

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



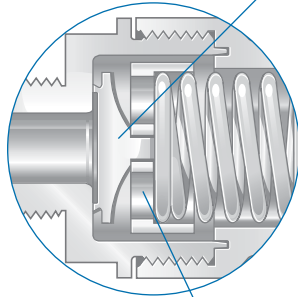
## CHP Series

- 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

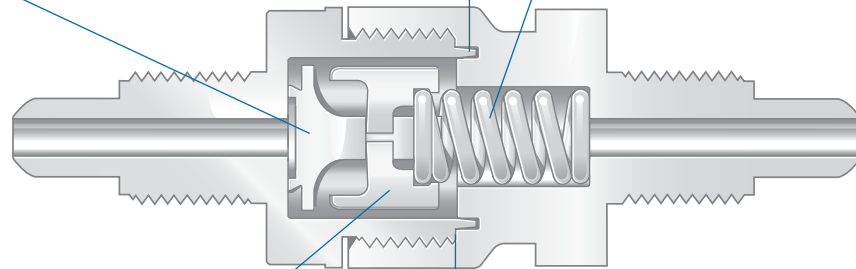
- open-cage design ensures poppet alignment
- eliminates no-flow areas

### 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

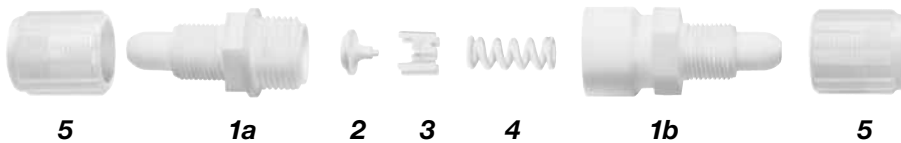


### Positive stop

- 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
<b>1a</b> Inlet housing			
<b>1b</b> Outlet housing	<i>Modified PTFE</i>	<i>PFA</i>	<i>Modified PTFE</i>
<b>2</b> Poppet			
<b>3</b> Retainer	<i>PFA</i>		
<b>4</b> Spring	<i>PFA</i>		
<b>5</b> Nuts	<i>PVDF</i>		<i>PFA</i>
<b>6</b> Sleeve (not shown)	—		<i>PFA</i>
<b>7</b> 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 ± 9°F (25 ± 5°C) and testing conducted with water.

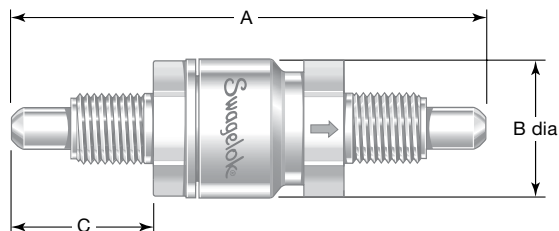
Valve Body Size	Media Temperature °F (C)	Working Pressure psig (bar)	Cracking Pressure psig (bar)	Reseal Pressure psig (bar)
Small	50 to 149 (10 to 65)	80 (5.5)	Less than 1.5 (0.11)	0.5 (0.04) <sup>①</sup>
	185 (85)	40 (2.7)		
Medium	50 to 149 (10 to 65)	80 (5.5)	Less than 0.9 (0.07)	
	185 (85)	40 (2.7)		

**⚠ 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 <sub>v</sub>	Dimensions			Weight
				A	B	C	
<b>Fine Thread Flare End Connections</b>							
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-CHP4FDFD	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)	
<b>Nippon Pillar Super 300 End Connections</b>							
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:

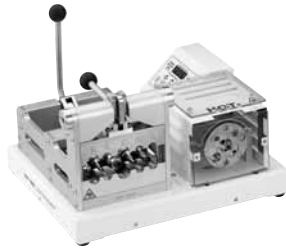
- *Ultra-high-Purity Fluoropolymer Diaphragm Valves—DRP Series*, MS-02-171
- *High-Purity PFA Fine Thread Flare Fittings*, MS-02-195
- *Ultra-high-Purity Fluoropolymer Tubing*, MS-02-196



## 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](http://swagelok.com) or contact your authorized Swagelok representative.

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Pillar—TM Nippon Pillar Packing Company, Ltd.  
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