

SPDST SERIES

Ultra-High Purity Bar Stock Stainless Steel
Manual Diaphragm Tee Valves



SPDST SERIES

SPDST Series Product Applications

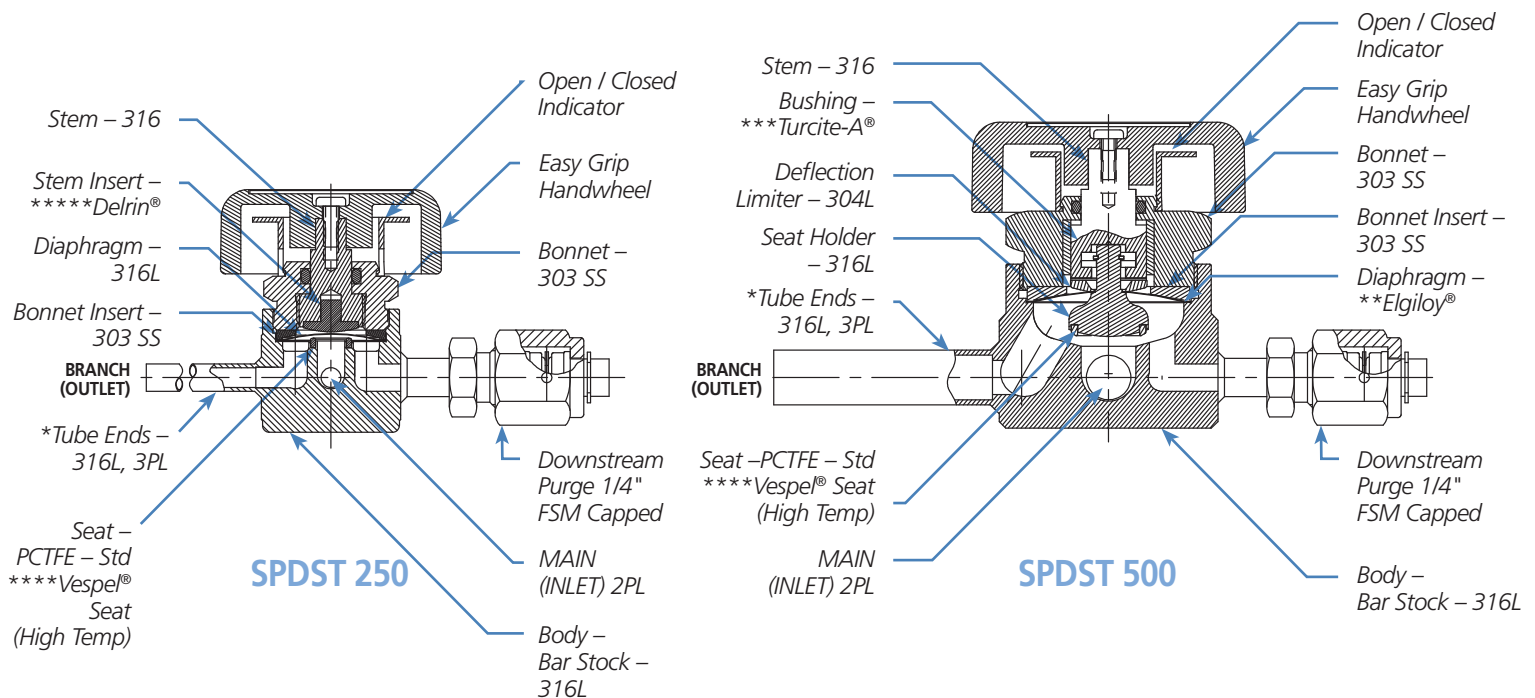
This SPDST (Diaphragm Design) tee valve series is designed for high-performance gas and chemical distribution systems combined with the lowest operating cost, make this valve an excellent consideration for:

- High-purity gas distribution system control
- High-purity gas valves for point-of-use service
- Superior containment and cleanliness for your most critical valve applications
- Suitable for inert and most spec. gases

SPDS Series Product Features

- High Cv Manual Diaphragm Valve, Compact "T" Round Body Design
- Ultra-High Purity Bar Stock Stainless Steel/PCTFE/Vespel® Valve Construction
- **Elgiloy® Tied-Diaphragm for Maximum Flow on Valve Sizes – .500" and .750" Only
- Springless, Packless Design – Low Dead Volume / Internal Flowpath
- 10 Ra Max – Electropolished Surface Finish – Std (Optional Surface Finishes Available)
- Purge Connections and Purge Valves are Integrated in Valve Body
- Valve Body and Tube Stubs are Serialized for Material Certification

SPDST Construction Materials



*See Ordering Code for other available – Valve FSM - M/F Connection Ends – sizes 250/375/500/750/1000.

**Elgiloy® is a registered trademark of Elgiloy Specialty Metals.

***Turcite-A® is a registered trademark of Emco Industrial Plastics, Inc.

****Vespel® is a registered trademark of DuPont Company.

*****Delrin® is a registered trademark of Ridout Plastics Inc.

SPDST SERIES

SPDST Series Technical Data

MATERIAL OF CONSTRUCTION	Wetted Areas	**Elgiloy®, 316L Stainless Steel, PCTFE
	Non-Wetted Areas	316L Stainless Steel, 303 Stainless Steel
MAXIMUM OPERATING PRESSURE	SPDST 250 & 375 & 525	Vacuum to 375 psig (0-25.8 bar)
	SPDST 500 & 755	
	SPDST 750 & 1075	
MAXIMUM OPERATING TEMPERATURE	PCTFE Seat – Std	-22°F (-30°C) to 180°F (82°C)
	*Vespel® Seat (High Temp)	181°F (83°C) to 302°F (150°C)
INTERNAL VOLUME	SPDST 250/250	0.124 in³ (2.032 cm³)
	SPDST 375/375	0.177 in³ (2.901 cm³)
	SPDST 525/250	0.177 in³ (2.901 cm³)
	SPDST 525/375	0.177 in³ (2.901 cm³)
	SPDST 500/250	0.816 in³ (13.374 cm³)
	SPDST 500/375	0.816 in³ (13.374 cm³)
	SPDST 500/500	0.816 in³ (13.374 cm³)
	SPDST 755/500	0.816 in³ (13.374 cm³)
	SPDST 750/750	1.881 in³ (30.824 cm³)
	SPDST 1075/750	1.881 in³ (30.824 cm³)

*Vespel® is a registered trademark of DuPont Company.

**Elgiloy® is a registered trademark of Elgiloy Specialty Metals.

VALVE MODELS	BODY DATA	FLOW COEFFICIENT C _v
Series/Size-Inch	Tube/Body (Seat-Orifice) Sizes	
SPDST 250/250	Ø.250 / .250 (Ø.250 in. (Ø6.35mm)-Orifice)	0.41
SPDST 375/375	Ø.375 / .250 (Ø.250 in. (Ø6.35mm)-Orifice)	0.64
SPDST 525/250	Ø.500 / .250 (Ø.250 in. (Ø6.35mm)-Orifice)	0.68
SPDST 525/375	Ø.500 / .250 (Ø.250 in. (Ø6.35mm)-Orifice)	0.70
SPDST 500/250	Ø.500 / .500 (Ø.500 in. (Ø12.7mm)-Orifice)	2.81
SPDST 500/375	Ø.500 / .500 (Ø.500 in. (Ø12.7mm)-Orifice)	2.81
SPDST 500/500	Ø.500 / .500 (Ø.500 in. (Ø12.7mm)-Orifice)	2.81
SPDST 755/500	Ø.750 / .500 (Ø.500 in. (Ø12.7mm)-Orifice)	3.15
SPDST 750/750	Ø.750 / .750 (Ø.625 in. (Ø15.9mm)-Orifice)	4.70
SPDST 1075/750	Ø1.000 / .750 (Ø.625 in. (Ø15.9mm)-Orifice)	4.36

HELIUM LEAK TEST	Inboard Across the Seat Outboard Pressure Test	≤ 1 x 10 ⁻⁹ std.cc (atm) He / sec ≤ 1 x 10 ⁻⁹ std.cc (atm) He / sec ≤ 1 x 10 ⁻⁶ std.cc (atm) He / sec
CLEANLINESS AND PACKAGING	Assembled and tested in Class 100 Cleanroom. Purged and Final Packaged in Class 1 Cleanroom. Double-bag Packaging (2 mil nylon inner bag, 6 mil polyethylene outer bag) with Ultra-High Purity N ₂ gas environment.	
STANDARD FINISH	10 Ra Max – Electropolished Surface Finish – Std (Optional surface finishes available)	
NOTES AND OPTIONS	Testing: Particle, Moisture, O ₂ , SEM, ESCA, and AES Purge Connection – Valve Type/Location Size .250 Valve Connection Ends – Inlet/Outlet Sizes .250 to 1.000 Valve Body Mounting Holes Std. Options: 1) SPDST 250 to 750 – M5 x 0.8 or 10-32UNC-2B Integral Lock-out Design Handle – Sizes .250 / .500	

Specifications are subject to change without notice.

SPDST SERIES



SPDST Series Technical Dimensions

SERIES/SIZE (INCH)	A	B	C	D	E	F	G	H	J	K	L	M
SPDST 250/250	Ø .250 (6.4mm)	0.035 (0.89mm)	0.50 (12.7mm)	3.04 (77.2mm)	7.35 (186.7mm)	Ø .250 (6.4mm)	0.035 (0.89mm)	3.68 (93.5mm)	1.98 (50.3mm)	2.55 (64.8mm)	6.23 (158.2mm)	4.68 (118.9mm)
SPDST 375/375	Ø .375 (9.5mm)	0.035 (0.89mm)	0.50 (12.7mm)	3.04 (77.2mm)	7.35 (186.7mm)	Ø .375 (9.5mm)	0.035 (0.89mm)	3.68 (93.5mm)	1.98 (50.3mm)	2.55 (64.8mm)	6.23 (158.2mm)	4.68 (118.9mm)
SPDST 525/250	Ø .500 (12.7mm)	0.049 (1.2mm)	0.50 (12.7mm)	3.04 (77.2mm)	7.35 (186.7mm)	Ø .250 (6.4mm)	0.035 (0.89mm)	3.68 (93.5mm)	1.98 (50.3mm)	2.55 (64.8mm)	6.23 (158.2mm)	4.68 (118.9mm)
SPDST 525/375	Ø .500 (12.7mm)	0.049 (1.2mm)	0.50 (12.7mm)	3.04 (77.2mm)	7.35 (186.7mm)	Ø .375 (9.5mm)	0.035 (0.89mm)	3.68 (93.5mm)	1.98 (50.3mm)	2.55 (64.8mm)	6.23 (158.2mm)	4.68 (118.9mm)
SPDST 500/250	Ø .500 (12.7mm)	0.049 (1.2mm)	0.46 (11.7mm)	3.04 (77.2mm)	8.08 (205.2mm)	Ø .250 (6.4mm)	0.035 (0.89mm)	4.04 (102.6mm)	2.34 (59.4mm)	2.91 (73.9mm)	7.00 (177.8mm)	5.29 (134.4mm)
SPDST 500/375	Ø .500 (12.7mm)	0.049 (1.2mm)	0.46 (11.7mm)	3.04 (77.2mm)	8.08 (205.2mm)	Ø .375 (9.5mm)	0.035 (0.89mm)	4.04 (102.6mm)	2.34 (59.4mm)	2.91 (73.9mm)	7.00 (177.8mm)	5.29 (134.4mm)
SPDST 500/500	Ø .500 (12.7mm)	0.049 (1.2mm)	0.46 (11.7mm)	3.04 (77.2mm)	8.08 (205.2mm)	Ø .500 (12.7mm)	0.049 (1.2mm)	4.04 (102.6mm)	2.34 (59.4mm)	2.91 (73.9mm)	7.00 (177.8mm)	5.29 (134.4mm)
SPDST 755/500	Ø .750 (19.1mm)	0.065 (1.65mm)	0.46 (11.7mm)	3.04 (77.2mm)	8.08 (205.2mm)	Ø .500 (12.7mm)	0.049 (1.2mm)	4.00 (101.6mm)	2.34 (59.4mm)	2.91 (73.9mm)	7.00 (177.8mm)	5.25 (133.4mm)
SPDST 750/750	Ø .750 (19.1mm)	0.065 (1.65mm)	0.69 (17.5mm)	3.06 (77.7mm)	8.59 (218.2mm)	Ø .750 (19.1mm)	0.065 (1.65mm)	4.29 (109.0mm)	2.65 (67.3mm)	3.20 (81.3mm)	7.50 (190.5mm)	5.79 (147.1mm)
SPDST 1075/750	Ø 1.000 (25.4mm)	0.065 (1.65mm)	0.69 (17.5mm)	3.06 (77.7mm)	8.59 (218.2mm)	Ø .750 (19.1mm)	0.065 (1.65mm)	4.29 (109.0mm)	2.65 (67.3mm)	3.20 (81.3mm)	7.50 (190.5mm)	5.79 (147.1mm)

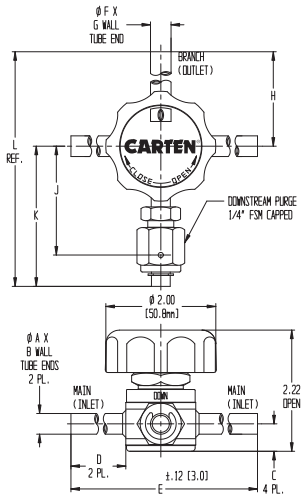
NOTE 1: All tolerances are ± 0.06 in. (± 1.52 mm) unless otherwise stated.

NOTE 2: Dimensional drawings shown are for reference only. Please contact CARTEN® for customer drawings.

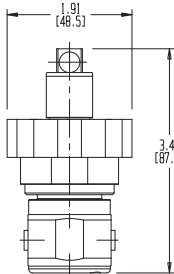
SPDST SERIES

SPDST Series Typical Valve Dimensions

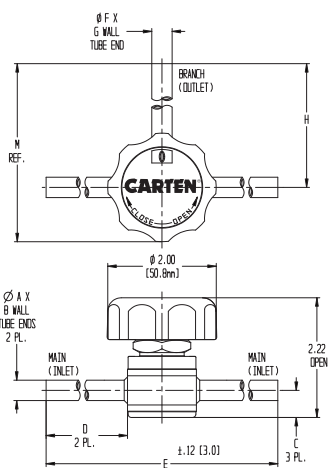
SPDST 250 BODY 250 X 250 & 375 X 375 & 525 X 250 & 525 X 375
SPDST 375 X 375-PC1 SHOWN



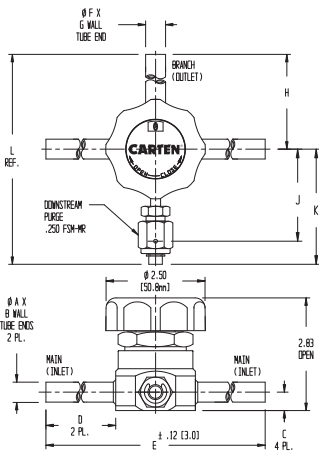
SPDST 250 LOCK-OUT HANDLE



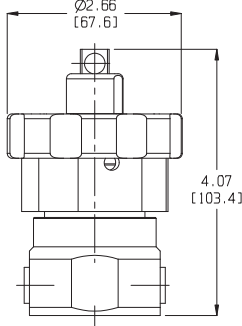
SPDST 375 X 375-LV SHOWN



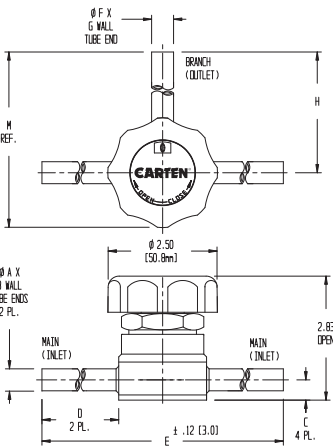
SPDST 500 BODY 500 X 250 & 500 X 375 & 500 X 500 & 755 X 500
SPDST 500 X 500 -PC1 SHOWN



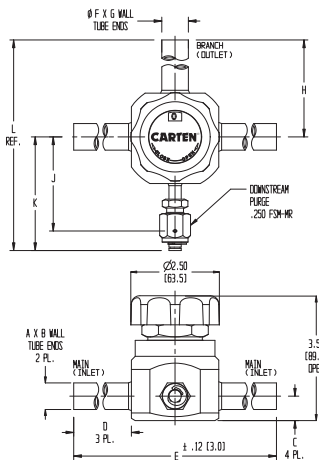
SPDST 500 LOCK-OUT HANDLE



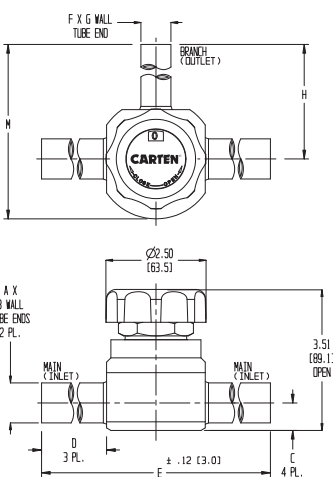
SPDST 500 X 500-LV SHOWN



SPDST 750 BODY 750 X 750 & 1075 X 750
SPDST 750 X 750-PC1 SHOWN



SPDST 1075 X 750-LV SHOWN



SPDST SERIES

SPDST Series Ordering Code

SPDST		–	500/500		–	10		–	PC1		–	FSM-MR		–	BK	
SERIES	TYPE															
SPDST	Manual															