

# Plug Valves



## P4T and P6T Series

- Working pressures up to 3000 psig (206 bar)
- Swagelok® tube fitting and NPT and ISO tapered pipe end connections
- 1/8 through 1/2 in. and 6 through 12 mm sizes
- Brass and 316 stainless steel materials

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## Features

Swagelok plug valves offer low-torque, quarter-turn operation in a simple, compact design that provides positive shutoff of forward flow with up to 3000 psig (206 bar) pressure.



- Straight-through flow path
- Forward-flow throttling
- Simple design, easy to clean and maintain
  - One-piece body
  - Replaceable plug assembly
  - O-ring seal to atmosphere.

## Materials of Construction

Component	Valve Body Materials	
	316 SS	Brass
	Material Grade/ASTM Specification	
1 Handle	Polyetherimide	
2 Pin	316 SS	
3 Plug	<i>PTFE-coated 316 SS/A479</i>	<i>PTFE-coated brass/B453</i>
4 O-rings	<i>PTFE-coated fluorocarbon FKM</i>	
5 Pin	316 SS	
6 Body	<i>316 SS/A479</i>	<i>Brass/B453</i>
7 Snap ring	PH 15-7 Mo® SS	
Lubricant	<i>Silicone-based</i>	

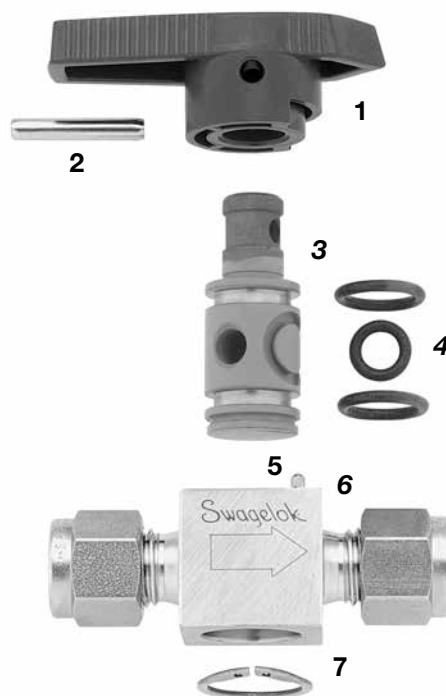
Wetted components listed in *italics*.

## Pressure-Temperature Ratings

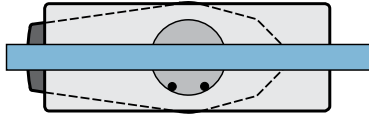
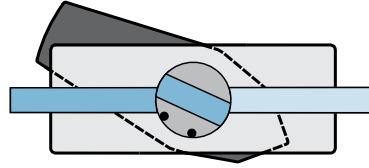
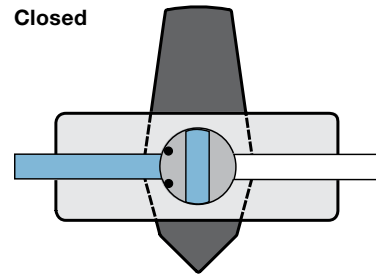
Based on PTFE-coated fluorocarbon FKM O-rings.

Series	P4T, P6T	P4T	P6T
Material	316 SS	Brass	
Temperature, °F (°C)	Working Pressure, psig (bar) <sup>①</sup>		
-10 (-23) to 100 (37)	3000 (206)	3000 (206)	2000 (137)
150 (65)	3000 (206)	2500 (172)	2000 (137)
200 (93)	3000 (206)	2000 (137)	2000 (137)
250 (121)	2000 (137)	1500 (103)	1500 (103)
300 (148)	1000 (68.9)	1000 (68.9)	1000 (68.9)
350 (176)	1000 (68.9)	1000 (68.9)	1000 (68.9)
400 (204)	1000 (68.9)	400 (27.5)	400 (27.5)

① Differential pressure is limited to 150 psig (10.3 bar) maximum if reverse flow occurs. Reverse-flow throttling may damage O-ring.



## Operation

**Open**

**Forward-Flow Throttling**

**Closed**


## Flow Data at 70°F (20°C)

End Connections		C <sub>v</sub>	Series	Pressure Drop to Atmosphere, psi (bar)					
				1 (0.068)	5 (0.34)	10 (0.68)	1 (0.068)	5 (0.34)	10 (0.68)
Inlet/Outlet	Size			Air Flow, std ft <sup>3</sup> /min (std L/min)			Water Flow, U.S. gal/min (L/min)		
Fractional Swagelok tube fittings	1/8 in.	0.10	P4T	0.3 (8.4)	0.8 (22)	1.1 (31)	0.1 (0.37)	0.2 (0.75)	0.3 (1.1)
	1/4 in.	1.6	P4T	6.0 (160)	13 (360)	18 (500)	1.6 (6.0)	3.6 (13)	5.1 (19)
	3/8 in.	1.1	P4T	4.1 (110)	8.9 (250)	12 (330)	1.1 (4.1)	2.5 (9.4)	3.5 (13)
		6.4	P6T	23 (650)	52 (1470)	72 (2030)	6.4 (24)	14 (52)	20 (75)
1/2 in.	4.4	P6T	16 (450)	35 (990)	49 (1380)	4.4 (16)	9.8 (37)	13 (49)	
Metric Swagelok tube fittings	6 mm	1.6	P4T	6.0 (160)	13 (360)	18 (500)	1.6 (6.0)	3.6 (13)	5.1 (19)
	8 mm	6.4	P6T	23 (650)	52 (1470)	72 (2030)	6.4 (24)	14 (52)	20 (75)
	10 mm								
	12 mm	4.8	P6T	17 (480)	39 (1100)	54 (1520)	4.8 (18)	10 (37)	15 (56)
Female NPT	1/8 in.	1.2	P4T	4.4 (120)	9.7 (270)	13 (360)	1.2 (4.5)	2.7 (10)	3.8 (14)
	1/4 in.	0.9	P4T	3.3 (93)	7.3 (200)	10 (280)	0.9 (3.4)	2.0 (7.5)	2.8 (10)
		4.3	P6T	16 (450)	34 (960)	48 (1350)	4.3 (16)	9.6 (36)	13 (49)
	1/2 in.	2.7	P6T	10 (280)	21 (590)	30 (840)	2.7 (10)	6.0 (22)	8.5 (32)
Male NPT	1/8 in.	1.0	P4T	3.7 (100)	8.1 (220)	11 (310)	1.0 (3.7)	2.2 (8.3)	3.2 (12)
	1/4 in.								
	1/2 in.	2.4	P6T	9.0 (250)	19 (530)	27 (760)	2.4 (9.0)	5.4 (20)	7.6 (28)
Male NPT/ Swagelok tube fitting	1/4 in.	0.9	P4T	3.3 (93)	7.3 (200)	10 (280)	0.9 (3.4)	2.0 (7.5)	2.8 (10)
Male/female NPT	1/4 in.	1.0	P4T	3.7 (100)	8.1 (220)	11 (310)	1.0 (3.7)	2.2 (8.3)	3.2 (12)
Female ISO	1/4 in.	0.9	P4T	3.3 (93)	7.3 (200)	10 (280)	0.9 (3.4)	2.0 (7.5)	2.8 (10)
	1/2 in.	2.7	P6T	10 (280)	21 (590)	30 (840)	2.7 (10)	6.0 (22)	8.5 (32)

## Testing

Every Swagelok plug valve is factory tested for shutoff at 600 psig (41.3 bar).

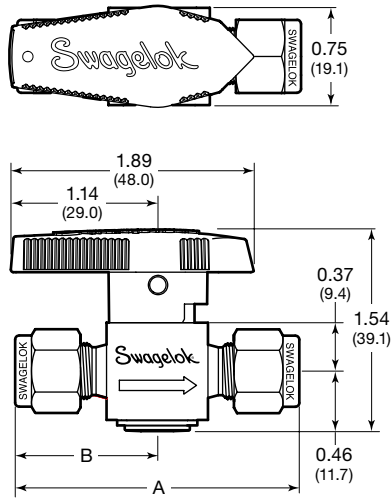
## Cleaning and Packaging

Every Swagelok plug valve is cleaned and packaged in accordance with Swagelok *Standard Cleaning and Packaging (SC-10)* (MS-06-62).

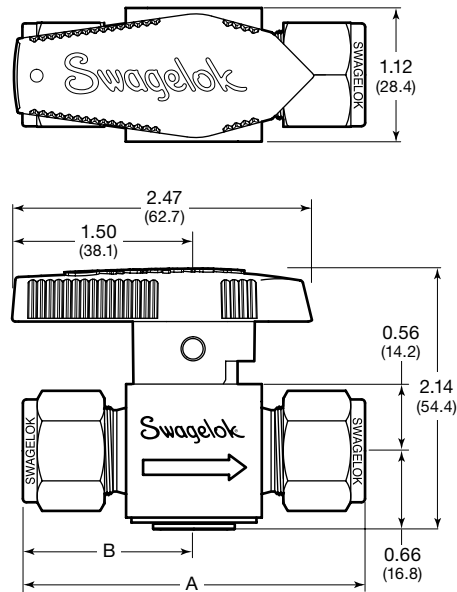
## Ordering Information and Dimensions

Dimensions, in inches (millimeters), are for reference only and are subject to change. Dimensions shown with Swagelok tube fitting nuts finger-tight.

### P4T Series



### P6T Series



End Connections		Ordering Numbers		Series	Dimensions, in. (mm)		
Inlet/Outlet	Size	Stainless Steel	Brass		Orifice	A	B
Fractional Swagelok tube fittings	1/8 in.	SS-2P4T	B-2P4T	P4T	0.093 (2.3)	1.99 (50.5)	0.98 (24.9)
	1/4 in.	SS-4P4T	B-4P4T	P4T	0.172 (4.4)	2.17 (55.1)	1.08 (27.4)
	3/8 in.	SS-6P4T	B-6P4T	P4T	0.172 (4.4)	2.29 (58.2)	1.14 (29.0)
		SS-6P6T	B-6P6T	P6T	0.283 (7.2)	2.66 (67.6)	1.33 (33.8)
Metric Swagelok tube fittings	6 mm	SS-6P4T-MM	B-6P4T-MM	P4T	0.172 (4.4)	2.17 (55.1)	1.08 (27.4)
	8 mm	SS-8P6T-MM	B-8P6T-MM	P6T	0.283 (7.2)	2.66 (67.6)	1.30 (33.0)
	10 mm	SS-10P6T-MM	B-10P6T-MM	P6T	0.283 (7.2)	2.68 (68.1)	1.34 (34.0)
	12 mm	SS-12P6T-MM	B-12P6T-MM	P6T	0.283 (7.2)	2.96 (75.2)	1.44 (36.6)
Female NPT	1/8 in.	SS-2P4T4	B-2P4T4	P4T	0.172 (4.4)	1.78 (45.2)	0.89 (22.6)
	1/4 in.	SS-4P4T4	B-4P4T4	P4T	0.172 (4.4)	2.09 (53.1)	1.05 (26.7)
		SS-4P6T4	B-4P6T4	P6T	0.283 (7.2)	2.38 (60.5)	1.19 (30.2)
Male NPT	1/8 in.	SS-2P4T2	B-2P4T2	P4T	0.172 (4.4)	1.53 (38.9)	0.76 (19.3)
	1/4 in.	SS-4P4T2	B-4P4T2	P4T	0.172 (4.4)	1.90 (48.3)	0.95 (24.1)
	1/2 in.	SS-8P6T2	B-8P6T2	P6T	0.283 (7.2)	2.64 (67.1)	1.32 (33.5)
Male NPT/ Swagelok tube fitting	1/4 in.	SS-4P4T1	B-4P4T1	P4T	0.172 (4.4)	2.03 (51.2)	0.95 (24.1)
Male/female NPT	1/4 in.	SS-4P4T5	B-4P4T5	P4T	0.172 (4.4)	2.00 (50.8)	0.95 (24.1)
Female ISO <sup>①</sup>	1/4 in.	SS-4P4T4-RT	B-4P4T4-RT	P4T	0.172 (4.4)	2.21 (56.1)	1.11 (28.2)
	1/2 in.	SS-8P6T4-RT	B-8P6T4-RT	P6T	0.283 (7.2)	3.14 (79.8)	1.57 (39.9)

① See specifications ISO 7/1, BS EN 10226-1, DIN 2999, and JIS B0203.

## Options

### Optional Handle Colors

Dark green is standard. For an optional color, add a handle color designator to the valve ordering number.

Example: SS-2P4T-**BL**

Other colors are available; contact your authorized Swagelok sales and service representative.

Handle Color	Designator
Black	-BK
Blue	-BL
Red	-RD

### Optional O-Ring Materials

PTFE-coated fluorocarbon FKM is standard. For an optional material, add an O-ring material designator to the valve ordering number.

Example: SS-2P4T-**KZ**

O-Ring Material	Designator
Kalrez®	-KZ
PTFE-coated Buna N	-TB
PTFE-coated ethylene propylene	-TE
PTFE-coated neoprene	-TN

### Optional Body Materials

Valve bodies and plugs of other alloys are available in some P4T models. Contact your authorized Swagelok representative for more information.

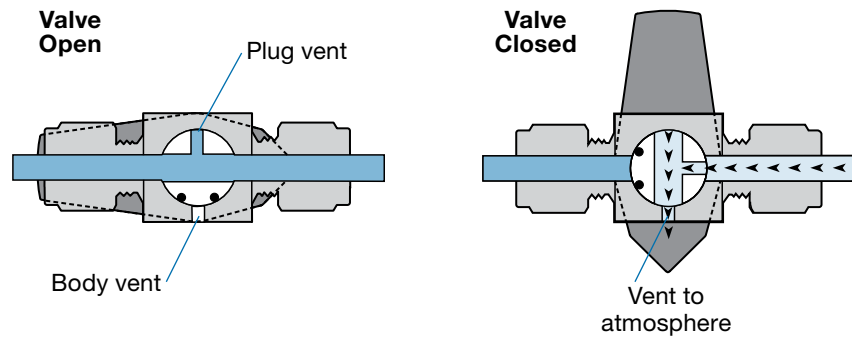
### Downstream Vents

Vented plug and valve body allow pressure release to atmosphere when the valve is closed.

- 150 psig (10.3 bar) maximum operating pressure
- Red polyetherimide handle standard

To order, replace **T** with **V** in the valve ordering number.

Example: SS-2P4**V**



### Metal Handles

Removing the roll pin protects against accidental actuation—the valve opens and closes with a wrench.

- 300 series stainless steel or aluminum

To order, add **-M1** for stainless steel or **-M2** for aluminum to the valve ordering number.

Example: SS-2P4T-**M1**



## Locking Handles

### Features

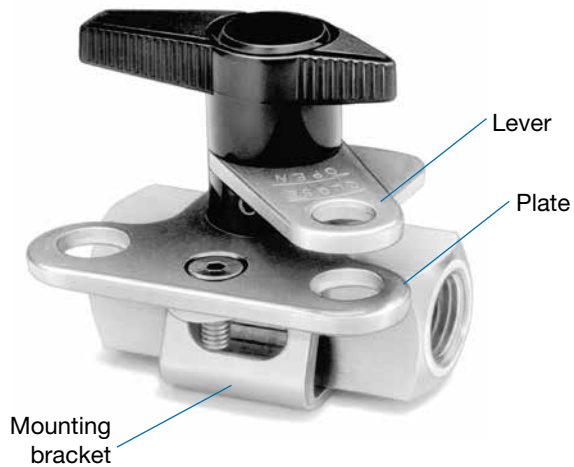
Lever locks to plate to secure valve open or closed.

- Fits 1/4 in. (P4T series) and 1/2 in. (P6T series) plug valves.
- Meets OSHA Lockout/Tagout Standard 29 CFR Part 1910.147, *Control of Hazardous Energy*.
- Accommodates padlock shackle length of 3/4 in. (19 mm) minimum and diameter of 1/4 to 3/8 in. (6.4 to 9.5 mm).

### Materials of Construction

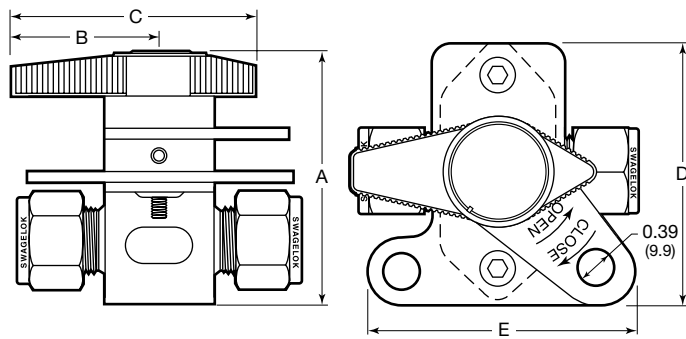
Component	Grade/ ASTM Specification
Handle, coupling, cap	Nylon
Handle insert	Brass
Lever	316 SS/A167
Plate, mounting bracket	316 SS/A240
Screws	Stainless steel

All other components listed in **Materials of Construction**, page 2.



### Ordering Information and Dimensions

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



Series	Dimensions, in. (mm)				
	A	B	C	D	E
P4T	2.07 (52.9)	1.14 (29.0)	1.88 (47.8)	2.32 (58.9)	2.24 (56.9)
P6T	2.57 (65.3)	1.50 (38.1)	2.48 (63.0)	2.70 (68.6)	2.69 (68.4)

### Factory-Assembled Locking-Handle Valves

To order a plug valve with a locking handle, add **-LD** to a valve ordering number.

Example: SS-2P4T-LD

The standard handle color is green. For an optional color, *add or insert* a handle color designator from the table at right so that the locking-handle and color designators are in *alphabetical order*.

Color	Designator
Black	-BK
Blue	-BL
Red	-RD

Examples: SS-2P4T-BK-LD  
SS-2P4T-LD-RD

### Locking-Handle Kits for Field Assembly

Kits include plug subassembly (plug, coupling, handle, pin, screw, cap, and O-rings), lock lever, lock plate, mounting bracket and screws, retaining ring, and instructions.

Select a kit ordering number.

Valve Material	Kit Ordering Numbers	
	P4T Series	P6T Series
Brass	B-5LDK-P4T-GR	B-5LDK-P6T-GR
Stainless steel	SS-5LDK-P4T-GR	SS-5LDK-P6T-GR

For an optional handle color, replace **GR** in the kit ordering number with a handle color designator.

Example: B-5LDK-P4T-BK

## Panel Mounting

### Features

Valve can be mounted on panels from 1/16 to 3/8 in. (1.6 to 9.6 mm) thick. The mounting bracket fits:

- Swagelok 1/4 in. (P4T series) plug valves with Swagelok tube fitting, female pipe, and up to 1/8 in. male pipe end connections
- Swagelok 1/2 in. (P6T series) valves with Swagelok tube fitting, female pipe, and up to 3/8 in. male pipe end connections.



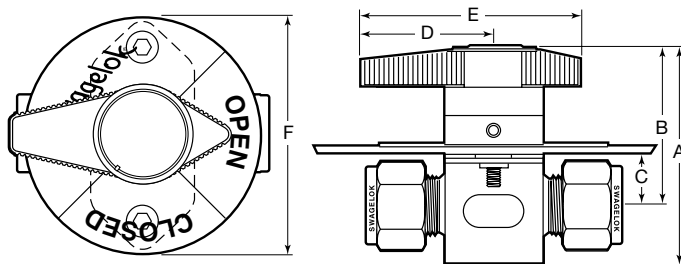
### Materials of Construction

Component	Grade
Handle, coupling, cap	Nylon
Handle insert	Brass
Mounting bracket, mounting screws	Stainless steel
Indicator label	Polycarbonate

All other components listed in **Materials of Construction**, page 2.

### Ordering Information and Dimensions

Dimensions are for reference only and are subject to change.



Series	Dimensions, in. (mm)					
	A	B	C	D	E	F
P4T	1.95 (49.5)	1.46 (37.1)	0.37 (9.4)	1.14 (29.0)	1.88 (47.8)	2.13 (54.1)
P6T	2.45 (62.3)	1.79 (45.5)	0.56 (14.2)	1.50 (38.1)	2.48 (63.0)	2.75 (69.9)

### Factory-Assembled Panel-Mounting Valves

To order a plug valve with a panel-mount handle, add **-PM** to a valve ordering number.

Example: SS-2P4T-**PM**

The standard handle color is green. For an optional color, *add or insert* a handle color designator from the table at right so that the panel-mounting and color designators are in *alphabetical order*.

Color	Designator
Black	-BK
Blue	-BL
Red	-RD

Examples: SS-2P4T-**BK-PM**  
SS-2P4T-**PM-RD**

### Panel-Mounting Kits for Field Assembly

Kits include plug subassembly (plug, coupling, handle, pin, screw, cap, and O-rings), mounting bracket and screws, retaining ring, indicator label, mounting hole template, and instructions.

Select a kit ordering number.

Valve Material	Kit Ordering Numbers	
	P4T Series	P6T Series
Brass	B-5PMK-P4T-GR	B-5PMK-P6T-GR
Stainless steel	SS-5PMK-P4T-GR	SS-5PMK-P6T-GR

For an optional handle color, replace **GR** in the kit ordering number with a handle color designator.

Example: B-5PMK-P4T-**BK**

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

## About this document

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### 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.**

## Warranty Information

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

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