



Bellows-sealed Valves

SW and SU Series

Bellows-sealed
Valves



Contents

Bellows-sealed Valves

SW Series



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Bellows-sealed Valves

SU Series



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Bellows-sealed Valves

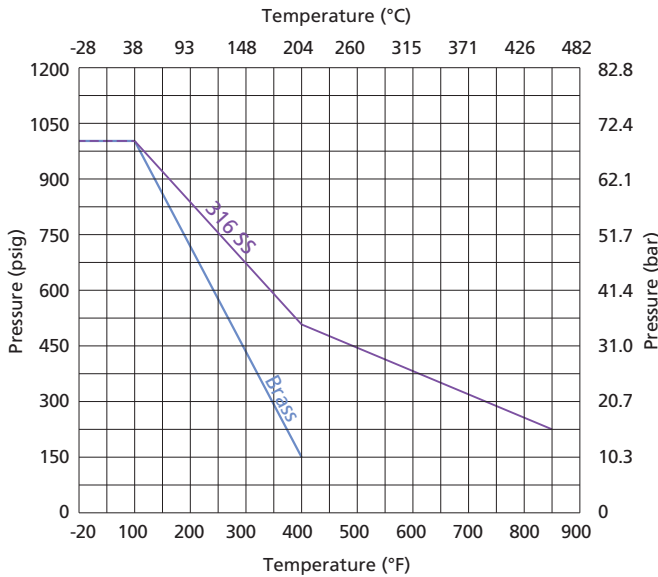
SW Series

Features

- ⦿ Working pressure up to: 1000 psig (69.0 bar)
- ⦿ Working temperature: -20°F to 842°F (-28°C to 450°C)
- ⦿ Variety of end connections
- ⦿ Body material: 316 SS, brass
- ⦿ Hydraulic-formed multilayer bellows for longer cycle life
- ⦿ Nonrotating stem tip eliminates galling within the seat area
- ⦿ Externally pressurized bellows design for maximum strength
- ⦿ Strictly controlled bellows stroke to improve safety and cycle life
- ⦿ Replaceable bellows and stem tip assembly
- ⦿ Regulating, conical and spherical stem tips available
- ⦿ Handle color options are available
- ⦿ Panel and bottom mounting available
- ⦿ Every FITOK bellows-sealed valve leak tested with helium at the seat, envelope and all seals (maximum allowable leak rate: 4×10^{-9} std cm³/s)



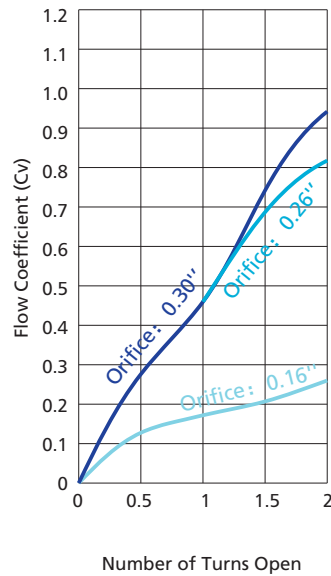
Pressure vs. Temperature



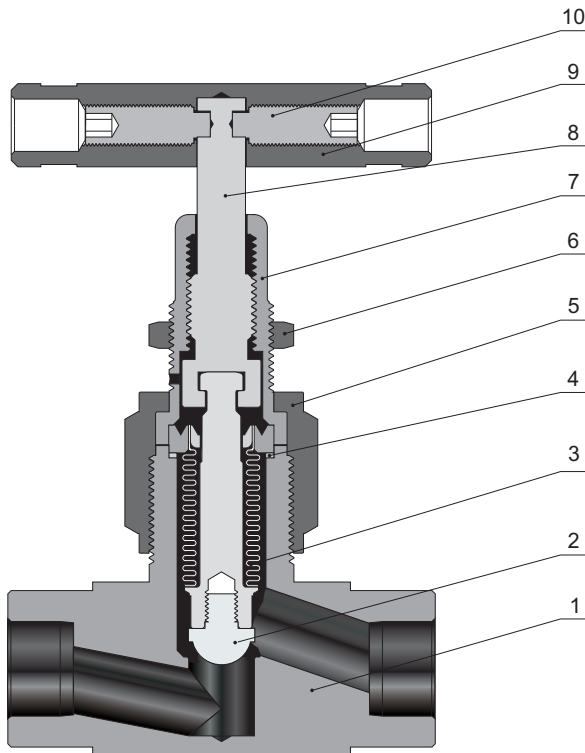
200°F (93°C) max. with PCTFE stem tip (soft tip).

Flow Coefficient vs. Turns Open

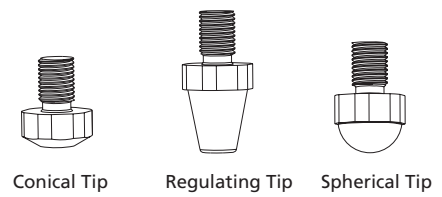
Regulating Stem



Standard Materials of Construction



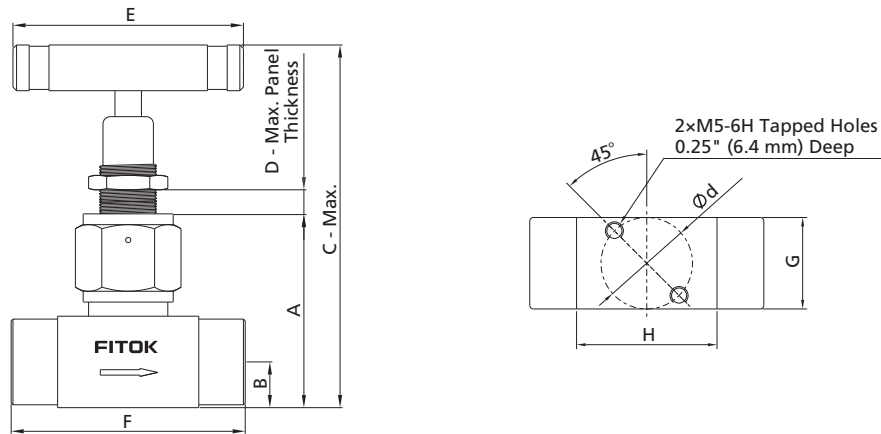
Tip Types



Component		Valve Body Material Grade/ASTM Specification	
		316 SS	Brass
1	Body	316 SS/A182	Brass/B283
2	Stem Tip	Regulating	316 SS/A479 or Stellite
		Conical	PCTFE/D1430 or 316 SS/A479 or Stellite
		Spherical	Stellite
3	Bellow	316L SS/A240	
	Stem	316 SS/A479	
	Weld Ring	316 SS/A479	
4	Gasket	Silver-plated 316 SS/A269	
5	Bonnet Nut	316 SS/A479	Brass/B16
6	Panel Mount Nut	Stainless steel	Brass/B16
7	Bonnet	316 SS/A479	Brass/B16
8	Actuator	316 SS/A479	316 SS/A479
9	Handle	6061/B211 or stainless steel	
10	Set Screws	Galvanized carbon steel	
Non-wetted Lubricant		Molybdenum disulfide	

Contact FITOK Group or our authorized distributors for valves of other materials.

Dimensions



Basic Ordering Number	Connection Type and Size		Orifice in. (mm)	Cv	Dimensions, in. (mm)								
	Inlet	Outlet			A	B	C	D	E	F	G	H	Ød
SW□□-FL4-2-	1/4" FITOK	1/4" FITOK	0.16 (4.1)	0.36	2.16 (54.8)	0.54 (13.7)	4.05 (102.8)	0.39 (10.0)	2.50 (63.5)	2.46 (62.5)	1.00 (25.4)	1.06 (26.9)	1.00 (25.4)
SW□□-FL6-3-	3/8" FITOK	3/8" FITOK	0.26 (6.6)	0.85	2.20 (55.8)	0.54 (13.7)	4.09 (103.8)	0.39 (10.0)	2.50 (63.5)	3.09 (78.5)	1.10 (25.4)	1.57 (39.9)	1.00 (25.4)
SW□□-FL8-5-	1/2" FITOK	1/2" FITOK	0.30 (7.6)	1.20	2.16 (54.8)	0.54 (13.7)	4.05 (102.8)	0.39 (10.0)	2.50 (63.5)	3.30 (83.8)	1.13 (25.4)	1.57 (40.0)	1.00 (25.4)
SW□□-ML6-2-	6 mm FITOK	6 mm FITOK	0.16 (4.1)	0.36	2.16 (54.8)	0.54 (13.7)	4.05 (102.8)	0.39 (10.0)	2.50 (63.5)	2.46 (62.5)	1.00 (25.4)	1.07 (27.1)	1.00 (25.4)
SW□□-ML10-4-	10 mm FITOK	10 mm FITOK	0.28 (7.1)	1.00	2.20 (55.8)	0.54 (13.7)	4.09 (103.8)	0.39 (10.0)	2.50 (63.5)	3.11 (79.0)	1.00 (25.4)	1.57 (39.8)	1.00 (25.4)
SW□□-ML12-5-	12 mm FITOK	12 mm FITOK	0.30 (7.6)	1.20	2.20 (55.8)	0.54 (13.7)	4.09 (103.8)	0.39 (10.0)	2.50 (63.5)	3.30 (83.8)	1.00 (25.4)	1.57 (39.8)	1.00 (25.4)
SW□□-TS4-2-	1/4" TS	1/4" TS	0.16 (4.1)	0.36	2.20 (55.8)	0.54 (13.7)	4.09 (103.8)	0.39 (10.0)	2.50 (63.5)	1.68 (42.7)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)
SW□□-TS6-4-	3/8" TS	3/8" TS	0.28 (7.1)	1.00	2.20 (55.8)	0.54 (13.7)	4.09 (103.8)	0.39 (10.0)	2.50 (63.5)	2.27 (57.7)	1.00 (25.4)	1.51 (38.4)	1.00 (25.4)
SW□□-TS8-5-	1/2" TS	1/2" TS	0.30 (7.6)	1.20	2.20 (55.8)	0.54 (13.7)	4.09 (103.8)	0.39 (10.0)	2.50 (63.5)	2.27 (57.7)	1.00 (25.4)	1.25 (31.7)	1.00 (25.4)
SW□□-TB8-4-	1/2" TB	1/2" TB	0.28 (7.1)	1.00	2.20 (55.8)	0.54 (13.7)	4.09 (103.8)	0.39 (10.0)	2.50 (63.5)	2.27 (57.7)	1.00 (25.4)	1.51 (38.4)	1.00 (25.4)
SW□□-FFR4-2-	1/4" Female FR	1/4" Female FR	0.16 (4.1)	0.36	2.16 (54.8)	0.54 (13.7)	4.05 (102.8)	0.39 (10.0)	2.50 (63.5)	2.76 (70.1)	1.00 (25.4)	1.02 (25.8)	1.00 (25.4)
SW□□-FFR8-5-	1/2" Female FR	1/2" Female FR	0.30 (7.6)	1.20	2.20 (55.8)	0.54 (13.7)	4.09 (103.8)	0.39 (10.0)	2.50 (63.5)	3.12 (79.2)	1.00 (25.4)	1.25 (31.75)	1.00 (25.4)
SW□□-FR4-2-	1/4" Male FR	1/4" Male FR	0.16 (4.1)	0.36	2.16 (54.8)	0.54 (13.7)	4.05 (102.8)	0.39 (10.0)	2.50 (63.5)	2.24 (56.9)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)
SW□□-FR8-5-	1/2" Male FR	1/2" Male FR	0.30 (7.6)	1.20	2.20 (55.8)	0.54 (13.7)	4.09 (103.8)	0.39 (10.0)	2.50 (63.5)	3.00 (76.2)	1.13 (28.7)	1.50 (38.1)	1.00 (25.4)

1. FITOK means FITOK double ferrule tube fittings, FR means metal gasket seal fittings, TS means fractional tube socket weld, TB means fractional tube butt weld.
2. Dimensions are shown with FITOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors.
3. Sizes and types listed are standard. Other sizes and types are available upon request. For special sizes and types, please contact FITOK Group or our authorized distributors.

Pneumatic Actuators



Features

- ⦿ Low actuation pressure
- ⦿ Opens and closes quickly and reliably
- ⦿ Rotatable port for normally closed actuators allows easy installation
- ⦿ Normally open actuators black capped for identification

Actuation Modes

- ⦿ Normally closed—air opens, spring closes
- ⦿ Normally open—air closes, spring opens

Technical Data

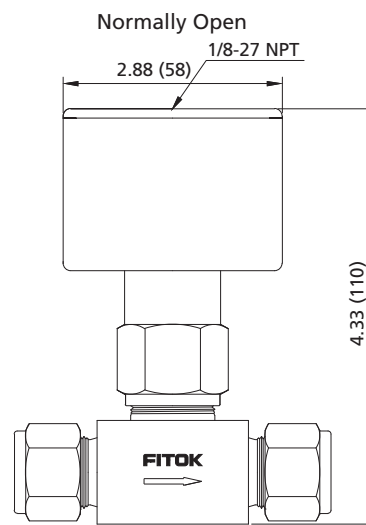
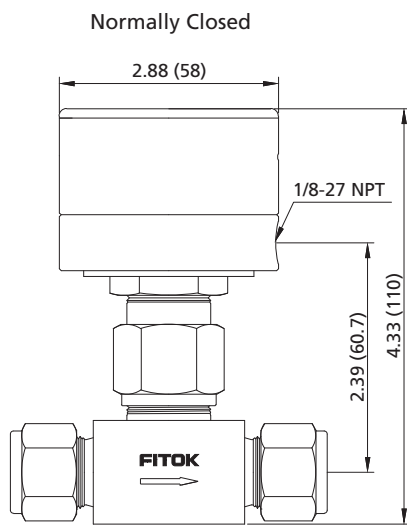
Actuator Type	Actuator Pressure Rating psig (bar)	Valve and Actuator Working Temperature °F (°C)	Valve Working Pressure psig (bar)
Normally Closed	65.3~79.8 (4.5~5.5)	-20~200 (-28~93)	10.0 (145)
Normally Open	72.5~87.0 (5.0~6.0)		34.4(500)

Materials of Construction

Component	Material
Housing	Anodized Aluminium
Stem Tip	PCTFE

For valve components, refer to "Standard Materials of Construction" on page B-117.

Dimensions



Basic Ordering Number	CV
SW□□-□□-2-KN-LC/LO	0.36
SW□□-□□-3-KN-LC/LO	0.85
SW□□-□□-5-KN-LC/LO	1.0

LC designates normally closed models; LO designates normally open models.

Ordering Number Description



SWSS – FL8 – ML10 – 5 – WR – B – BW – SF2

Series	Body Material	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Stem Tip Material and Type	Actuator	Body-to-Bellows Seal	Special Application	Cleaning and Packaging
SW	SS	316 SS	TS	Fractional Tube Socket Weld	2	1/8"	Stellite Spherical	Green Aluminum Bar	NO		FC-01
	6L	316L SS									
	S4	304 SS	TB	Fractional Tube Butt Weld	6	3/8" or 6 mm	KN	Red Aluminum Bar		Gasket Seal	
	4L	304L SS									8
	B	Brass	MTB	Metric Tube Butt Weld	10	10 mm	N	Stainless Steel Conical			
			PB	Pipe Butt Weld	14	14 mm or M14		Black nylon Knob		Only applicable to valves with orifice size of 0.16" (4.1mm)	
											FL
			ML	Metric Tube Fitting	18	18 mm		Normally Closed Pneumatic Actuator			
											UFB
			UMB	Nut+Gasket+ Metric Bulge Nipple							
											FFR
		FR	Male FR Fitting								

Note: "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

- 1. *Cleaning and Packaging:*
 - FC-01: Standard cleaning and packaging for general industrial procedures.
 - FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleanliness requirement of ASTM G93 Level C.



Bellows-sealed Valves

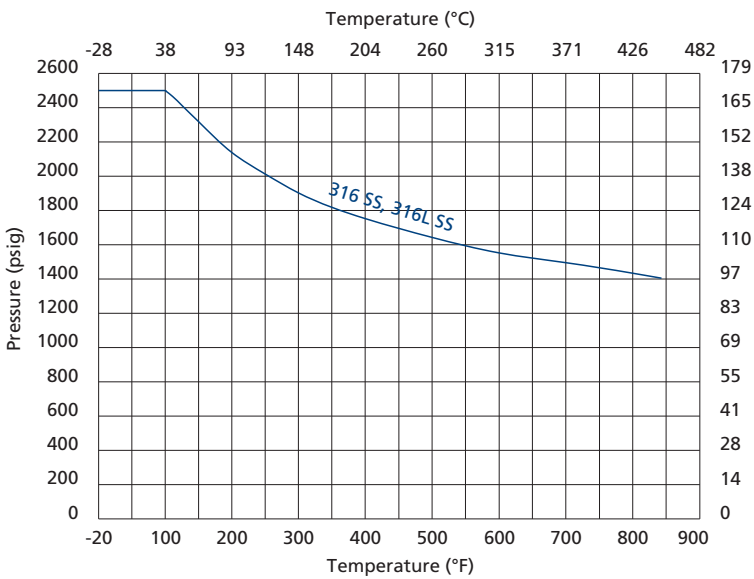
SU Series

Features

- ⦿ Working pressure up to: 2500 psig (172 bar)
- ⦿ Working temperature: -20°F to 842°F (-28°C to 450°C)
- ⦿ Variety of end connections
- ⦿ 316 SS body material
- ⦿ Upper packing provides secondary containment system above the bellows
- ⦿ Hydraulic-formed multilayer bellows for longer cycle life
- ⦿ Nonrotating stem tip eliminates galling within the seat area
- ⦿ Strictly controlled bellows stroke to improve safety and cycle life
- ⦿ Replaceable bellows and stem tip assembly
- ⦿ Regulating, conical, and spherical stem tips available
- ⦿ Panel and bottom mounting available
- ⦿ Double lock-pins enable steady and durable fastening of the handle
- ⦿ Handle color options are available
- ⦿ Every FITOK bellows-sealed valve leak tested with helium at the seat, envelope and all seals (maximum allowable leak rate : 4×10^{-9} std cm³/s)



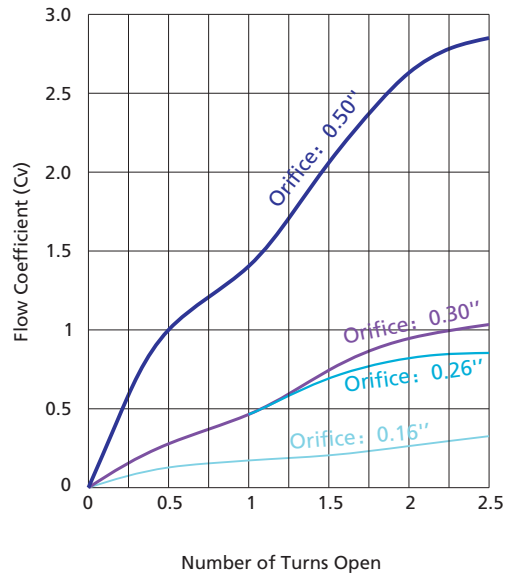
Pressure vs. Temperature



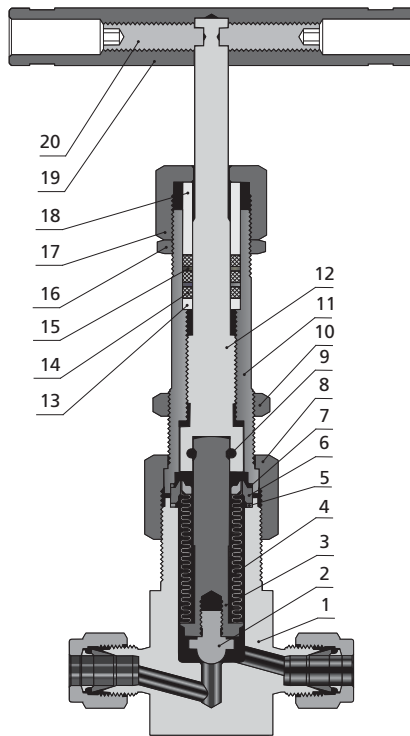
200°F (93°C) max. with PCTFE stem tip (soft tip).

Flow Coefficient vs. Turns Open

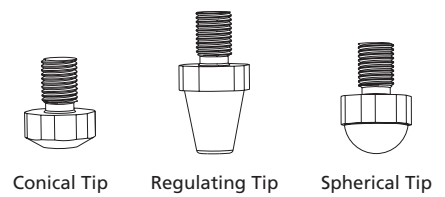
Regulating Stem



Standard Materials of Construction



Tip Types

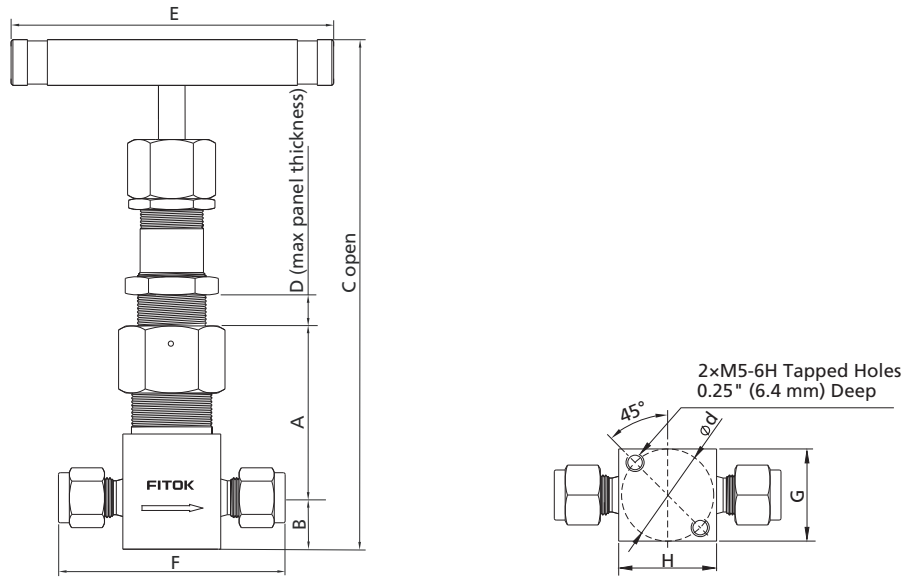


Component		Valve Body Material Grade/ASTM Specification	
		316 SS	
1	Body	316 SS/A182 or A479	
2	Stem Tip	Regulating	316 SS/A479 or Stellite
		Conical	PCTFE/D1430 or 316 SS/A479 or Stellite
		Spherical	Stellite
3	Stem	316 SS/A479	
4	Bellows	316L SS/A240	
5	Gasket	Silver-plated 316L SS/A269	
6	Weld Ring	316 SS/A479	
7	Gasket	Silver-plated 316L SS/A269	
8	Bonnet Nut	316 SS/A479	
9	Pin	Stainless steel	
10	Panel Mount Nut	Stainless steel	
11	Bonnet	316 SS/A479	
12	Actuator	440C SS/A479	
13	Packing washer	316 SS/A479	
14	Packing	Graphite	
15	Packing washer	316 SS/A479	
16	Luck Nut	Stainless steel	
17	Packing Nut	316 SS/A479	
18	Gland	316 SS/A479	
19	Handle	6061/B210 /Stainless steel	
20	Set Screws	Galvanized carbon steel	

Contact FITOK Group or our authorized distributors for valves of other materials.

Dimensions

Orifice: ≤ 0.30 "

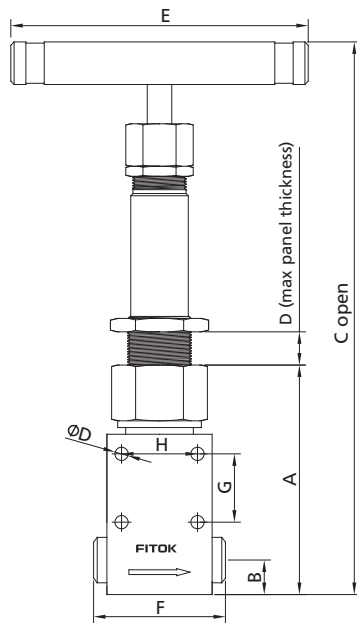


Basic Ordering Number	End Connections		Orifice in. (mm)	Cv	Dimensions, in. (mm)								
	Inlet Size	Outlet Size			A	B	C	D	E	F	G	H	Ød
SU□□-FL4-2-	1/4" FITOK	1/4" FITOK	0.16 (4.10)	0.36	1.86 (47.3)	0.54 (14.2)	6.34 (161.0)	0.38 (9.7)	3.50 (88.9)	2.46 (62.5)	1.00 (25.4)	1.07 (27.2)	1.00 (25.4)
SU□□-FL6-3-	3/8" FITOK	3/8" FITOK	0.26 (6.60)	0.85	1.94 (49.3)	0.50 (12.7)	6.36 (161.5)	0.38 (9.7)	3.50 (88.9)	3.09 (78.5)	1.13 (28.7)	1.57 (40.0)	1.13 (28.7)
SU□□-FL8-5-	1/2" FITOK	1/2" FITOK	0.30 (7.60)	1.20	1.98 (50.3)	0.50 (12.7)	6.40 (162.5)	0.38 (9.7)	3.50 (88.9)	3.30 (83.8)	1.13 (28.7)	1.57 (40.0)	1.13 (28.7)
SU□□-ML6-2-	6 mm FITOK	6 mm FITOK	0.16 (4.10)	0.36	1.86 (47.3)	0.56 (14.2)	6.34 (161.0)	0.38 (9.7)	3.50 (88.9)	2.46 (62.5)	1.00 (25.4)	1.05 (26.6)	1.00 (25.4)
SU□□-ML10-4-	10 mm FITOK	10 mm FITOK	0.28 (7.10)	1.00	1.97 (50.1)	0.50 (12.7)	6.39 (162.3)	0.38 (9.7)	3.50 (88.9)	3.11 (79.0)	1.13 (28.7)	1.57 (40.0)	1.13 (28.7)
SU□□-ML12-4-	12 mm FITOK	12 mm FITOK	0.28 (7.10)	1.00	1.97 (50.1)	0.50 (12.7)	6.39 (162.3)	0.38 (9.7)	3.50 (88.9)	3.30 (83.8)	1.13 (28.7)	1.57 (40.0)	1.13 (28.7)
SU□□-TS4-2-	1/4" TS	1/4" TS	0.16 (4.10)	0.36	1.86 (47.3)	0.56 (14.2)	6.34 (161.0)	0.38 (9.7)	3.50 (88.9)	1.68 (42.7)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)
SU□□-TS6-4-	3/8" TS	3/8" TS	0.28 (7.10)	1.00	1.97 (50.1)	0.50 (12.7)	6.39 (162.3)	0.38 (9.7)	3.50 (88.9)	2.27 (57.7)	1.13 (28.7)	1.52 (38.6)	1.13 (28.7)
SU□□-TS8-5-	1/2" TS	1/2" TS	0.30 (7.60)	1.20	1.98 (50.3)	0.50 (12.7)	6.40 (162.5)	0.38 (9.7)	3.50 (88.9)	2.27 (57.7)	1.13 (28.7)	1.52 (38.6)	1.13 (28.7)
SU□□-FFR4-2-	1/4" Female FR	1/4" Female FR	0.16 (4.10)	0.36	1.86 (47.3)	0.56 (14.2)	6.34 (161.0)	0.38 (9.7)	3.50 (88.9)	2.76 (70.1)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)
SU□□-FFR8-5-	1/2" Female FR	1/2" Female FR	0.30 (7.60)	1.20	1.98 (50.3)	0.50 (12.7)	6.40 (162.5)	0.38 (9.7)	3.50 (88.9)	3.12 (79.2)	1.13 (28.7)	1.52 (38.6)	1.13 (28.7)
SU□□-FR4-2-	1/4" Male FR	1/4" Male FR	0.16 (4.10)	0.36	1.86 (47.3)	0.56 (14.2)	6.34 (161.0)	0.38 (9.7)	3.50 (88.9)	2.24 (56.9)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)
SU□□-FR8-5-	1/2" Male FR	1/2" Male FR	0.30 (7.60)	1.20	1.98 (50.3)	0.50 (12.7)	6.40 (162.5)	0.38 (9.7)	3.50 (88.9)	3.00 (76.2)	1.13 (28.7)	1.52 (38.6)	1.13 (28.7)

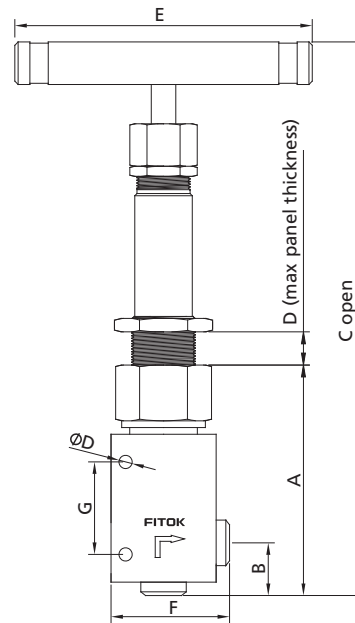
1. FITOK means FITOK double ferrule tube fittings, FR means metal gasket seal fittings. TS means fractional tube socket weld. TB means tube butt weld.
2. Dimensions are shown with FITOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors..
3. The sizes and types listed are standard. Other sizes and types are available upon request. For special sizes and types, refer to ordering information.

Dimensions

Orifice: 0.50"



Orifice: 0.61"



Basic Ordering Number	End Connections		Orifice in. (mm)	CV	Dimensions, in. (mm)								
	Inlet Size	Outlet Size			A	B	C	D	E	F	G	H	Ød
SU□□-TS12-8-	3/4" TS	3/4" TS	0.50 (12.7)	3.10	5.45 (138.5)	1.00 (25.4)	11.60 (295)	0.59 (14.9)	5.00 (127)	2.44 (62.0)	1.25 (31.8)	1.46 (37.0)	0.27 (6.9)
SU□□-PB12-8-	3/4" PB	3/4" PB	0.50 (12.7)	3.10	5.45 (138.5)	1.00 (25.4)	11.60 (295)	0.59 (14.9)	5.00 (127)	2.44 (62.0)	1.25 (31.8)	1.46 (37.0)	0.27 (6.9)
SU□□-TS12-8A-	3/4" TS	3/4" TS	0.61 (15.5)	5.30	5.45 (138.5)	1.44 (36.6)	11.60 (295)	0.59 (14.9)	5.00 (127)	2.49 (63.2)	1.60 (40.6)	—	0.27 (6.9)
Su□□-PB12-8A-	3/4" PB	3/4" PB	0.61 (15.5)	5.30	5.45 (138.5)	1.44 (36.6)	11.60 (295)	0.59 (14.9)	5.00 (127)	2.49 (63.2)	1.60 (40.6)	—	0.27 (6.9)
SU□□-TB16-8A-	1" TB	1" TB	0.61 (15.5)	5.30	5.45 (138.5)	1.44 (36.6)	11.60 (295)	0.59 (14.9)	5.00 (127)	2.49 (63.2)	1.60 (40.6)	—	0.27 (6.9)

Pneumatic Actuators



Features

- ⦿ Low actuation pressure
- ⦿ Opens and closes quickly and reliably
- ⦿ Aluminum and stainless steel components

Actuation Modes

- ⦿ Normally closed—air opens, spring closes
- ⦿ Normally open—air closes, spring opens

Technical Data

Orifice	Working Temperature °F (°C)	Pressure Rating psig (bar)
0.30"	-20~200 (-28~93)	80~94 (5.5~6.5)
0.50"		87~116 (6~8)

For valve ratings, please refer to Pressure VS. Temperature on page B-120.

Materials of Construction

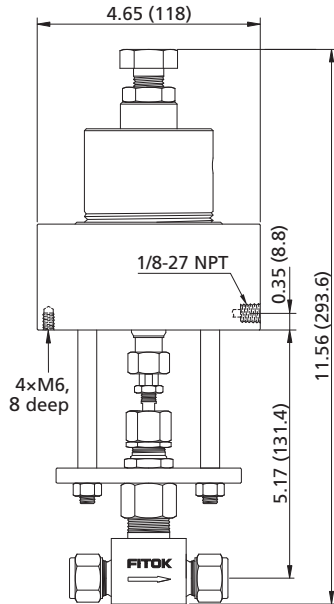
Component	Material
Housing	Anodized Aluminium
Stem Tip	Stellite
Bracket	Stainless Steel

For valve components, refer to "Standard Materials of Construction" on page B-121.

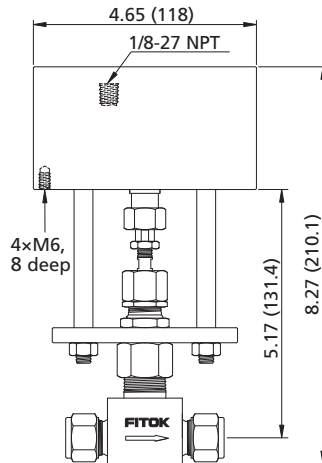
Dimensions

Dimensions are for reference only and subject to change

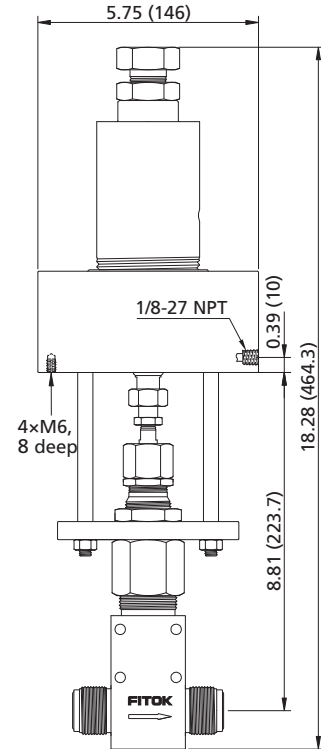
Normally closed, orifice ≤ 0.30 "



Normally open, orifice ≤ 0.30 "



Normally closed, orifice 0.50"



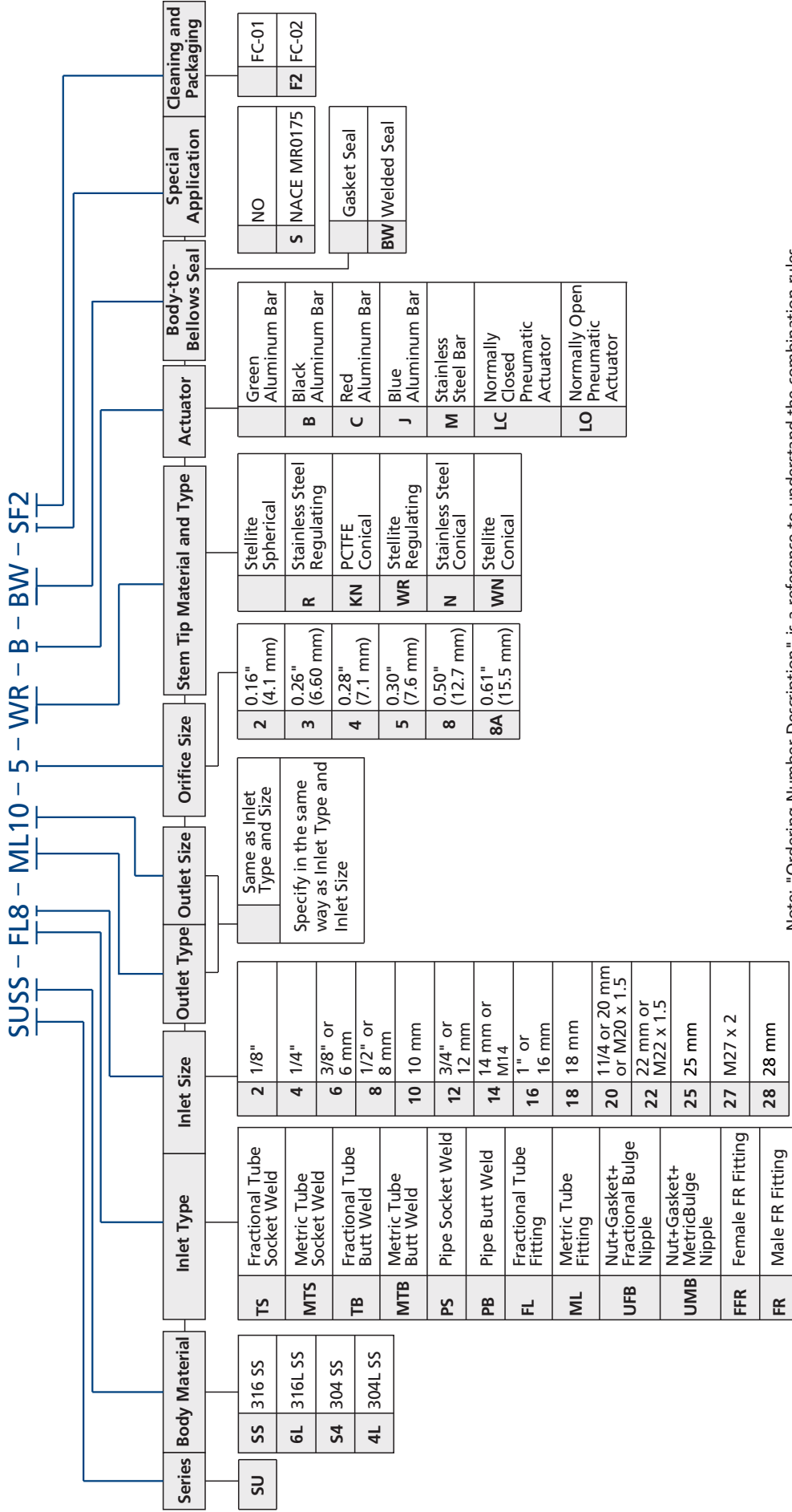
Ordering Information

To order valves with pneumatic actuators, add LC or LO to the valve ordering number. LC designates normally closed models; LO designates normally open models.

SU□□-□□-2/3/4/5-LC/LO

SU□□-□□-8-LC

Ordering Number Description



Note: "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

1. **Cleaning and Packaging:**
 FC-01: Standard cleaning and packaging for general industrial procedures.
 FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleanliness requirement of ASTM G93 Level C.

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