

# CARTEN®

High Performance Valves & Flow Solutions

## HFA Series

Ultra-High Purity, High Flow Pneumatic Bellows Valves



For High Purity Gas and Chemical Distribution Systems

# High Purity High Flow Pneumatic Bellows Valves

## Product Applications



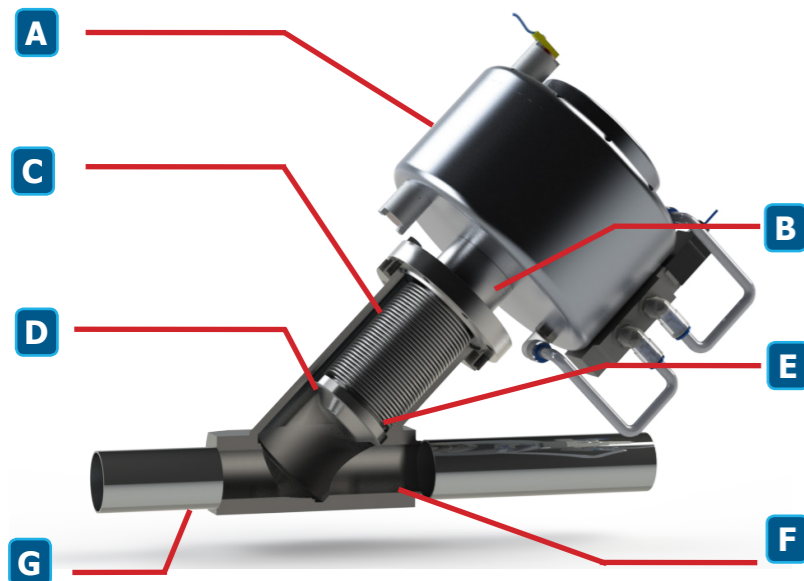
The HFA series is designed for bulk distribution of high purity gases and solvent distribution systems where high flows are demanded with minimal pressure drop, high containment and safe delivery in critical process systems. The HFA's high Cv capacity provides the best flow value and operational costs and makes this range an excellent consideration for:

- High purity process gas distribution system
- Purifier systems
- Filter skid systems
- High purity solvent systems
- High purity chemical distribution systems
- Automated bulk gas distribution systems
- Suitable for inert, speciality gases and most toxic gases

## Product Features

- Highest Cv, maximum flow capacity
- Carten UHP bellows valve design for clean and safe media delivery and high life cycle
- Leak rate of  $<1 \times 10^{-9}$  scc/s He
- Available with Purge Connections and Integral Purge Valves
- Field retrofit possible for Manual to Pneumatic
- Available with proximity sensors and other customer specified instrumentation
- Visual indicators to illustrate valve open/close status
- 1/2" to 1 1/2" available with NO, NC and DA pneumatic actuator
- 2" to 6" only available with DA pneumatic actuator
- Available for use with ISO, Metric and JIS tubing

## Material of Construction



Item	Part
A	Actuator (Aluminium Anodized)
B	Bonnet Stainless Steel
C	Bellows Inconel® 625 or 316Ti
D	Seat PCTFE
E	Seat Holder 316L
F	Body Barstock 316L
G	Tube Ends 316L

\* Inconel is a registered trademark of Special Metals Corporation.

## HFA Series Technical Specifications

Maximum Operating Pressure		HFA Series		Vacuum-250 psig (0-17.2 bar) See below for pneumatic actuation pressures		
Maximum Operating Temperature		PCTFE Seat Vespe!® Seat		-22°F (-30°C) to 180°F (82°C) 302°F (150°C)		
Inch Model		Max Pressure	Control Function	Cv	Cycle Life**	Actuation Pressure
Description	Line Size (Body) Size					
HFA 500	.500 (.500)	250 PSIG (17.2 BAR)	NO, NC, DA	5	20,000	90-100PSIG (4.1-6.9BAR)
HFA 755	.750 (.500)	250 PSIG (17.2 BAR)	NO, NC, DA	10	20,000	90-100PSIG (4.1-6.9BAR)
HFA 750	.750 (.750)	250 PSIG (17.2 BAR)	NO, NC, DA	11.5	30,000	60-100PSIG (4.1-6.9BAR)
HFA 1075	1.000 (.750)	250 PSIG (17.2 BAR)	NO, NC, DA	20	30,000	60-100PSIG (4.1-6.9BAR)
HFA 751	.750 (1.000)	250 PSIG (17.2 BAR)	NO, NC, DA	15	30,000	90-100PSIG (6.2-6.9BAR)
HFA 1000	1.000 (1.000)	250 PSIG (17.2 BAR)	NO, NC, DA	29	30,000	90-100PSIG (6.2-6.9BAR)
HFA 1501	1.500 (1.000)	250 PSIG (17.2 BAR)	NO, NC, DA	27	30,000	90-100PSIG (6.2-6.9BAR)
HFA 1502	1.500 (2.000)	250 PSIG (17.2 BAR)	DA	85	8,000	60-80PSIG (4.1-5.5BAR)
HFA 2000	2.000 (2.000)	250 PSIG (17.2 BAR)	DA	178	8,000	60-80PSIG (4.1-5.5BAR)
HFA 3002	3.000 (2.000)	250 PSIG (17.2 BAR)	DA	117	8,000	60-80PSIG (4.1-5.5BAR)
HFA 3004	3.000 (4.000)	150 PSIG (10.3 BAR)	DA	452	8,000	60-80PSIG (4.1-5.5BAR)
HFA 4000	4.000 (4.000)	150 PSIG (10.3 BAR)	DA	758	8,000	60-80PSIG (4.1-5.5BAR)
HFA 6004	6.000 (4.000)	150 PSIG (10.3 BAR)	DA	758*	8,000	60-80PSIG (4.1-5.5BAR)

Helium Leak Test	Inboard Across the Seat Outboard Pressure Test	$<1 \times 10^{-9}$ scc/s He ( $1 \times 10^{-10}$ Pa-M <sup>3</sup> /s) $<1 \times 10^{-9}$ scc/s He ( $1 \times 10^{-10}$ Pa-M <sup>3</sup> /s) $<1 \times 10^{-6}$ scc/s He ( $1 \times 10^{-7}$ Pa-M <sup>3</sup> /s)
Cleanliness and Packaging	Assembled and tested in Class 10 Cleanroom. Purged and Final Packaged in Class 10 Cleanroom. Double-bag packaging with Ultra-High Purity N <sub>2</sub> gas environment.	
Standard Finish	Electropolished to 10 Ra µin Max (0.25 µm) on all wetted surfaces	
Options	Pneumatic actuator types: NO, NC and DA for ½", 1" and 1 ½" sizes. DA type only for 2" and 4" sizes. Optional surface finishes available. Testing: particle, moisture, O <sub>2</sub> , SEM, ESCA and AES on request. Purge connections and Purge valves are available as requested. Face seal, twin ferrule compression fittings available up to 1" lines. Higher temperature operation possible up to 150°C (302°F) upon request. Optional instrumentation for actuator signalling, actuator control, etc.	

\* Vespe! is a registered trademark of DuPont Company.

\*Ref HF4000

\*\* Rating at maximum system pressure

# Order Information

**HFA - 750 - 065 - 065\* - PV15 - 10 - NC**

1	2	3	4	5	6	7	8
Series	Description (Line Size)	Inlet Connection	Outlet Connection	Purge Type	Surface Finish	Actuator Designator	Actuator Accessories
HFA	500 (1/2")	1/2" TE = 049	1/2" TE = 049	PC1 - 1/4" Downstream Purge	5Ra EP	N.C. Normally Closed	EPS Explosion Proof Proximity Sensor
	755 (3/4")	3/4" TE = 049	3/4" TE = 049	PC2 - 1/4" Up and Downstream Purge	10Ra EP	N.O. Normally Open	AR + SOL Air Regulator and Solenoid
	750 (3/4")	3/4" TE = 065	3/4" TE = 065	PC3 - 1/4" Upstream Purge	15Ra EP	D.A. Double Acting**	
	1075 (1")	1" TE = 065	1" TE = 065	PV1 - 1/4" Downstream Valve	20Ra		
	751 (3/4")	1 1/2" TE = 065	1 1/2" TE = 065	PV2 - 1/4" Up and Downstream Valve	30Ra		
	1000 (1")	2" TE = 065	2" TE = 065	PV3 - 1/4" Upstream Valve			
	1501 (1 1/2")	2 1/2" TE = 065	2 1/2" TE = 065	PC15 - 1/2" Downstream Purge			
	1502 (1 1/2")	3" TE = 065	3" TE = 065	PC25 1/2" - Up and Downstream Purge			
	2000 (2")	4" TE = 065	4" TE = 065	PC35 - 1/2" Upstream Purge			
	3002 (3")	6" TE = 109	6" TE = 109	PV15 - 1/2" Downstream Valve			
	3004 (3")	3/4" FSM M	3/4" FSM M	PV25 - 1/2" Up and Downstream Valve			
	4000 (4")	3/4" FSM FM	3/4" FSM FM	PV35 - 1/2" Upstream Valve			
	6004 (6")	3/4" FSM M(S)	3/4" FSM M(S)				

\*Leave this section blank if the outlet connection is the same as the inlet connection

\*\* 2" and 4" are available in Double Acting only

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