

# Bellows-sealed Valves

SW and SU Series



Bellows-sealed  
Valves

# Contents

Bellows-sealed Valves  
SW Series



B-116

Bellows-sealed Valves  
SU Series



B-120

# Bellows-sealed Valves

## SW Series

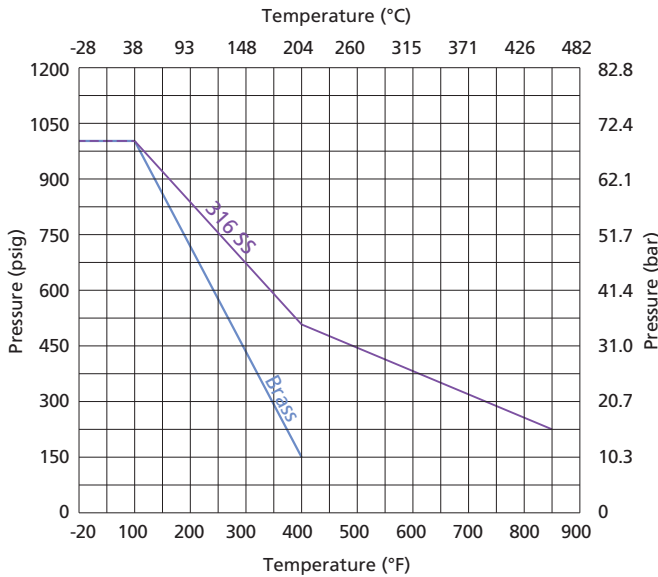
### Features

- ⦿ 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 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 pressure  $\geq 87$  psig (6 bar) at the seat, envelope and all seals (maximum allowable leak rate:  $4 \times 10^{-9}$  std cm<sup>3</sup>/s)



Bellows-sealed Valves

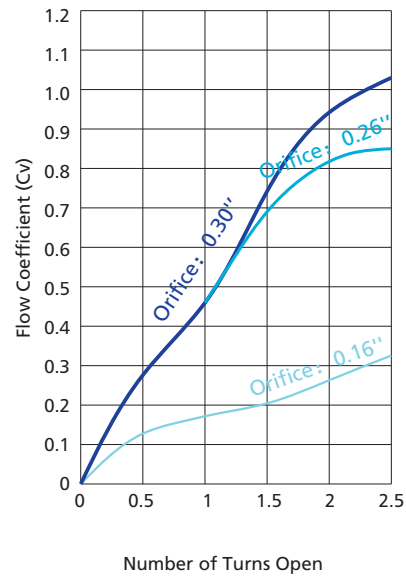
### Pressure vs. Temperature



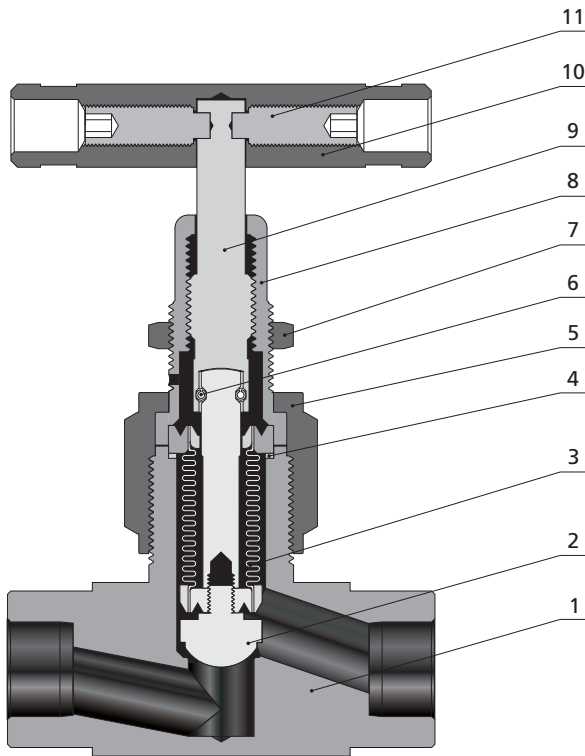
200°F (93°C) max. with PCTFE stem tip (soft tip).

### Flow Coefficient vs. Turns Open

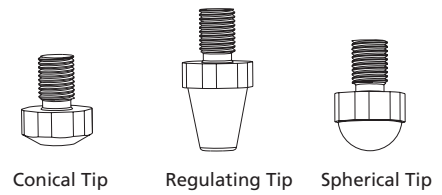
#### Regulating Stem



### Standard Materials of Construction



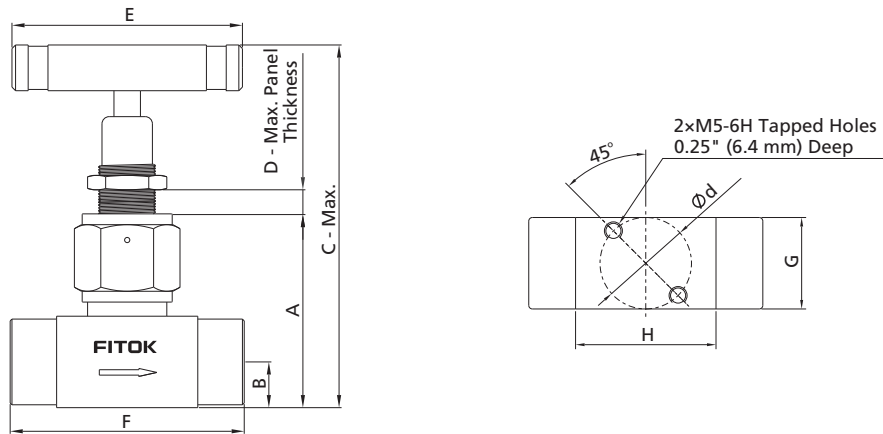
Tip Types



Component		Valve Body Material Grade/ASTM Specification	
		316 SS	Brass
1	Body	316 SS/A182	Brass/B283
2	Stem Tip	316 SS/A479 (regulating)	
		PCTFE/D1430 (conical)	
		Stellite (spherical)	
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	Pin	Stainless steel	
7	Panel Mount Nut	Stainless steel	Brass/B16
8	Bonnet	316 SS/A479	Brass/B16
9	Actuator	304 SS/A479	304 SS/A479
10	Handle	6061/B210 /stainless steel	
11	Set Screws	Galvanized carbon steel	
Wetted Lubricant		Fluorinated-based	
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.

# Ordering Number Description

SWSS – FL8 – ML10 – 5 – WR – B – SF2

Series	Body Material	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Stem Tip Material and Type	Handle	Special Application	Cleaning and Packaging	
SW	SS	TS	2 1/8"	Same as Inlet	2	0.16" (4.1 mm)	Stellite Spherical	Green Aluminum Bar	NO	FC-01	
		MTS	4 1/4"				Stainless Steel Regulating	Black Aluminum Bar			S NACE MR0175
		S4	TB	6 3/8" or 6 mm	Specified in the same way as Inlet type and size	3	0.26" (6.6 mm)	PCTFE Conical	Red Aluminum Bar	C	
				8 1/2" or 8 mm				Stellite Regulating	Blue Aluminum Bar		
	4L	MTB	10 10 mm	4	0.28" (7.1 mm)	4	Stainless Steel Conical	Stainless Steel Bar	M		
			12 3/4" or 12 mm				Stellite Conical	Black nylon Knob			O
	B	PS	14 14 mm or M14	5	0.30" (7.6 mm)	5	Stellite Conical	Black nylon Knob	T	Only applicable to valves with orifice size of 0.16" (4.1 mm), PCTFE conical tip and max. working pressure up to 100 psig (6.9 bar).	
			16 1" or 16 mm								
		PB	18 18 mm								
		FL	20 20 mm								
		ML									
		UFB									
		UMB									
		FFR									
		FR									

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

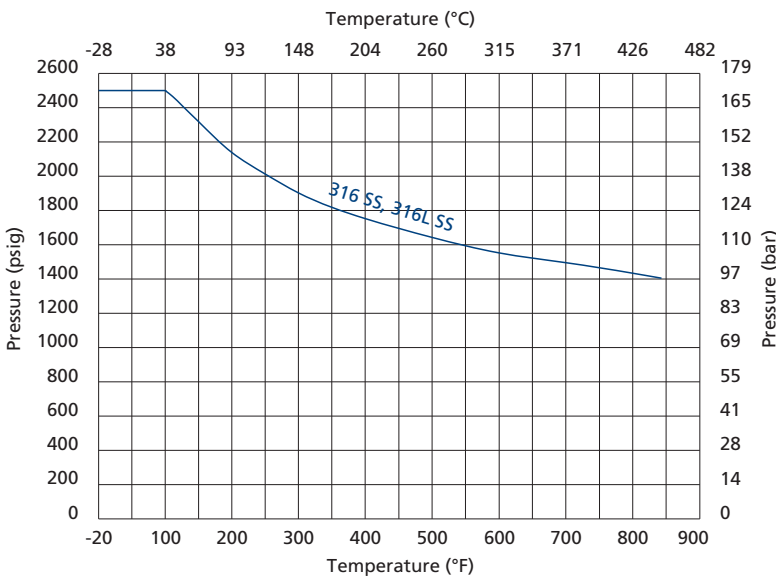
### Features

- ⦿ 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 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 pressure  $\geq 87$  psig (6 bar) at the seat, envelope and all seals (maximum allowable leak rate :  $4 \times 10^{-9}$  std cm<sup>3</sup>/s)



Bellows-sealed Valves

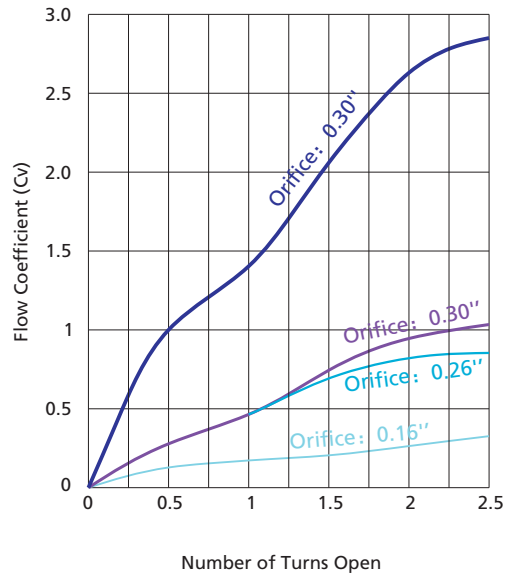
### Pressure vs. Temperature



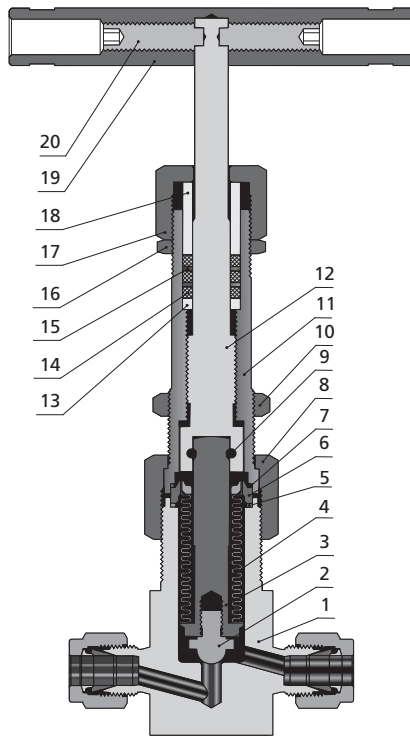
200°F (93°C) max. with PCTFE stem tip (soft tip).

### Flow Coefficient vs. Turns Open

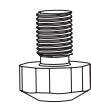
Regulating Stem



## Standard Materials of Construction



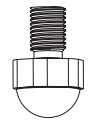
### Tip Types



Conical Tip



Regulating Tip



Spherical Tip

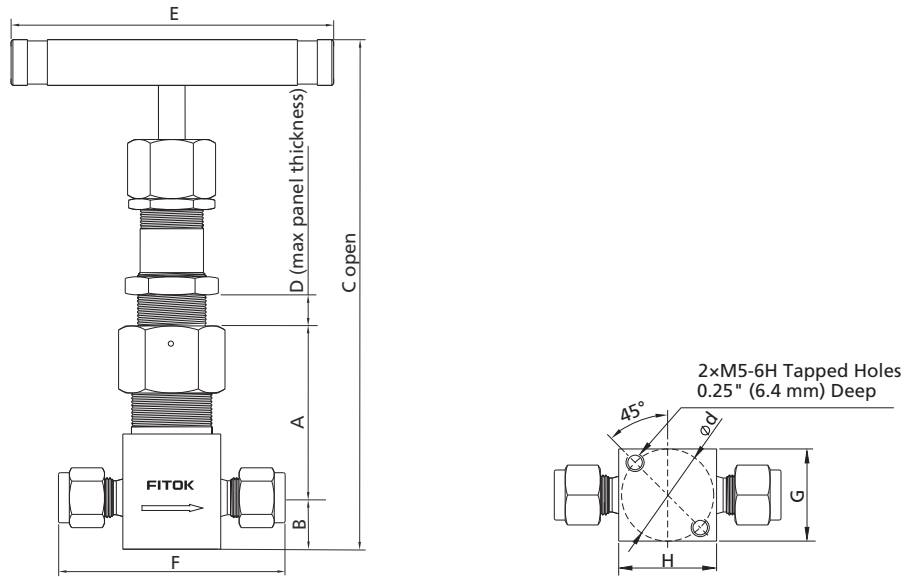
Component		Valve Body Material Grade/ASTM Specification
		<b>316 SS</b>
1	Body	316 SS/A182 or A479
2	Stem Tip	316 SS/A479 (regulating)
		PCTFE/D1430 (conical)
		Stellite (spherical)
3	Stem	316 SS/A479
4	Bellows	316L SS/A240
5	Gasket	Sliver-plated 316L SS/A269
6	Weld Ring	316 SS/A479
7	Gasket	Sliver-plated 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/A276
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"

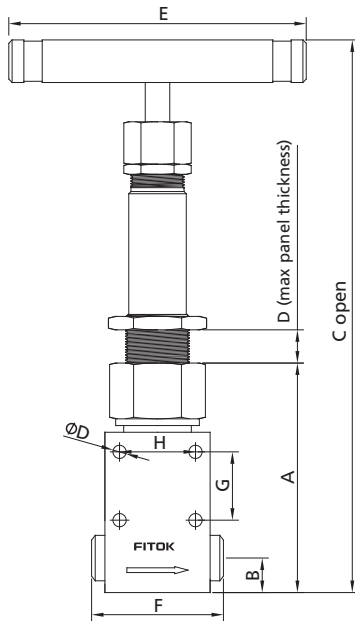


Basic Ordering Number	End Connections		Orifice in. (mm)	Cv	Dimensions, in. (mm)								
	Inlet Size	Outlet Size			A	B	C	D	E	F	G	H	Ød
SU□□-FL4-2-	1/4" FITOK	1/4" FITOK	0.16 (4.10)	0.36	1.86 (47.3)	0.54 (14.2)	6.34 (161.0)	0.38 (9.7)	3.50 (88.9)	2.46 (62.5)	1.00 (25.4)	1.07 (27.2)	1.00 (25.4)
SU□□-FL6-3-	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)

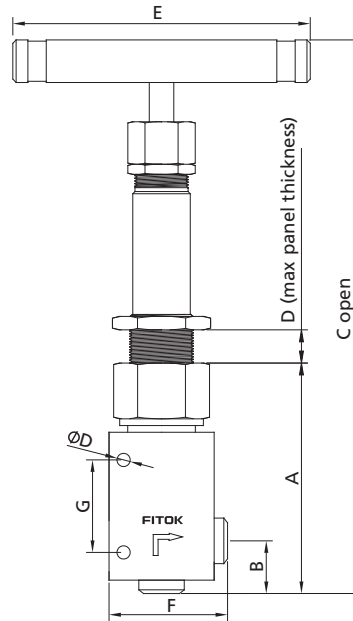
1. FITOK means FITOK double ferrule tube fittings, FR means metal gasket seal fittings. TS means fractional tube socket weld. TB means tube butt weld.
2. Dimensions are shown with FITOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, 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"

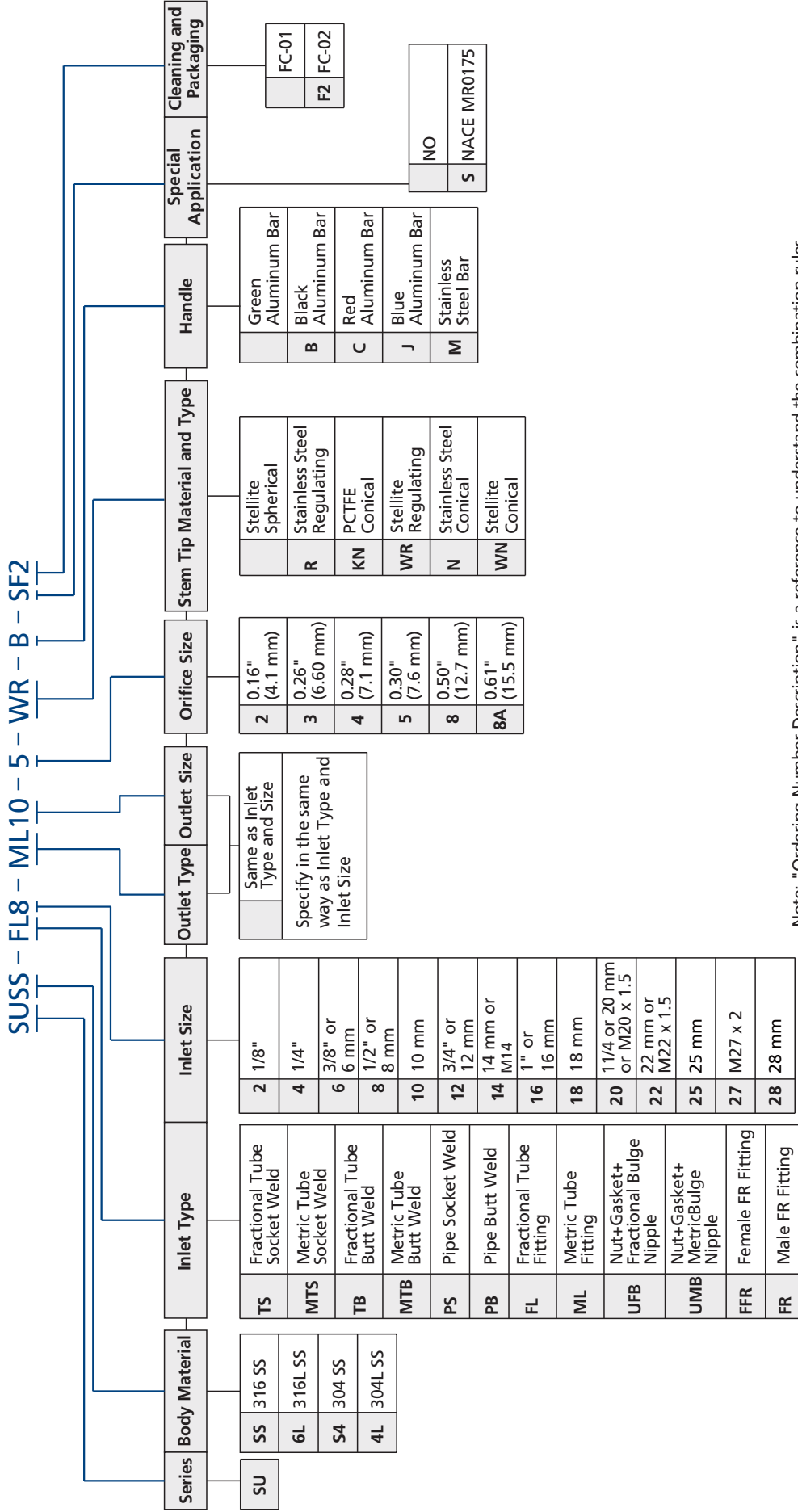


Orifice: 0.61"



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)

# 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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