

# CARTEN®

High Performance Valves & Flow Solutions

## HFCA Series

Ultra-High Purity, Cast Stainless Steel  
High Flow Pneumatic Bellows Valves



For High Purity Gas and Chemical Distribution Systems

# High Purity Cast Stainless Steel High Flow Pneumatic Bellows Valves

## Product Applications



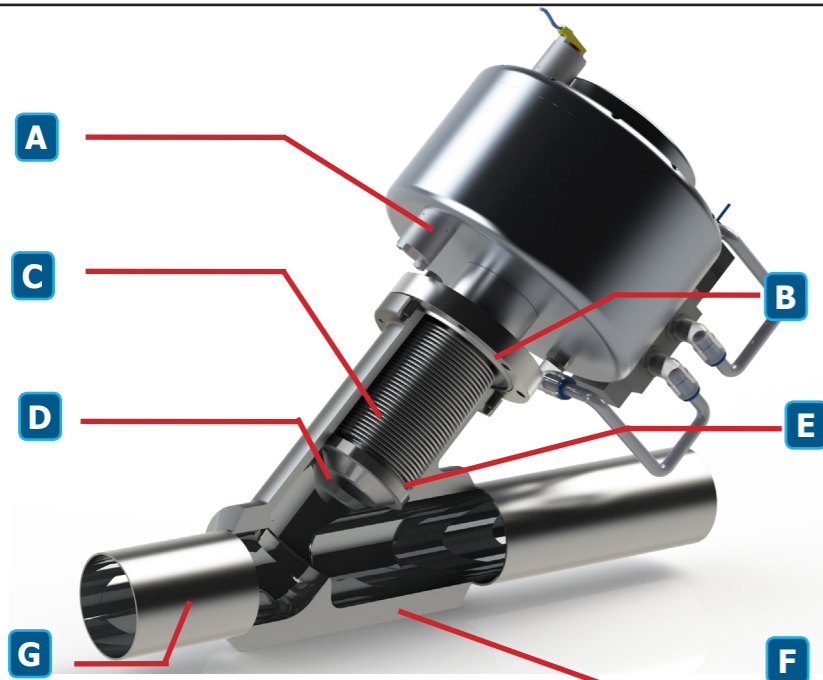
The HFCA series is designed for cost efficient bulk distribution of high purity gases and distribution systems where high flows are demanded with minimal pressure drop, high containment and safe delivery in critical process systems. The HFCA's high Cv capacity provides the best flow value and operational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

- High purity process gas distribution system
- Purifier systems
- Filter skid systems
- High purity chemical distribution systems
- Automated bulk gas distribution systems

## Product Features

- High Cv and 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
- Available with proximity sensors and other customer specified instrumentation
- Visual indicator to signal when open or closed.

## Material of Construction



Item	Part
A	Actuator (Aluminium Anodized)
B	Bonnet Stainless Steel
C	Bellows Inconel® 625 or 316Ti
D	PCTFE Seat (Optional Polymide)
E	Seat Holder 316L St. St. EP
F	Body CF3M 316L St. St. EP
G	Tube Ends 316L St. St. EP

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

## HFCA Series Technical Specifications

Maximum Operating Pressure	HFCA Series	Vacuum-250 psig (0-17.2 bar) See below for pneumatic actuation pressures
Maximum Operating Temperature	PCTFE Seat Vespel® Seat	-22°F (-30°C) to 180°F (82°C) 302°F (150°C)

Description	Inch Model		JIS Model		Max Pressure	Control Function	Cv	Cycle Life**	Actuation Pressure
	Line Size (Body Size)	Description	Description	Line Size (Body Size)					
HFCA 500	.500 (.500)	HFCA 10A	10A (.500)	250 PSIG (17.2 BAR)	NC, NO, DA	5	20,000	90-100PSIG (4.1-6.9BAR)	
HFCA 750	.750 (.750)	HFCA 15A	15A (.750)	250 PSIG (17.2 BAR)	NC, NO, DA	14.5	30,000	60-100PSIG (4.1-6.9BAR)	
HFCA 1000	1.000 (.750)	HFCA 20A	20A (.750)	250 PSIG (17.2 BAR)	NC, NO, DA	21	30,000	60-100PSIG (4.1-6.9BAR)	
		HFCA 25A	25A (.750)	250 PSIG (17.2 BAR)	NC, NO, DA	16	30,000	60-100PSIG (4.1-6.9BAR)	
HFCA 1015	1.000(1.500)			250 PSIG (17.2 BAR)	NC, NO, DA	28	30,000	90-100PSIG (6.2-6.9BAR)	
HFCA 1500	1.500 (1.500)			250 PSIG (17.2 BAR)	NC, NO, DA	46	30,000	90-100PSIG (6.2-6.9BAR)	
		HFCA 32A	32A (1.000)	250 PSIG (17.2 BAR)	NC, NO, DA	50	30,000	90-100PSIG (6.2-6.9BAR)	
		HFCA 40A	40A (1.000)	250 PSIG (17.2 BAR)	NC, NO, DA	48	30,000	90-100PSIG (6.2-6.9BAR)	
HFCA 2000	2.000 (1.500)	HFCA 50A	50A (1.000)	250 PSIG (17.2 BAR)	NC, NO, DA	46	30,000	90-100PSIG (6.2-6.9BAR)	
				250 PSIG (17.2 BAR)	NC, NO, DA	52	30,000	90-100PSIG (6.2-6.9BAR)	
HFCA 2003	2.000 (3.000)			250 PSIG (17.2 BAR)	DA	157	8,000	60-80PSIG (4.1-5.5BAR)	
HFCA 3000	3.000 (3.000)			250 PSIG (17.2 BAR)	DA	187	8,000	60-80PSIG (4.1-5.5BAR)	
		HFCA 65A	65A (2.000)	250 PSIG (17.2 BAR)	DA	210	8,000	60-80PSIG (4.1-5.5BAR)	
HFCA 4000	4.000 (3.000)			250 PSIG (17.2 BAR)	DA	151	8,000	60-80PSIG (4.1-5.5BAR)	
		HFCA 80A	80A (2.000)	250 PSIG (17.2 BAR)	DA	185	8,000	60-80PSIG (4.1-5.5BAR)	
		HFCA 100A	100A (2.000)	250 PSIG (17.2 BAR)	DA	175	8,000	60-80PSIG (4.1-5.5BAR)	
		HFCA 125A	125A (4.000)	250 PSIG (17.2 BAR)	DA	900	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", 3", 4" and 6" sizes. Optional surface finishes available. 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. Testing available on request.	

\* Vespel is a registered trademark of DuPont Company.

\*\* Rating at maximum system pressure

# Order Information

**HFCA - 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
HFCA	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
	750 (3/4")	3/4" TE = 065	3/4" TE = 065	PC3 - 1/4" Upstream Purge	15Ra EP	N.O. Normally Open	
	1000 (3/4")	1" TE = 065	1" TE = 065	PV1 - 1/4" Downstream Valve	20Ra	D.A. Double Acting	
	1015 (1")	1 1/2" TE = 065	1 1/2" TE = 065	PV2 - 1/4" Up and Downstream Valve	30Ra		AR+SOL Aire Regulator and Solenoid
	1500 (1")	2" TE = 065	2" TE = 065	PV3 - 1/4" Upstream Valve			
	2000 (1")	2 1/2" TE = 065	2 1/2" TE = 065	PC15 - 1/2" Downstream Purge			
	2003 (2")	3" TE = 065	3" TE = 065	PC25 1/2" - Up and Downstream Purge			
	3000 (2")	4" TE = 065	4" TE = 065	PC35 - 1/2" Upstream Purge			
	4000 (2")	6" TE = 109	6" TE = 109	PV15 - 1/2" Downstream Valve			
	3006 (4")	3/4" FSM M	3/4" FSM M	PV25 - 1/2" Up and Downstream Valve			
	4006 (4")	3/4" FSM FM	3/4" FSM FM	PV35 - 1/2" Upstream Valve			
		3/4" FSM M(S)	3/4" FSM M(S)				
		JIS15A	JIS15A				
		JIS20A	JIS20A				
	JIS25A	JIS25A					
	JIS32A	JIS32A					
	JIS40A	JIS40A					
	JIS50A	JIS50A					
	JIS65A	JIS65A					
	JIS80A	JIS80A					
	JIS100A	JIS100A					
	JIS125A	JIS125A					

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

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