

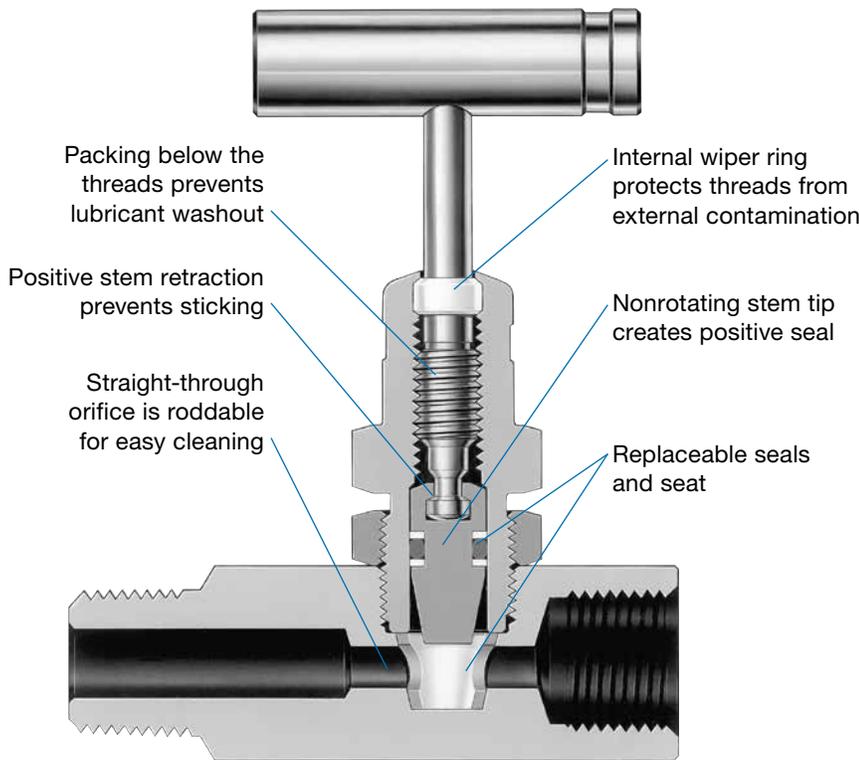
# Rising Plug Valves



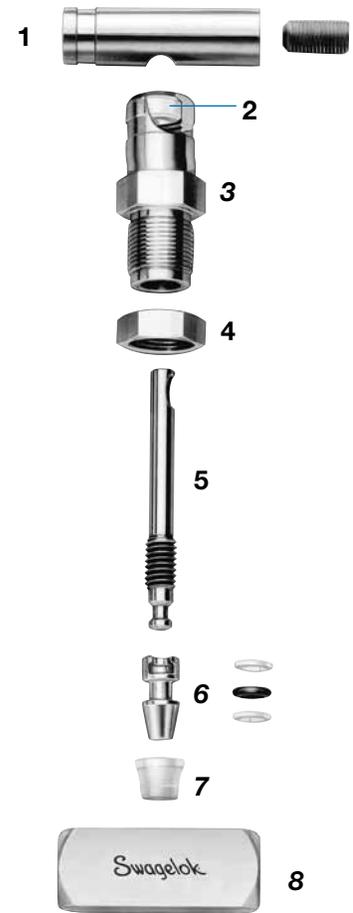
## 4P and 5P Series

- Roddable, straight-through orifice for maximum flow
- Working pressures up to 6000 psig (413 bar)
- Packing below the threads
- Replaceable seat and stem tip design
- Low Emissions certification per API 624 available

## Features



## Materials of Construction



## Pressure-Temperature Ratings

Valves are standard with acetal seats, fluorocarbon FKM O-rings, and PTFE backup rings. Ratings are limited to:

- 250°F (121°C) max for fluids compatible with acetal seat material, except for water and steam, which are not recommended for temperatures greater than 200°F (93°C).

Ratings extend to:

- -65°F (-53°C) with Buna C O-rings.
- 400°F (204°C) with PEEK or PFA seat material and fluorocarbon FKM or Kalrez® O-rings.

To order PEEK or PFA seats, see **Ordering Information and Dimensions**.

To order optional O-ring materials, see **Options and Accessories**, page 4.

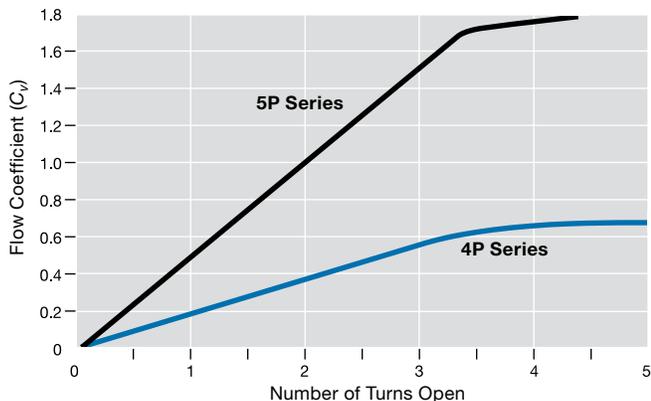
Material	316 SS			Alloy 400		
	Acetal	PEEK	PFA	Acetal	PEEK	PFA
<b>Seat Material</b>						
<b>Temperature, °F (°C)</b>	<b>Working Pressure, psig (bar)</b>					
-20 (-28) to 100 (37)	6000 (413)	6000 (413)	750 (51.6)	5000 (344)	5000 (344)	750 (51.6)
200 (93)	2650 (182)	3000 (206)	625 (43.0)	2650 (182)	3000 (206)	625 (43.0)
250 (121)	1000 (68.9)	1600 (110)	450 (31.0)	1000 (68.9)	1600 (110)	450 (31.0)
300 (148)	—	1300 (89.5)	300 (20.6)	—	1300 (89.5)	300 (20.6)
350 (176)	—	1200 (82.6)	200 (13.7)	—	1200 (82.6)	200 (13.7)
400 (204)	—	1000 (68.9)	100 (6.8)	—	1000 (68.9)	100 (6.8)

Component	Valve Body Materials	
	316 SS	Alloy 400
	Material Grade/ ASTM Specification	
1 Handle	316 SS/A276, A479	
Set screw	S17400/A564	
2 Wiper ring	Glass-reinforced PTFE	
3 Bonnet	316 SS/ A276, A479	Alloy 400/ B164
4 Lock nut	316 SS powdered metal	
5 Stem shank	S17400/A564	
6 Stem tip	316 SS/ A276, A479	Alloy 400/ B164
Backup rings	PTFE/D1710	
O-ring	Fluorocarbon FKM	
7 Seat	Acetal/D6778, PEEK, or PFA/D3307	
8 Body	316 SS/ A276, A479	Alloy 400/ B164
Wetted lubricant	Silicone-based	
Nonwetted lubricants	Tungsten disulfide- and fluorocarbon-based	

Wetted components listed in *italics*.

## Flow Data at 100°F (37°C)

### Flow Coefficient at Turns Open



## Testing

Every 4P and 5P series rising plug valve is factory tested with nitrogen at 1000 psig (69 bar). Seats have a maximum allowable leak rate of 0.1 std cm<sup>3</sup>/min. Stem and body seals are tested to a requirement of no detectable leakage using a liquid leak detector.

## Cleaning and Packaging

All Swagelok® 4P and 5P series rising plug valves are cleaned and packaged in accordance with Swagelok *Standard Cleaning and Packaging (SC-10)*, MS-06-62.

## Low Fugitive Emissions

The American Petroleum Institute's API 624 tests for fugitive emissions to atmosphere for rising stem valves. The tests are conducted at a third party lab and certify that at no point in the test did the valve leak in excess of 100 ppm of methane. Certificates stating that the valve is certified for Low Emissions service are available for valves with standard Fluorocarbon FKM o-ring. For more information, contact your authorized Swagelok sales and service representative.

## Ordering Information and Dimensions

Dimensions, in inches (millimeters), are for reference only and are subject to change.

### Stainless Steel Valves

Select an ordering number.

### Alloy 400 Valves (5P Series)

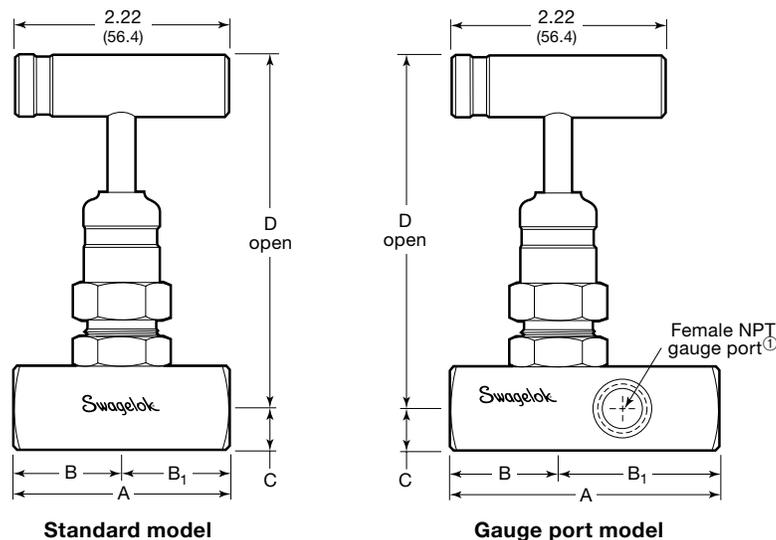
Replace **SS** with **M**.

Example: **M-5PDF8**

### Optional Seat Materials

Acetal seats are standard. For optional seat materials, replace **D** in the ordering number with **P** for PEEK or **T** for PFA.

Example: **SS-4PPF4**



End Connections		C <sub>v</sub>	Orifice in. (mm)	Ordering Number	Series	Model	Dimensions, in. (mm)				
Inlet/Outlet	Size						A	B	B <sub>1</sub>	C	D
Female NPT	1/4 in.	0.63	0.187 (4.8)	SS-4PDF4	4P	Standard	2.25 (57.2)	1.13 (28.7)	1.13 (28.7)	0.44 (11.2)	3.78 (96.0)
				SS-4PDGF4	4P	Gauge port <sup>①</sup>	2.88 (73.2)		1.75 (44.4)	0.50 (12.7)	
	1/2 in.	1.80	0.250 (6.4)	SS-5PDF8	5P	Standard	2.66 (67.6)	1.33 (33.8)	1.33 (33.8)	0.56 (14.2) <sup>②</sup>	3.86 (98.0)
				SS-5PDGF8	5P	Gauge port <sup>①</sup>	3.58 (90.9)		2.25 (57.2)		
Male/ female NPT	1/4 in.	0.63	0.187 (4.8)	SS-4PDM4-F4	4P	Standard	2.91 (73.9)	1.78 (45.2)	1.13 (28.7)	0.44 (11.2)	3.78 (96.0)
				SS-4PDM8-F4	4P	Standard	3.02 (76.7)				
	1/2 to 1/4 in.				SS-4PDGM8-F4 <sup>③</sup>	4P	Gauge port <sup>①</sup>	4.88 (124)	3.13 (79.5)	1.75 (44.4)	0.50 (12.7)
					SS-5PDM8-F8	5P	Standard	3.48 (88.4)	2.16 (54.9)	1.33 (33.8)	0.56 (14.2) <sup>②</sup>
	1/2 in.	1.80	0.250 (6.4)	SS-5PDGM8-F8 <sup>③</sup>	5P	Gauge port <sup>①</sup>	5.58 (142)	3.33 (84.6)	2.25 (57.2)		
				SS-5PDM12-F8	5P	Standard	3.49 (88.6)	2.16 (54.9)	1.33 (33.8)		
3/4 to 1/2 in.				SS-5PDGM12-F8 <sup>③</sup>	5P	Gauge port <sup>①</sup>	5.58 (142)	3.33 (84.6)	2.25 (57.2)		

① Gauge ports on 316 SS bodies match outlet size; alloy 400 bodies have 1/4 in. gauge ports.

② Alloy 400 valve dimension C is 0.63 in. (16.0 mm).

③ Has 2 in. (50.8 mm) lagging extension body for insertion through pipe insulation.

## Options and Accessories

### Optional O-Ring Materials

Fluorocarbon FKM O-rings are standard. For other O-ring materials, add a designator to the valve ordering number.

O-Ring Material	Designator	Temperature Rating °F (°C)
Buna C	-BC	-65 to 250 (-53 to 121)
Buna N	-B	-20 to 250 (-28 to 121)
Ethylene propylene	-E	
Kalrez	-KZ	-20 to 400 (-28 to 204)
Silicone	-SI	-20 to 250 (-28 to 121)

Example: SS-4PDF4-BC

### Seal Maintenance Kits

Maintenance kits contain stem tip, fluorocarbon FKM O-ring, PTFE backup rings, seat, lubricants, and instructions. Select a kit ordering number.

Seat Material	Kit Ordering Number
Acetal	SS-9K-5PD
PFA	SS-9K-5PT
PEEK	SS-9K-5PP

To order kits for alloy 400 valves (5P series only), replace **SS** with **M**.

Example: M-9K-5PD

### Special Cleaning and Packaging (SC-11)

To order 4P and 5P series rising plug valves cleaned and packaged in accordance with Swagelok *Special Cleaning and Packaging (SC-11)*, MS-06-63, to ensure compliance with product cleanliness requirements stated in ASTM G93 Level C, add **-SC11** to the valve ordering number.

Example: SS-4PDF4-SC11

**⚠ To increase service life, ensure proper valve performance, and prevent leakage, apply only as much torque as is required to achieve positive shutoff.**

#### 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.**

### Panel Mounting

Panel mounting is available. A stainless steel panel nut is assembled onto a threaded panel bonnet. The maximum panel thickness is 1/2 in. (12.7 mm), and the panel hole size is 25/32 in. (19.8 mm).

To order, add **-PM** to the valve ordering number.

Example: SS-4PDF4-PM



### Sour Gas Service

Both 4P and 5P series rising plug valves are available for sour gas service. Materials are selected in accordance with NACE MR0175/ISO 15156.

#### Materials

**Body, bonnet:** annealed 316 SS

**O-ring:** ethylene propylene, silicone-based lubricant

**Stem shank:** strain-hardened 316 SS/ASTM A176 with tungsten disulfide and fluorinated-based lubricant on threads

**Stem tip:** alloy 400/ASTM B164

All other components are the same as standard product.

#### Pressure-Temperature Ratings

Ratings are the same as standard 316 SS valves with acetal or PEEK seats and ethylene propylene O-rings.

#### Ordering Information

To order, add **-SG** to the valve ordering number.

Example: SS-4PDF4-SG

### Oxygen Service Hazards

For more information about hazards and risks of oxygen-enriched systems, see the Swagelok *Oxygen System Safety* technical report, MS-06-13.

### 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.