

# GBA SERIES

Ultra-High Purity Bar Stock Stainless Steel  
Low-Flow Air-Actuated Bellows Valves



# GBA SERIES

## GBA Series Product Applications

This air-actuated stainless steel bellows valve series is intended for bulk gas distribution services where containment, cleanliness and purity are of the utmost importance.

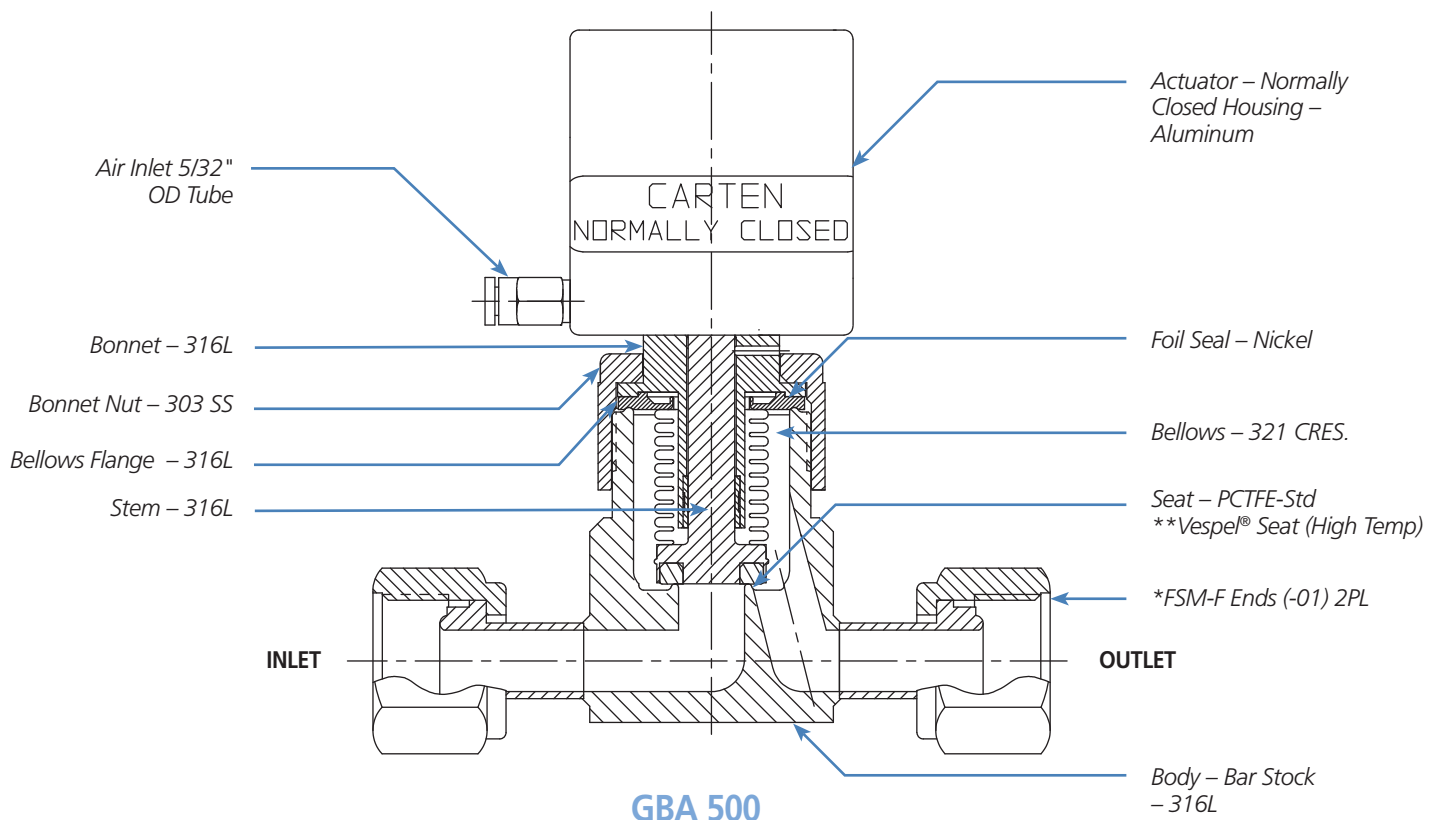
Primary applications include:

- Ultra-high purity gas service for the semi-conductor industry
- Ultra-high purity gas control for point of use or gas cabinets
- Superior containment and cleanliness for your most critical valve applications
- Suitability for inert and most toxic gases

## GBA Series Product Features

- Actuated Bellows Valve, Compact Design, and Long Cycle Life
- Ultra-High Purity Bar Stock Stainless Steel/PCTFE Valve Construction
- 10 Ra Max – Electropolished Surface Finish – Std (Optional Surface Finishes Available)
- Valve Body and Tube Stubs are Serialized for Material Certification

## GBA Construction Materials



\*See Ordering Code for other available Valve Connection Ends.  
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## GBA Series Technical Data

MATERIAL OF CONSTRUCTION	Wetted Areas	316L Stainless Steel, PCTFE, Nickel, 321 SS				
	Non-Wetted Areas	316L Stainless Steel, Aluminum, 303 SS				
MAXIMUM OPERATING PRESSURE	GBA Series	Vacuum-250 psig (17.2 bar)				
MAXIMUM OPERATING TEMPERATURE	PCTFE Seat – Std	-22°F (-30°C) to 180°F (82°C)				
ACTUATION PRESSURE	GBA Series	60-75 psig (4.14 - 5.17 bar)				
GBA VALVES	BODY DATA	TECHNICAL DATA			WEIGHT	
Valve Sizes	Tube or VCR Ends / Body (Seat-Orifice) Sizes	(C <sub>v</sub> )	Cycle Life Test  >500,000 cycles @ 250 psi	LBS	(KG)	
GBA 500-01 VCR-F Ends	Ø.500 / .500 (Ø.437 in. (Ø11.1mm)-Orifice)	1.93		2.0	(0.91)	
GBA 500-02 VCR-M Ends	Ø.500 / .500 (Ø.437 in. (Ø11.1mm)-Orifice)	1.93		2.0	(0.91)	
GBA 500-03 Ø.375 T.E.	Ø.375 / .500 (Ø.437 in. (Ø11.1mm)-Orifice)	1.91		1.92	(0.87)	
GBA 500-04 Ø.500 T.E.	Ø.500 / .500 (Ø.437 in. (Ø11.1mm)-Orifice)	1.93		1.86	(0.84)	
GBA 500-05 VCR-M/F	Ø.500 / .500 (Ø.437 in. (Ø11.1mm)-Orifice)	1.93		2.0	(0.91)	
GBA 500-06 VCR-F/M	Ø.500 / .500 (Ø.437 in. (Ø11.1mm)-Orifice)	1.93		2.0	(0.91)	
GBA 500-07 Ø.500 T.E	Ø.500 / .500 (Ø.437 in. (Ø11.1mm)-Orifice)	1.93		1.86	(0.84)	
HELIUM LEAK TEST	Inboard Across the Seat Outboard Pressure Test	≤ 1 x 10 <sup>-9</sup> std.cc (atm) He / sec ≤ 1 x 10 <sup>-9</sup> std.cc (atm) He / sec ≤ 1 x 10 <sup>-6</sup> std.cc (atm) He / sec				
CLEANLINESS AND PACKAGING	Assembled and tested in Class 100 Cleanroom. Purged and Final Packaged in Class 1 Cleanroom. Double-bag Packaging (2 mil nylon inner bag, 6 mil polyethylene outer bag) with Ultra-High Purity N <sub>2</sub> gas environment.					
STANDARD FINISH	10 Ra Max – Electropolished Surface Finish – Std (Optional surface finishes available)					
NOTES AND OPTIONS	Testing: Particle, Moisture, O <sub>2</sub> , SEM, ESCA, and AES Purge Connections – Valve Type/Location – Sizes .250 / .500 Valve Connection Ends – Inlet/Outlet Sizes .500/.750/1.000 Valve Body Mounting Holes Std. Options: 1) GBA 500 – 10-32 UNF-2B Valve Body Flanged Ends – Rotatable					

Specifications are subject to change without notice.

# GBA SERIES



## GBA Series Technical Dimensions

SERIES/DASH NO. (INCH)	A	B	C	D	E
GBA -01	0.99 (25.1mm)	3.60 (91.4mm)	0.53 (13.5mm)		
GBA-02	1.39 (35.3mm)	4.40 (111.8mm)	0.53 (13.5mm)		
GBA-03	Ø.375 (9.53mm)	0.035 (0.89mm)	0.53 (13.5mm)	0.99 (25.1mm)	3.60 (91.4mm)
GBA-04	Ø.500 (12.7mm)	0.049 (1.24mm)	0.53 (13.5mm)	0.50 (12.7mm)	2.62 (66.5mm)
GBA-05	1.39 (35.3mm)	0.99 (25.1mm)	0.53 (13.5mm)	4.00 (101.6mm)	
GBA-06	0.99 (25.1mm)	1.39 (35.3mm)	0.53 (13.5mm)	4.00 (101.6mm)	
GBA-07	Ø.500 (12.7mm)	0.049 (1.24mm)	0.53 (13.5mm)	3.04 (77.2mm)	7.70 (195.6mm)

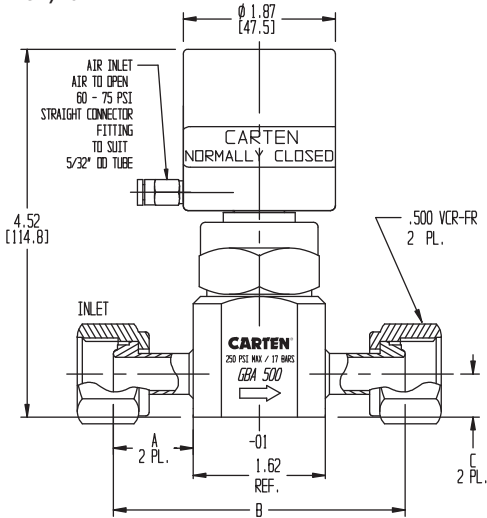
NOTE 1: All tolerances are  $\pm 0.06$  in. ( $\pm 1.52$ mm) unless otherwise stated.

NOTE 2: Dimensional drawings shown are for reference only. Please contact CARTEN® for customer drawings.

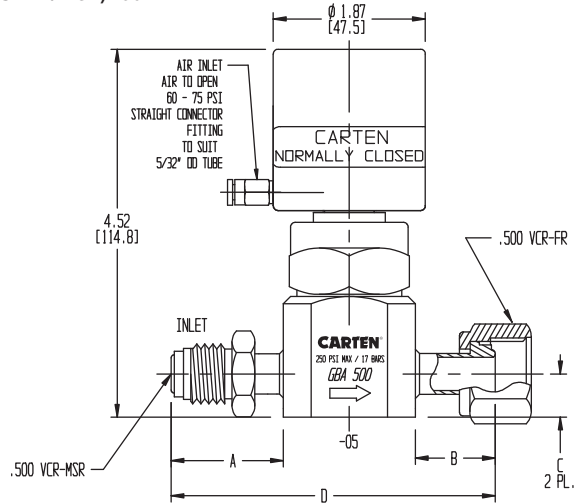
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## GBA Series Typical Valve Dimensions (3/8" / 1/2")

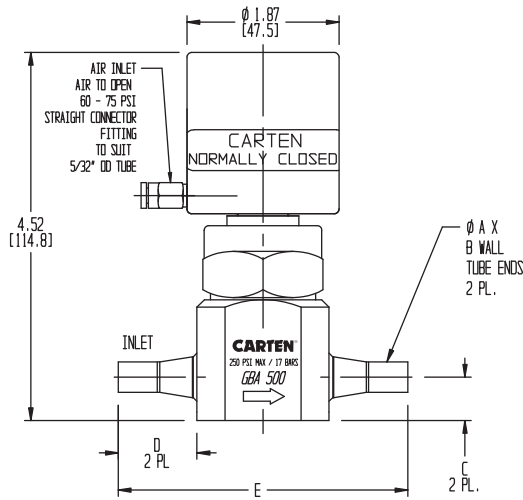
**GBA 500 BODY**  
(VCR-FR) -01  
(VCR-MSR) -02



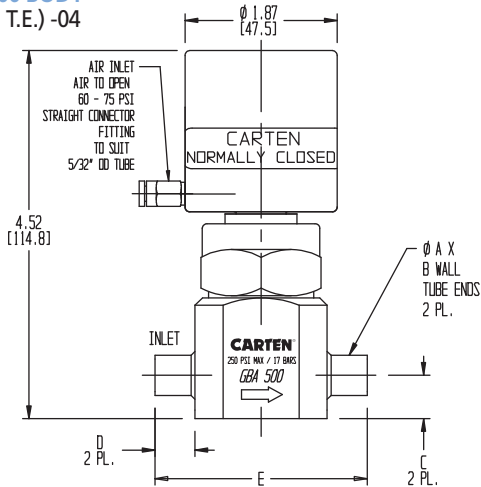
**GBA 500 BODY**  
(VCR-MSR/FR) -05  
(VCR-FR/MSR) -06



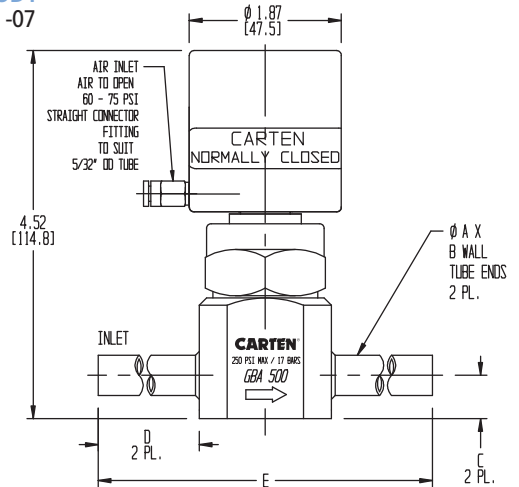
**GBA 500 BODY**  
(Ø.375 T.E.) -03



**GBA 500 BODY**  
(Ø.500 T.E.) -04



**GBA 500 BODY**  
(Ø.500 T.E.) -07





# GBA SERIES

## GBA Series Ordering Code

**GBA** – **500** – **10** – **-01**

SERIES	TYPE
GBA	Pneumatic

CODE	SURFACE FINISH
10	10 Ra Max - Std EP
20	20 Ra Max - EP

VALVE SIZES	TUBE OR VCR ENDS (BODY) INCH – SIZES	
GBA 500	Ø.375	(.500)
GBA 500	Ø.500	
GBA 500	Ø.500 VCR-X	

CODE	OPTIONS
-01	VCR-FR / VCR-FR
-02	VCR-MSR / VCR-MSR
-03	Ø.375 TUBE ENDS
-04	Ø.500 TUBE ENDS-SHORT
-05	VCR-MSR / VCR-FR
-06	VCR-FR / VCR-MSR
-07	Ø.500 TUBE ENDS

### Safe Product Selection

When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatability, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

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Carten Controls is a member of Fujikin Corp Group (FCG) with Headquarters in Osaka, Japan.