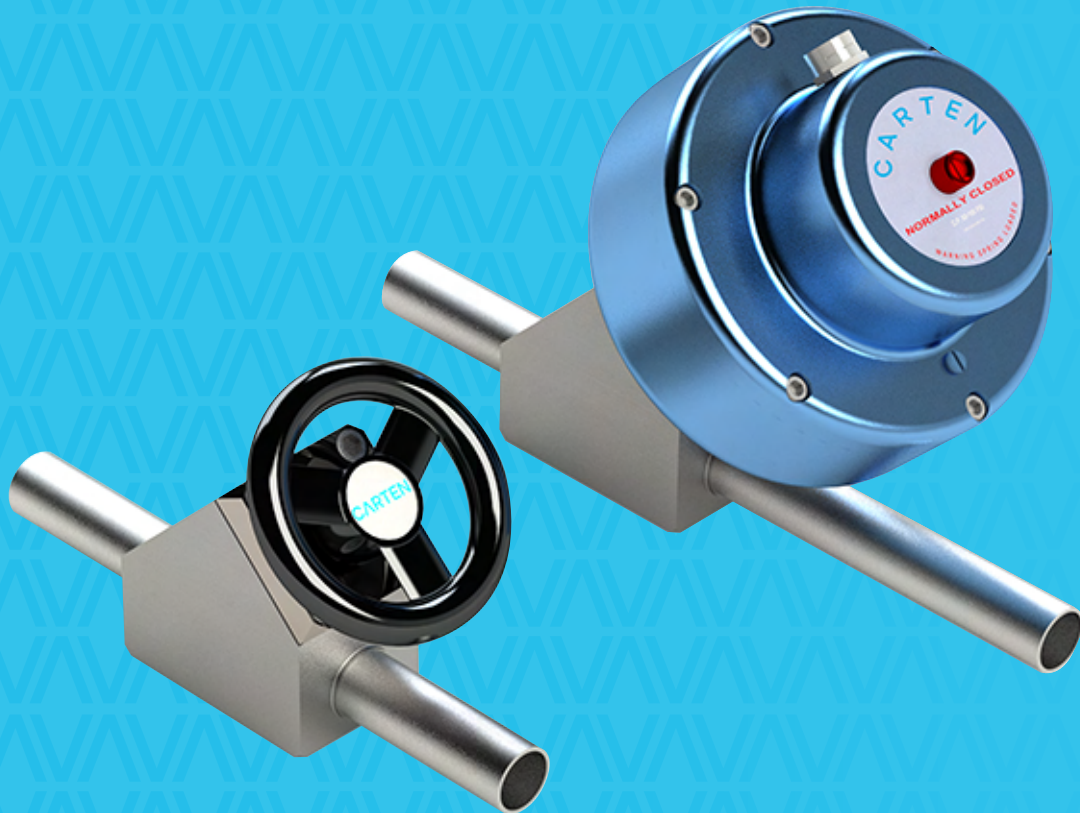


CARTEN

FLOW SOLUTIONS - **WE GO BEYOND**

INTRODUCING CARTEN'S HB SERIES ULTRA-HIGH PURITY BELLOWS VALVES



SALES@CARTENCONTROLS.COM

HB Series

Ultra-High Purity Bellows Valves

The only UHP bellows globe valve for semiconductor applications with metal-to-metal external seals ensuring the high levels of containment, purity, and cleanliness required over a full FAB life cycle.

Key Features

Available in line sizes up to 6"

Metal-to-metal external seals

Pneumatic or manual interchangeability

Multi-ply bellow construction for high durability

Typical Applications

Bulk gas distribution (BGD), lateral end-of-line (EOL) shut-off, ultra-high-purity gas control for filtration and purification, high flow shut-off and distribution for valve manifold boxes (VMB), and critical application containment functionality.

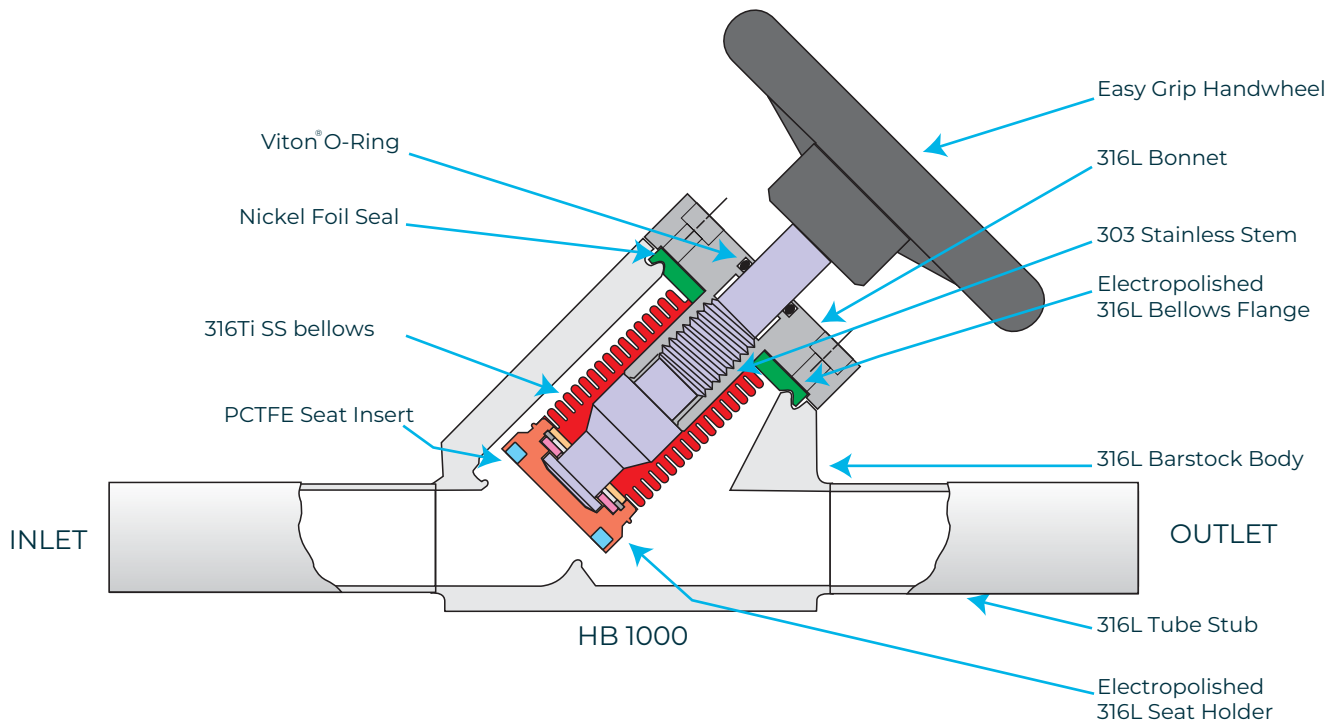
Key Specifications

Materials of Construction	Cleanliness	Specifications	Options
316L stainless body	Manufactured in ISO Class 4 Cleanroom	1.93 (GB series) - 185 Cv (flow coefficient)	Manual or pneumatic
316Ti bellows	Zero particles @0.1µm in static conditions	<10Ra micro-inch surface roughness	PI seat high temperature (up to 150°C)
Barstock-only source	<10ppb O2/H2O outgassing	Manual 375 PSI Max - Pneumatic 250 PSI Max	Position Sensing (Pneumatic only)
PCTFE standard seat (minimal volume)	Cleaned using DI water & oven baked	100% leak tested using mass spectrometer to 1×10^{-9} scc/s under vacuum and 1×10^{-6} scc/s under pressure	Solenoid Actuation (Pneumatic only)

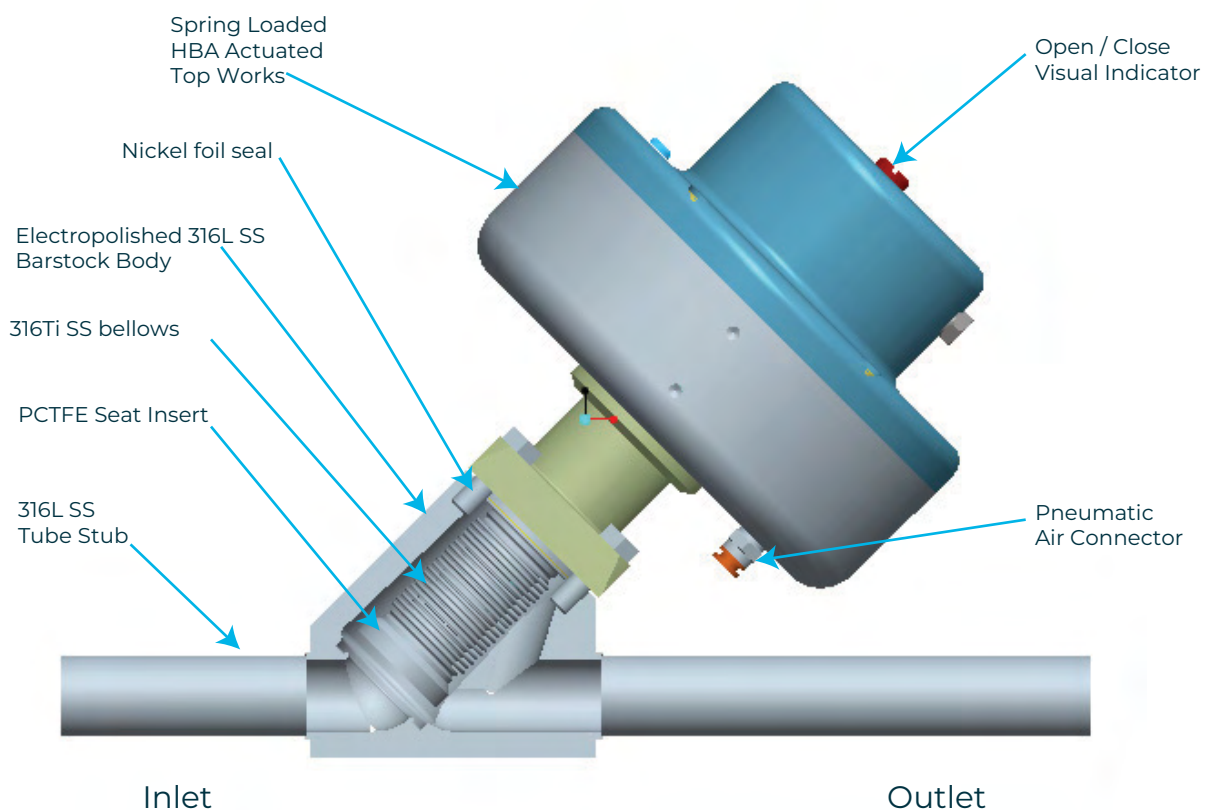


CONSTRUCTION MATERIALS

Manual Bellows Valves



Pneumatically Bellows Valves



HB and GBV SERIES Technical Data

Maximum Operating Pressure	HB / GBV Series	Vacuum to 375 PSI (25 Bar) up to 4" 250 PSI (17 BAR) for 6"
Maximum Operating Temperature	PCTFE Seat (Standard) Vespel ® Seat	-30°C to +82°C (-22°F to +180°F) -30°C to +150°C (-22°F to +302°F)
Construction Material	Wetted Areas	316L SS, Nickel, PCTFE, 316TI
	Non-Wetted Areas	316L/303/304 SS, ABS
Description	Line (Body) Size	Cv
GBV 500	.500 (.500)	1.93
HB 751	.750 (1.000)	10.20
HB 1000	1.000 (1.000)	14.30
HB 1501	1.500 (1.000)	16.60
HB 1500	1.500 (1.500)	30.50
HB 1502	1.500 (2.000)	63.30
HB 2000	2.000 (2.000)	74.10
HB 2502	2.500 (2.000)	75.00
HB 3002	3.000 (2.000)	75.00
HB 3004	3.000 (4.000)	175.00
HB 4000	4.000 (4.000)	181.00
HB 6004	6.000 (4.000)	185.00
Helium Leak Test Performed with 100% Helium	Inboard	<1 x 10 ⁻⁹ scc/s He
	Across the Seat	<1 x 10 ⁻⁹ scc/s He
	Outboard Pressure Test	<1 x 10 ⁻⁶ scc/s He
Cleanliness and Packaging	Assembled and tested in ISO Class 4 Cleanroom. Purged and Final Packaged in ISO Class 4 Cleanroom. Double-bag packaging with Ultra-High Purity N ² gas environment. Cleaned using DI water & Oven backed.	
Standard Finish	Electropolished to 10Ra (0.25µm) EP on all wetted surfaces.	
Options	Optional surface finishes available. Testing: Particle, moisture, O2 on request. Purge connections and Purge valves available. Metric tube stubs. VIM/VAR st.st. optional body. Other Handwheel colors available	

Specifications are subject to change without notice.

® Vespel is a registered trademark of DuPont Company

HBA and GBA SERIES Technical Data

Maximum Operating Pressure	HBA / GBA Series	Vacuum to 250 PSI (17Bar)	
Maximum Operating Temperature	PCTFE Seat (Standard) Vespel ® Seat	-30°C to +82°C (-22°F to +180°F) -30°C to +150°C (-22°F to +302°F)	
Construction Material	Wetted Areas	316L SS, Nickel, PCTFE, 316Ti	
	Non-Wetted Areas	316L SS, 303 SS, Aluminum	
Description	Line (Body) Size	Cv	Control Function
GBA 500	.500 (.500)	1.93	NC
HBA 751	.750 (1.000)	10.20	NC, NO
HBA 1000	1.000 (1.000)	14.30	NC, NO
HBA 1501	1.500 (1.000)	16.60	NC, NO
HBA 1500	1.500 (1.500)	30.50	NC, NO
HBA 1502	1.500 (2.000)	63.30	NC, NO
HBA 2000	2.000 (2.000)	74.10	NC, NO
HBA 2502	2.500 (2.000)	75.00	NC, NO
HBA 3002	3.000 (2.000)	75.00	NC, NO
HBA 3004	3.000 (4.000)	175.00	NC
HBA 4000	4.000 (4.000)	181.00	NC
HBA 6004	6.000 (4.000)	185.00	NC
Helium Leak Test Performed with 100% Helium	Inboard Across the Seat Outboard Pressure Test	<1 x 10 ⁻⁹ scc/s He <1 x 10 ⁻⁹ scc/s He <1 x 10 ⁻⁶ scc/s He	
Cleanliness and Packaging	Assembled and tested in ISO Class 4 Cleanroom. Purged and Final Packaged in ISO Class 4 Cleanroom. Double-bag packaging with Ultra-High Purity N² gas environment. Cleaned using DI water & Oven backed.		
Standard Finish	Electropolished to 10Ra (0.25µm) EP on all wetted surfaces.		
Air Supply	60-100 psi (4.2 - 6.9 bar)		
Air Connector	¼" OD quick connector tube		
Options	Optional surface finishes available. Testing: Particle, moisture, O2 on request. Purge connections and Purge valves available. Proximity sensors. Metric tube stubs. Optional body material in VIM/VAR SS		

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Order Information

Sample: HBA1000 - 065 - PC2 - NC

HBA Pneumatic Valve, 1" Tube End Connection with 1/4" Upstream and Downstream Purge Connection and Black Handwheel - Normally Closed Version

Series	Size	Inlet Connection	Outlet Connection ¹	Purge Type ⁵	Handle Colour ²	Actuator Designator ³	Actuator Accessories ³
GBV ⁴ Manual Multi Turn Version	.500	½" TE = 049	½" TE = 049	No Purge	Blank (Black handwheel supplied, white for GBV)	NC - Normally Closed	PS (Proximity Sensor)
GBA ⁴ Pneumatic Air Operated Version	.750	½" FSM FM	½" FSM FM	PC1 - ¼" Downstream Purge Connection	White (White Handwheel Supplied)	NO - Normally Open	PSEx (Explosion Proof Proximity Sensor)
HB – Manual Multi Turn Version	1.000	½" FSM M(S)	½" FSM M(S)	PC2 - ¼" Upstream and Downstream Purge Connection	Red (Red Handwheel Supplied)		
HBA – Pneumatic Air Operated Version	1.500	¾" TE = 065	¾" TE = 065	PC3 - ¼" Upstream Purge Connection	Yellow (Yellow Handwheel Supplied)		
	2.000	¾" FSM M(S)	¾" FSM M(S)	PV1 - ¼" Downstream Purge Valve	Green (Green Handwheel Supplied)		
	2.500	¾" FSM FM	¾" FSM FM	PV2 - ¼" Upstream and Downstream Purge Valve	Orange (Orange Handwheel Supplied)		
	3.000	1" TE = 065	1" TE = 065	PV3 - ¼" Upstream Purge Valve	Blue (Blue Handwheel Supplied)		
	4.000	1" FSM M(S)	1" FSM M(S)	PC15 - ½" Downstream Purge Connection	Pink (Pink Handwheel Supplied)		
	6.000	1" FSM FM	1" FSM FM	PC25 - ½" Upstream and Downstream Purge Connection	Brown (Brown Handwheel Supplied)		
		1.5" TE = 065	1.5" TE = 065	PC35 - ½" Upstream Purge Connection	Gold (Gold Handwheel Supplied)		
		2" TE = 065	2" TE = 065	PV15 - ½" Downstream Purge Valve	Grey (Grey Handwheel Supplied)		
		2.5" TE = 065	2.5" TE = 065	PV25 - ½" Upstream and Downstream Purge Valve	Silver (Silver Handwheel Supplied)		
		3" TE = 065	3" TE = 065	PV35 - ½" Upstream Purge Valve	Purple (Purple Handwheel Supplied)		
		4" TE = 083	4" TE = 083				
		6" TE = 109	6" TE = 109				

¹ Only Specify the Outlet connection when different from the Inlet connection

² Manual Version only

³ Actuated Version only

⁴ GBV/A 1/2" Version Only

⁵ PC = FSM Male Capped
PV = Diaphragm Valve With FSM Male Capped

FSM = Face Seal Metal - VCR® type connections
100% compatible with VCR® brand

CARTEN

FLOW SOLUTIONS - **WE GO BEYOND**

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