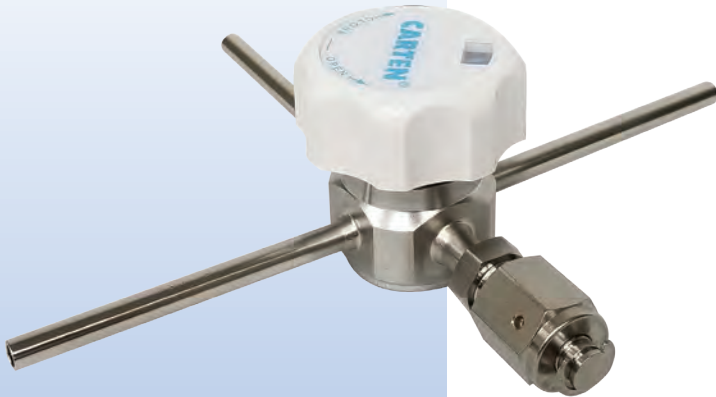


SPDST SERIES

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



SPDST SERIES

SPDST Series Product Applications

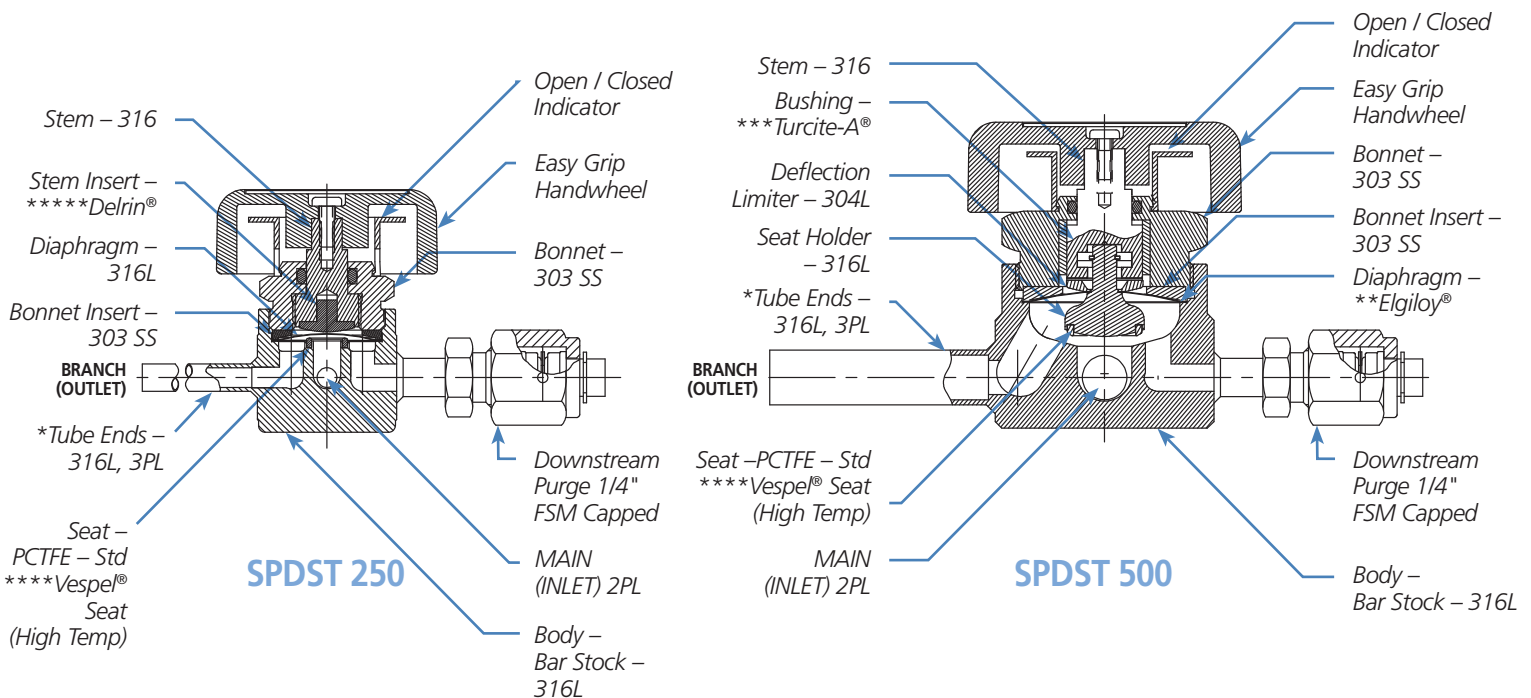
This SPDST (Diaphragm Design) tee valve series is designed for high-performance gas and chemical distribution systems combined with the lowest operating cost, make this valve an excellent consideration for:

- 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 in ³ (2.032 cm ³)
	SPDST 375/375	0.177 in ³ (2.901 cm ³)
	SPDST 525/250	0.177 in ³ (2.901 cm ³)
	SPDST 525/375	0.177 in ³ (2.901 cm ³)
	SPDST 500/250	0.816 in ³ (13.374 cm ³)
	SPDST 500/375	0.816 in ³ (13.374 cm ³)
	SPDST 500/500	0.816 in ³ (13.374 cm ³)
	SPDST 755/500	0.816 in ³ (13.374 cm ³)
	SPDST 750/750	1.881 in ³ (30.824 cm ³)
SPDST 1075/750	1.881 in ³ (30.824 cm ³)	

*Vespel® is a registered trademark of DuPont Company.

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

VALVE MODELS	BODY DATA	FLOW COEFFICIENT
Series/Size-Inch	Tube/Body (Seat-Orifice) Sizes	C _v
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)

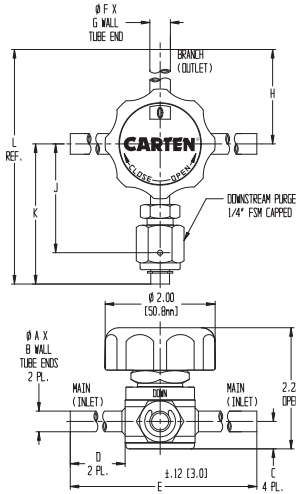
NOTE 1: All tolerances are ± 0.06 in. (± 1.52 mm) unless otherwise stated.

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

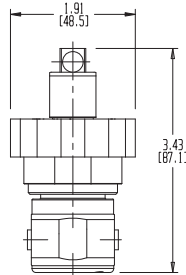
SPDST SERIES

SPDST Series Typical Valve Dimensions

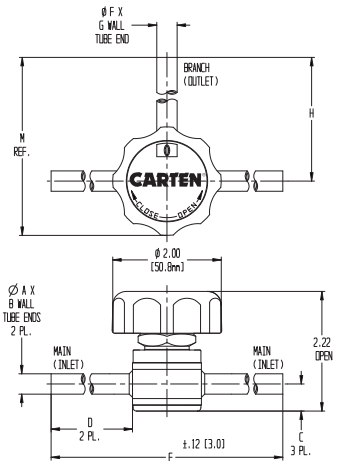
SPDST 250 BODY 250 X 250 & 375 X 375 & 525 X 250 & 525 X 375
 SPDST 375 X 375-PC1 SHOWN



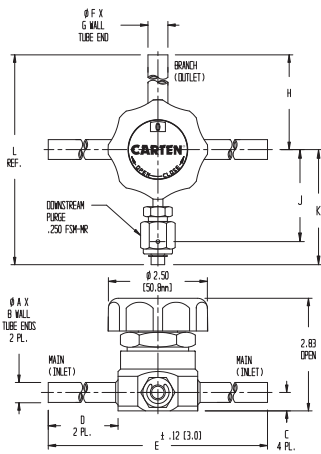
SPDST 250 LOCK-OUT HANDLE



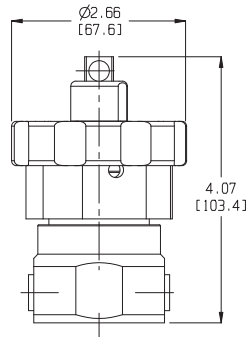
SPDST 375 X 375-LV SHOWN



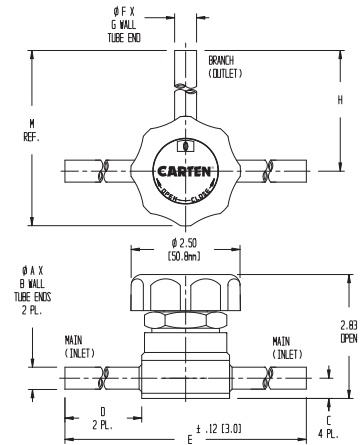
SPDST 500 BODY 500 X 250 & 500 X 375 & 500 X 500 & 755 X 500
 SPDST 500 X 500 -PC1 SHOWN



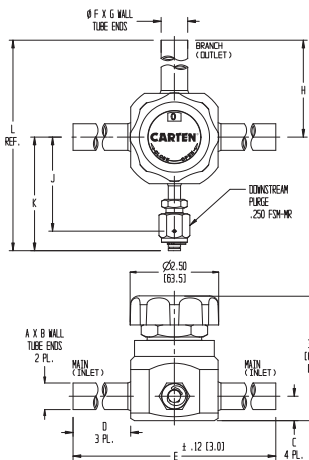
SPDST 500 LOCK-OUT HANDLE



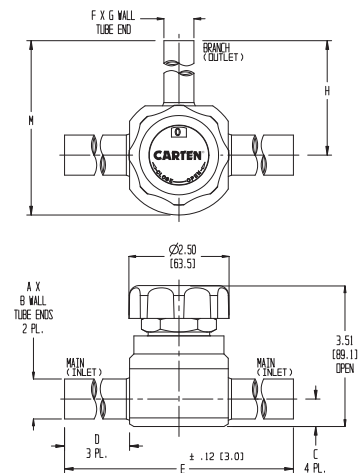
SPDST 500 X 500-LV SHOWN



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



SPDST 1075 X 750-LV SHOWN



See Ordering Code for other available FSM - M/F connection ends.

SPDST SERIES

SPDST Series Ordering Code

SPDST – **500/500** – **10** – **PC1** – **FSM-MR** – **BK**

SERIES	TYPE
SPDST	Manual

CODE	SURFACE FINISH
10	10 Ra Max - Std EP
5	5 Ra Max - EP

CODE	TYPE
FSM-MR	Fixed Male-RH

FSM – Face Seal Metal Purge
(Right Hand)

VALVE SIZES	TUBE/(BODY) INCH – SIZES	
250/250	Ø.250 / Ø.250	.250
375/375	Ø.375 / Ø.375	
525/250	Ø.500 / Ø.250	
525/375	Ø.500 / Ø.375	.500
500/250	Ø.500 / Ø.250	
500/375	Ø.500 / Ø.375	
500/500	Ø.500 / Ø.500	.750
755/500	Ø.750 / Ø.500	
750/750	Ø.750 / Ø.750	
1075/750	Ø1.000 / Ø.750	

CODE	SIZE/LOCATION	TYPE
LV	Not Required	None
PC1	1/4" Downstream	Purge

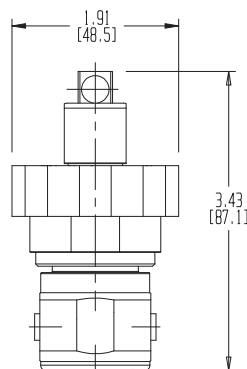
CODE	OPTIONS
	Handwheel
BL	Blue
BK	Black
DG	Dark Gold
BR	Brown
GL	Gold
GR	Green
GY	Grey
OR	Orange
PR	Purple
PK	Pink
RD	Red
SL	Silver
TL	Teal
WT	White – Standard
YL	Yellow
V	*Vespel® Seat
LO	Lock-Out Device

OPTIONAL VALVE FSM - M/F CONNECTION ENDS

Available on SPDST .250" to 1.000" Body Sizes

CONNECTION END SIZES .250 / .375 / .500 / .750 / 1.000	
FSM-M-2X	FSM-F-3X

LOCK-OUT DEVICE 250 / 500 Sizes



Connection Size	Dimension "D"	
	FSM-M-2X	FSM-F-3X
.250	1.32 (33.5mm)	1.32 (33.5mm)
.375 / .500	1.54 (39.1mm)	1.54 (39.1mm)
.750	2.06 (52.3mm)	2.06 (52.3mm)
1.000	2.38 (60.5mm)	2.38 (60.5mm)

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.

*Vespel® is a registered trademark of DuPont Company.

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Carten Controls is a member of Fujikin Corp Group (FCG)
with Headquarters in Osaka, Japan.