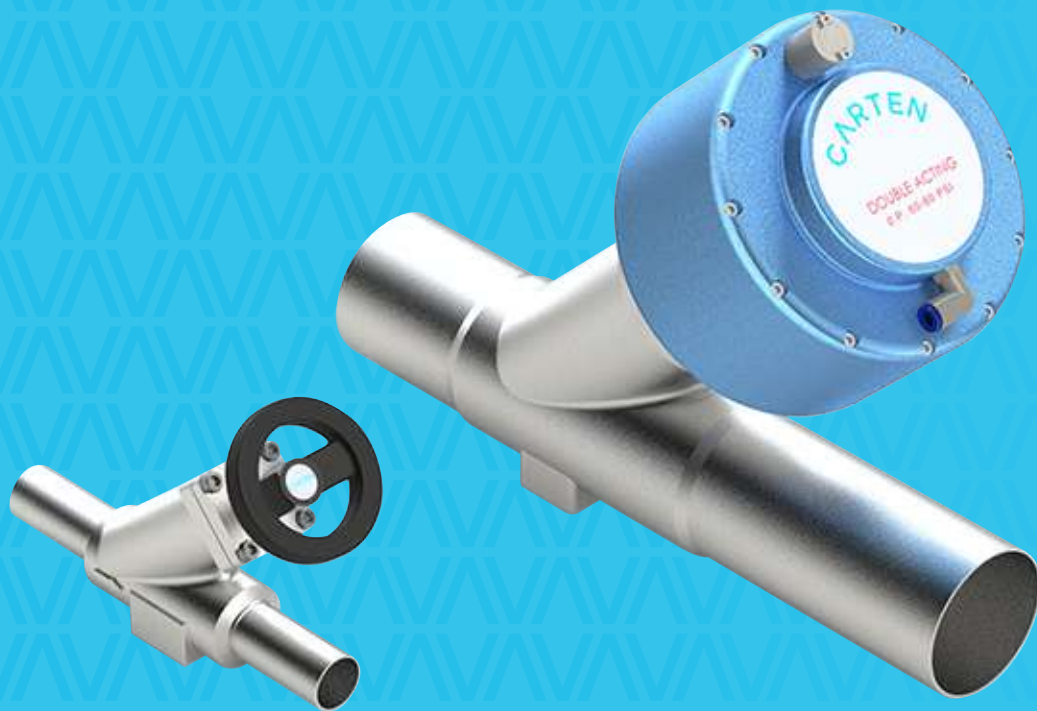


CARTEN

FLOW SOLUTIONS - **WE GO BEYOND**

INTRODUCING CARTEN'S HFC SERIES ULTRA-HIGH PURITY HIGH FLOW BELLOWS VALVES



HFC Series

Ultra-High Purity High Flow Bellows Valves

UHP cast bellows globe valve for semiconductor applications utilising our market-leading HF series bellows, offering a balanced selection based on cost and flow rates.

Key Features

Available in line sizes up to 6"	Metal-to-metal external seals	High Cv (flow coefficient)	Multi-ply bellow construction for high durability
----------------------------------	-------------------------------	----------------------------	---

Typical Applications

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

Key Specifications

Materials of Construction	Cleanliness	Specifications	Options
316L Cast stainless body	Manufactured in ISO Class 4 Cleanroom	<10Ra micro-inch surface roughness	Manual or pneumatic
316Ti bellows up sizes to 1.5", Inconel 625 for above	Zero particles @0.1µm in static conditions	Manual 375 PSI Max - Pneumatic 250 PSI Max	PI seat high temperature (up to 150°C)
PCTFE standard seat (minimal volume)	<10ppb O2/H2O outgassing	5 - 900 Cv (flow coefficient)	Position Sensing (Pneumatic only)
	Cleaned using DI water & oven baked	100% leak tested using mass spectrometer to 1x10 ⁻⁹ scc/s under vacuum and 1x10 ⁻⁶ scc/s under pressure	Solenoid Actuation (Pneumatic only)

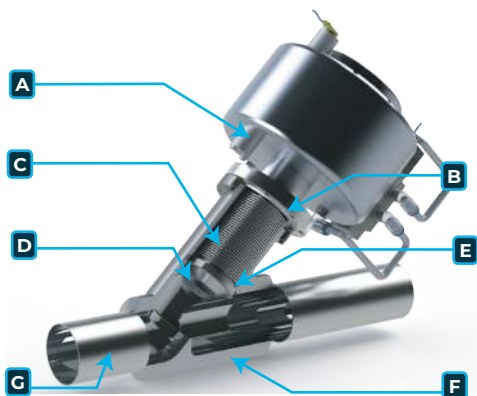


HFCA Series Technical Specifications

Maximum Operating Pressure		HFCA Series			Vacuum to 250 PSI (17.2 BAR) up to 4" 150 PSI (10.2 BAR) for 6"				
Maximum Operating Temperature		PCTFE Seat (Standard) Vespel® Seat			-22°F (-30°C) to 180°F (82°C) 302°F (150°C)				
Construction Material			Wetted Areas			316L SS, CF3M, Inconel® 625 or 316Ti, PCTFE, Nickel			
			Non-Wetted Areas			316L/304 SS, CF8, Aluminum, 17-4 PH, Viton			
Inch Model		JIS Model		Max Pressure	Control Function	Cv	Cycle Life**	Actuation Pressure	
Description	Line (Body) Size	Description	Line (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	46	30,000	90-100PSIG (6.2-6.9BAR)	
		HFCA 32A	32A (1.000)	250 PSIG (17.2 BAR)	NC, NO	50	30,000	90-100PSIG (6.2-6.9BAR)	
		HFCA 40A	40A (1.000)	250 PSIG (17.2 BAR)	NC, NO	48	30,000	90-100PSIG (6.2-6.9BAR)	
		HFCA 50A	50A (1.000)	250 PSIG (17.2 BAR)	NC, NO	46	30,000	90-100PSIG (6.2-6.9BAR)	
HFCA 2000	2.000 (1.500)			250 PSIG (17.2 BAR)	NC, NO	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	185	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)	
HFC 6000	6000 (6.000)			150 PSIG (10.2 BAR)	DA	854	8,000	60-80PSIG (4.1-5.5BAR)	
Helium Leak Test			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 N ² gas environment. Cleaned using DI water & Oven backed.						
Standard Finish			Electropolished to 10 Ra µin Max (0.25 µm) on all wetted surfaces						
Options			Optional surface finishes available. Testing: Particle, moisture, O2 on request. Purge Connections and Purge valve available. Metric tube stubs. End connections, Face seal, compression available up to 1".						

® Vespel is a registered trademark of DuPont Company.

**Rating at maximum system pressure



Material of Construction

Item	Part
A	Actuator (Aluminium Anodized)
B	Cast Alloy Steel - CF8
C	Bellows Inconel® 625 or 316Ti
D	PCTFE Seat (Optional Polymide)
E	Seat Holder 316L SS EP
F	Body CF3M 316L SS EP
G	Tube Ends 316L SS EP

® Inconel is a registered trademark of Special Metals Corporation.

HFC Series Technical Specifications

Maximum Operating Pressure		HFC Series		Vacuum to 375 PSI (25 Bar) up to 4" 250 PSI (17 BAR) for 6"	
Maximum Operating Temperature		PCTFE Seat (Standard) Vespel® Seat		-22°F (-30°C) to 180°F (82°C) 302°F (150°C)	
Construction Material		Wetted Areas		316L SS, Inconel® 625 or 316Ti, PCTFE, Nickel	
		Non-Wetted Areas		316L/304 SS, CF8, Aluminum, ABS, 17-4 PH, Viton	
Inch Model			JIS Model		Cv
Description	Line (Body) Size		Description	Line (Body) Size	
HFC 500	.500 (.500)		HFC 10A	10A (.500)	5
HFC 750	.750 (.750)		HFC 15A	15A (.750)	14.5
HFC 1000	1.000 (.750)		HFC 20A	20A (.750)	21
			HFC 25A	25A (.750)	16
HFC 1015	1.000(1.500)				28
HFC 1500	1.500 (1.500)				46
			HFC 32A	32A (1.000)	50
			HFC 40A	40A (1.000)	48
HFC 2000	2.000 (1.500)				52
			HFC 50A	50A (1.000)	46
HFC 2003	2.000 (3.000)				157
HFC 3000	3.000 (3.000)		HFC 65A	65A (2.000)	210
HFC 4000	4.000 (3.000)		HFC 80A	80A (2.000)	185
			HFC 100A	100A (2.000)	175
HFC 6000	6.000 (4.000)				854
			HFC 125A		900
Helium Leak Test		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 10 Ra µin Max (0.25 µm) on all wetted surfaces			
Options		Optional surface finishes available. Testing: Particle, moisture, O2 on request. Purge Connections and Purge valve available. Metric tube stubs. Other handwheel colors available. End connections, Face seal, compression available up to 1".			



Material of Construction

Item	Part
A	Manual Handle (ABS or Aluminium)
B	Cast Alloy Steel - CF8
C	Bellows Inconel® 625 or 316Ti
D	PCTFE Seat (Optional Polymide)
E	Seat Holder 316L SS EP
F	Body CF3M 316L SS EP
G	Tube Ends 316L SS EP

® Inconel is a registered trademark of Special Metals Corporation.

Order Information

Sample: HFC 500 - 049 - PC1

HFC Series Manual Valve, 1/2" Tube End Connections with 1/4" Downstream Purge Connection

Series	Size	Inlet Connection	Outlet Connection ¹	Purge Type ⁴	Handle Colour ²	Actuator Designator ³	Actuator Accessories ³
HFC – Manual Multi Turn Version	500 (1/2")	1/2" TE = 049	1/2" TE = 049	Blank - No Purge	Blank (White Handwheel Supplied up to and including HFC750 Black Handwheel Supplied for HFC1000 and above)	NC - Normally Closed	PS (Proximity Sensor)
HFCA – Pneumatic Air Operated Version	750 (3/4")	1/2" FSM M(S)	1/2" FSM M(S)	PC1 - 1/4" Downstream Purge Connection	White (White Handwheel Supplied)	NO - Normally Open	PSEx (Explosion Proof Proximity Sensor)
	1000 (1")	1/2" FSM FM	1/2" FSM FM	PC2 - 1/4" Upstream and Downstream Purge Connection	Red (Red Handwheel Supplied)		
	1500 (1.5")	1/2" C/LOK	1/2" C/LOK	PC3 - 1/4" Upstream Purge Connection	Yellow (Yellow Handwheel Supplied)		
	2000 (2")	3/4" TE = 065	3/4" TE = 065	PV1 - 1/4" Downstream Purge Valve	Green (Green Handwheel Supplied)		
	3000 (3")	3/4" FSM M(S)	3/4" FSM M(S)	PV2 - 1/4" Upstream and Downstream Purge Valve	Orange (Orange Handwheel Supplied)		
	4000 (4")	3/4" FSM FM	3/4" FSM FM	PV3 - 1/4" Upstream Purge Valve	Black (Black Handwheel Supplied)		
	6000 (6")	3/4" C/LOK	3/4" C/LOK	PC15 - 1/2" Downstream Purge Connection	Blue (Blue Handwheel Supplied)		
		1" TE = 065	1" TE = 065	PC25 - 1/2" Upstream and Downstream Purge Connection	Pink (Pink Handwheel Supplied)		
		1" C/LOK	1" C/LOK	PC35 - 1/2" Upstream Purge Connection	Brown (Brown Handwheel Supplied)		
		1.5" TE = 065	1.5" TE = 065	PV15 - 1/2" Downstream Purge Valve	Gold (Gold Handwheel Supplied)		
		2" TE = 065	2" TE = 065	PV25 - 1/2" Upstream and Downstream Purge Valve	Grey (Grey Handwheel Supplied)		
		3" TE = 065	3" TE = 065	PV35 - 1/2" Upstream Purge Valve	Silver (Silver Handwheel Supplied)		
		4" TE = 083	4" TE = 083		Purple (Purple Handwheel Supplied)		
		6" TE = 109	6" TE = 109				

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

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

²Manual Version only ³Actuated Version only

⁴PC = FSM Male Capped
PV = Diaphragm Valve With FSM Male Capped

CARTEN

FLOW SOLUTIONS - **WE GO BEYOND**

Carten Controls Ltd.,
Unit 613, Northern Extension
Waterford Industrial Park,
Waterford Ireland

Tel: +353 (0)51 355436
Email: sales@cartencontrols.com
Website: <http://www.cartencontrols.com>

Fujikin (Deutschland) GmbH
Immermannstraße 33 -
D-40210 Düsseldorf, Germany.

Tel: +49 (0) 211-350458
Email: info@fujikin.de
Website: <http://www.fujikin.de>

Carten Controls and Fujikin Deutschland are members of the Fujikin Carp Group (FCG) with Headquarters in Osaka Japan.