

Ultrahigh-Purity Fluoropolymer O-Ring-Free Poppet Check Valves



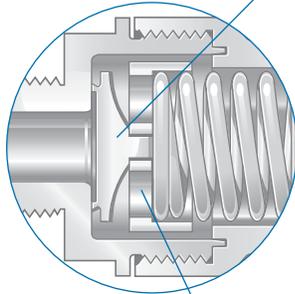
CHP Series

- Modified PTFE wetted components meet SEMI Standard F57-0301 for ultrahigh-purity system components
- Fine thread flare and Nippon Pillar® Super 300 end connections
- Low cracking and reseal pressure

Features

Poppet

- O-ring-free design ensures clean operation to meet SEMI Standard F57-0301 Section 7
- contoured shape reduces turbulence and minimizes pressure drop



Retainer

Medium body size

- designed to maximize flow and reduce pressure drop

Retainer

Small body size

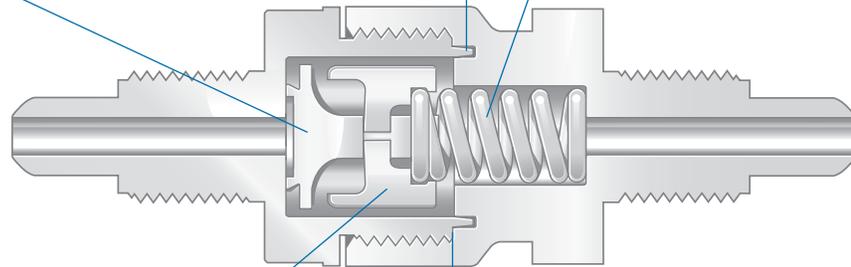
- open-cage design ensures poppet alignment
- eliminates no-flow areas

Shell seal

- tongue-and-groove design
- provides excellent leak integrity during thermal cycling and high-pressure applications

Spring

- noncontaminating PFA material
- allows valve installation in any orientation

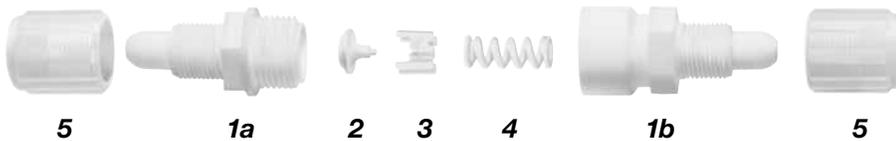


Positive stop

- prevents spring from compressing to a solid height
- allows flow to sweep around spring coils reducing entrapment

Materials of Construction

Small Body Size Shown



Component	End Connections		
	Fine Thread Flare		Nippon Pillar
	Small Body	Medium Body	Small Body
1a Inlet housing			
1b Outlet housing	<i>Modified PTFE</i>	<i>PFA</i>	<i>Modified PTFE</i>
2 Poppet			
3 Retainer	<i>PFA</i>		
4 Spring	<i>PFA</i>		
5 Nuts	<i>PVDF</i>		<i>PFA</i>
6 Sleeve (not shown)	—		<i>PFA</i>
7 Gauge ring (not shown)	—		<i>ETFE</i>

Wetted components listed in *italics*.

Testing

Every Swagelok® CHP series check valve is factory leak tested at the seat and shell.

Cleaning and Packaging

Every Swagelok CHP series check valve is cleaned and packaged in accordance with SEMI Standard F57-0301 Section 11 for ultrahigh-purity fluid system components.

Technical Data

Based on an ambient temperature of $77 \pm 9^\circ\text{F}$ ($25 \pm 5^\circ\text{C}$) and testing conducted with water.

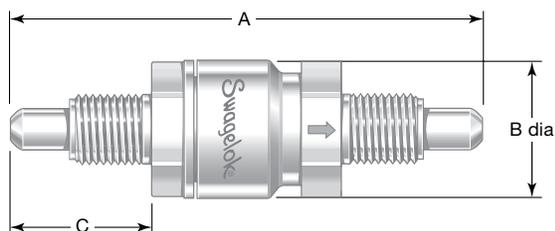
Valve Body Size	Media Temperature °F (C)	Working Pressure psig (bar)	Cracking Pressure psig (bar)	Reseal Pressure psig (bar)
Small	50 to 149 (10 to 65)	80 (5.5)	Less than 1.5 (0.11)	0.5 (0.04) ^①
	185 (85)	40 (2.7)		
Medium	50 to 149 (10 to 65)	80 (5.5)	Less than 0.9 (0.07)	
	185 (85)	40 (2.7)		

⚠ For valves not actuated for a period of time, initial cracking pressure may be higher than the set cracking pressure.

① 5 psig (0.34 bar) starting test pressure in the forward direction with water. Pressure was reduced at a rate of 0.5 psig/s (0.04 bar/s) until flow was visibly observed to stop to determine reseal pressure.

Ordering Information and Dimensions

Dimensions are for reference only and subject to change.



Valve Body Size	End Connection Size	Ordering Number	C _v	Dimensions			Weight
				A	B	C	
Fine Thread Flare End Connections							
Dimensions, in. (mm)							lb (kg)
Small	1/4	P-CHP4FCFC	0.38	3.34 (84.8)	0.98 (24.9)	1.00 (25.4)	0.080 (0.04)
	3/8	P-CHP4DFD	0.80	3.54 (89.9)		1.10 (27.9)	
Medium	1/2	P-CHP8FEFE	2.5	4.03 (102)	1.40 (35.6)	1.15 (29.2)	0.165 (0.07)
	3/4	P-CHP8FGFG	4.1	3.74 (95.0)		1.30 (33.0)	
Nippon Pillar Super 300 End Connections							
Dimensions, in. (mm)							lb (kg)
Small	1/4	P-CHP4NCNC	0.46	2.46 (62.5)	0.98 (24.9)	0.56 (14.2)	0.080 (0.04)
	3/8	P-CHP4NDND	0.88	2.77 (70.4)		0.72 (18.3)	
Dimensions, mm (in.)							kg (lb)
Small	6	P-CHP4NBNB	0.46	62.5 (2.46)	24.9 (0.98)	14.2 (0.56)	0.04 (0.080)
	10	P-CHP4NHNH	0.88	70.4 (2.77)		18.3 (0.72)	

Options

PFA Fine Thread Flare Nuts

PFA fine thread flare nuts are available in place of standard PVDF nuts. To order, insert **P** into the valve ordering number.

Example: P-CHP4**P**FCFC

Additional End Connections

For ISO, NPT, or other end connections, and for medium-body valves with Nippon Pillar Super 300 end connections, contact your authorized Swagelok sales and service representative.

⚠ Check valves are designed for directional flow control only. Swagelok check valves should never be used as code safety relief devices.

Ultra-high-Purity Fluoropolymer Products

The Swagelok family of UHP fluoropolymer products includes pneumatically actuated and quarter-turn manual radial diaphragm-sealed shutoff valves, fine thread flare fittings, and tubing.

See these Swagelok catalogs for more information:

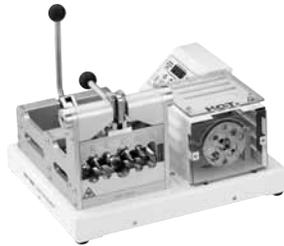
- *Ultra-high-Purity Fluoropolymer Diaphragm Valves—DRP Series*, MS-02-171
- *High-Purity PFA Fine Thread Flare Fittings*, MS-02-195
- *Ultra-high-Purity Fluoropolymer Tubing*, MS-02-196



Plastic Tube Flaring System

Model FTF 1000

- Precision tube flaring system for use with fine thread flare connections
- Accommodates tubing sizes of 1/4, 3/8, 1/2, 3/4, and 1 in.
- Electronic controls ensure uniform tube heating and repeatable flared ends
- Complete flaring cycle in approximately one minute
- Easy to learn and operate



See the Swagelok *Plastic Tube Flaring System* catalog, MS-02-319, for more information.

Safe Product Selection

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

Caution: Do not mix or interchange parts with those of other manufacturers.

Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit swagelok.com or contact your authorized Swagelok representative.

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Pillar—TM Nippon Pillar Packing Company, Ltd.
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