

Products for Hydrogen Systems



FITOK

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Introduction

FITOK has three categories of products which are suitable for hydrogen applications.

- Products with third party EC79 certification. Its part number has a suffix “-EC79”.
- Products complying to EC79 but without third party certification. Its part number has a suffix “-HG”.
- Standard products which are not specially designed and made for critical hydrogen applications but can be used for general hydrogen applications. The part number is standard without special suffix.

FITOK products specially designed and manufactured for hydrogen applications have the following superiorities:

- **Hydrogen Compatible Raw Materials**
 - Tailor-made 316/316L stainless steel applied for the wetted parts, which has higher Ni, Cr and Mo contents than the middle value of ASTM A479. The Ni_{eq} is not less than 28.5% which provides better resistance to hydrogen embrittlement.
 - Low-temperature FKM or EPDM O-ring applied for harsh working conditions.
 - XM-19 material applied for the valve stem to provide higher strength and hydrogen embrittlement resistance.
- The dimension tolerance and hardness variation of the tube fittings for hydrogen applications are controlled smaller. It makes the tube fittings can be assembled either by torque (AbT) or by turns. Properties of tube fittings for hydrogen applications:
 - The assembly of tube fittings for hydrogen applications is optional by torque or by turns.
 - The gap gauge is always governing when tube fittings are assembled by turns.
 - The gap gauge is not governing when tube fittings are assembled by torque with standard ASTM A269 tubing.
 - The gap gauge is governing when tube fittings are assembled by torque with FITOK specially made precision tubing. The part number of the precision tubing has a suffix “-AT”. FITOK TMP/TCT/TBA/TEP and T20D series tubing have this option.
 - FITOK T20M series tubing works with 20D series tube fittings even if it’s not the best match. It can be installed by turns but not governed by gap gauge.
 - The sequence of governing is the turns, torque, and gap gauge.
- **Stringent Test Standards Guarantee Safety and Reliability**
 - All products for hydrogen applications are typically tested with stricter leakage standards than EC79 and HGV 3.1.
 - Each valve with “-EC79” or “-HG” suffix in part number is tested with hydrogen mixed gas before ex-work.

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Products for Hydrogen Applications up to 6,000 psig (414 bar)

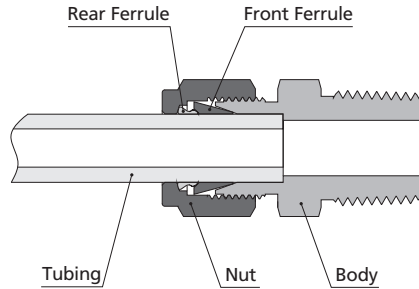


6D Series Tube Fittings



Features

- ⦿ EC79 certified
- ⦿ The dimension tolerance and hardness variation are smaller than those of the normal tube fittings. It enables the tube fitting for hydrogen applications can be assembled by torque or turns optional
- ⦿ When assembled by torque with FITOK specially made tubing with "-AT" suffix in part number, gap gauge is governing
- ⦿ When assembled by torque with standard ASTM tubing, gap gauge is not governing



Technical Data

Body Material	Cold-drawn hard 316/316L SS		
Working Pressure	Tube Ends		
	The maximum working pressure of the tube end is determined by the maximum working pressure of the tubing that is used		
	NPT Threads		
	Thread Size	Male, psig (bar)	Female, psig (bar)
	1/4	8,000 (551)	6,600 (454)
	3/8	7,800 (537)	5,300 (365)
	1/2	7,700 (530)	4,900 (337)
	3/4	7,300 (502)	4,600 (316)
	SAE/MS Straight Threads		
	Thread Size	Light-duty, psig (bar)	Heavy-duty, psig (bar)
7/16-20	5,075 (350)	—	
1/2-20	5,075 (350)	—	
9/16-18	5,075 (350)	—	
3/4-16	—	9,135 (630)	
Working Temperature	Metal Components: -325~1,000 °F (-198~537 °C) NPT Threads: -325~400 °F (-198~204 °C) SAE/MS Straight Threads: -53~401 °F (-47~205 °C) Low Temperature FKM O-ring: -53~401 °F (-47~205 °C)		

Matching Tubing

For 6D series tube fittings with "-EC79" or "-HG" suffix in part number, the matching tubing is as follows.

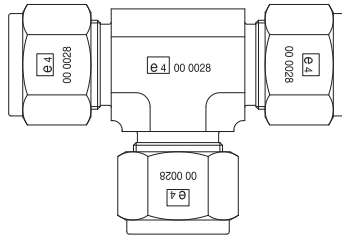
Tubing Type	Features
FITOK specially made tubing (TMP series with "-AT" suffix in part number, TCT series with "-AT" suffix in part number)	The dimension tolerance and hardness variation are controlled smaller than those of the standard ASTM tubing. Allow for assembly by torque or by turns. The gap gauge is always governing.
Standard ASTM tubing (TMP and TCT Series)	Allow for assembly by torque or by turns. The gap gauge is governing when assembled by turns. The gap gauge is not governing when assembled by torque.

Material

Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
ASTM 316 SS	16-18	10-14	2.0-3.0	>22.4

Ordering Information and Marking

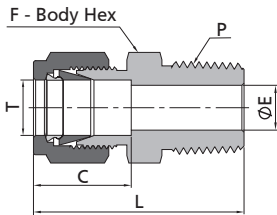
To order a fitting with EC79 certification, add “-EC79” suffix to the standard ordering number. The marking on the fitting is shown as follows:



Marking on EC79 Certified Tube Fittings

To order a fitting complying with EC79 but without third party certification, add “-HG” suffix to the standard ordering number. The marking on the fitting is the same as FITOK standard tube fittings. The complete ordering number is labeled on the packing box.

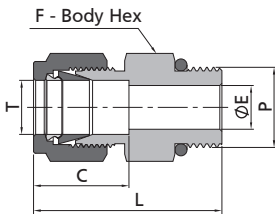
Male Connectors



Fractional Tube to NPT Thread							
Basic Ordering Number	T-Tube O.D. (in.)	P-NPT Size	Dimensions, in. (mm)				
			L	C	E (min.)	F	
SS-CM-FL4-NS4-	1/4	1/4	1.49 (37.8)	0.60 (15.2)	0.19 (4.8)	0.56 (14.3)	
SS-CM-FL4-NS6-	1/4	3/8	1.51 (38.4)	0.60 (15.2)	0.19 (4.8)	0.69 (17.5)	
SS-CM-FL4-NS8-	1/4	1/2	1.76 (44.7)	0.60 (15.2)	0.19 (4.8)	0.87 (22.2)	
SS-CM-FL5-NS4-	5/16	1/4	1.52 (38.6)	0.64 (16.3)	0.25 (6.4)	0.56 (14.3)	
SS-CM-FL5-NS6-	5/16	3/8	1.54 (39.1)	0.64 (16.3)	0.25 (6.4)	0.69 (17.5)	
SS-CM-FL5-NS8-	5/16	1/2	1.79 (45.5)	0.64 (16.3)	0.25 (6.4)	0.87 (22.2)	
SS-CM-FL6-NS4-	3/8	1/4	1.57 (39.9)	0.66 (16.8)	0.28 (7.1)	0.63 (15.9)	
SS-CM-FL6-NS6-	3/8	3/8	1.57 (39.9)	0.66 (16.8)	0.28 (7.1)	0.69 (17.5)	
SS-CM-FL6-NS8-	3/8	1/2	1.82 (46.2)	0.66 (16.8)	0.28 (7.1)	0.87 (22.2)	
SS-CM-FL8-NS4-	1/2	1/4	1.71 (43.4)	0.90 (22.9)	0.28 (7.1)	0.81 (20.6)	
SS-CM-FL8-NS6-	1/2	3/8	1.71 (43.4)	0.90 (22.9)	0.38 (9.7)	0.81 (20.6)	
SS-CM-FL8-NS8-	1/2	1/2	1.93 (49.0)	0.90 (22.9)	0.41 (10.4)	0.87 (22.2)	
SS-CM-FL10-NS4-	5/8	1/4	1.74 (44.2)	0.96 (24.4)	0.28 (7.1)	0.94 (23.8)	
SS-CM-FL10-NS6-	5/8	3/8	1.74 (44.2)	0.96 (24.4)	0.38 (9.7)	0.94 (23.8)	
SS-CM-FL10-NS8-	5/8	1/2	1.93 (49.0)	0.96 (24.4)	0.47 (11.9)	0.94 (23.8)	

Metric Tube to NPT Thread

Basic Ordering Number	T-Tube O.D. (mm)	P-NPT Size	Dimensions, mm (in.)			
			L	C	E (min.)	F
SS-CM-ML6-NS4-	6	1/4	37.9 (1.49)	15.3 (0.60)	4.8 (0.19)	14.0 (0.55)
SS-CM-ML6-NS6-	6	3/8	38.4 (1.51)	15.3 (0.60)	4.8 (0.19)	18.0 (0.71)
SS-CM-ML6-NS8-	6	1/2	44.7 (1.76)	15.3 (0.60)	4.8 (0.19)	22.0 (0.87)
SS-CM-ML8-NS4-	8	1/4	38.7 (1.52)	16.2 (0.64)	6.4 (0.25)	15.0 (0.59)
SS-CM-ML8-NS6-	8	3/8	39.3 (1.55)	16.2 (0.64)	6.4 (0.25)	18.0 (0.71)
SS-CM-ML8-NS8-	8	1/2	45.6 (1.80)	16.2 (0.64)	6.4 (0.25)	22.0 (0.87)
SS-CM-ML10-NS4-	10	1/4	40.9 (1.61)	17.2 (0.68)	7.1 (0.28)	18.0 (0.71)
SS-CM-ML10-NS6-	10	3/8	40.9 (1.61)	17.2 (0.68)	7.9 (0.31)	18.0 (0.71)
SS-CM-ML10-NS8-	10	1/2	46.5 (1.83)	17.2 (0.68)	7.9 (0.31)	22.0 (0.87)
SS-CM-ML12-NS4-	12	1/4	43.4 (1.71)	22.8 (0.90)	7.1 (0.28)	22.0 (0.87)
SS-CM-ML12-NS6-	12	3/8	43.4 (1.71)	22.8 (0.90)	9.5 (0.37)	22.0 (0.87)
SS-CM-ML12-NS8-	12	1/2	49.0 (1.93)	22.8 (0.90)	9.5 (0.37)	22.0 (0.87)
SS-CM-ML14-NS4-	14	1/4	44.1 (1.74)	24.4 (0.96)	7.1 (0.28)	24.0 (0.94)
SS-CM-ML14-NS6-	14	3/8	44.1 (1.74)	24.4 (0.96)	9.5 (0.37)	24.0 (0.94)
SS-CM-ML14-NS8-	14	1/2	49.0 (1.93)	24.4 (0.96)	11.1 (0.44)	24.0 (0.94)

Male Connectors


Adapt to straight thread boss of SAE J1926-1, ISO 11926-1 and MS 16142.

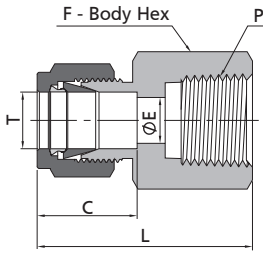
Fractional Tube to SAE/MS Straight Thread

Basic Ordering Number	T-Tube O.D. (in.)	P-SAE Nominal Size	P-SAE/MS Thread Specification	Dimensions, in. (mm)			
				L	C	E (min.)	F
SS-CM-FL4-ST7-	1/4	4	7/16-20	1.34 (34.0)	0.60 (15.2)	0.19 (4.8)	0.56 (14.3)
SS-CM-FL4-ST9-	1/4	6	9/16-18	1.40 (35.6)	0.60 (15.2)	0.19 (4.8)	0.69 (17.5)
SS-CM-FL4-SH12-	1/4	8	3/4-16	1.48 (37.6)	0.60 (15.2)	0.19 (4.8)	0.87 (22.2)
SS-CM-FL6-ST7-	3/8	4	7/16-20	1.40 (35.6)	0.66 (16.8)	0.20 (5.1)	0.63 (15.9)
SS-CM-FL6-ST9-	3/8	6	9/16-18	1.46 (37.1)	0.66 (16.8)	0.28 (7.1)	0.69 (17.5)
SS-CM-FL6-SH12-	3/8	8	3/4-16	1.54 (39.1)	0.66 (16.8)	0.28 (7.1)	0.87 (22.2)
SS-CM-FL8-ST9-	1/2	6	9/16-18	1.54 (39.1)	0.90 (22.9)	0.28 (7.1)	0.81 (20.6)
SS-CM-FL8-SH12-	1/2	8	3/4-16	1.65 (41.9)	0.90 (22.9)	0.41 (10.4)	0.87 (22.2)
SS-CM-FL10-SH12-	5/8	8	3/4-16	1.65 (41.9)	0.96 (24.4)	0.42 (10.7)	0.94 (23.8)

Metric Tube to SAE/MS Straight Thread

Basic Ordering Number	T-Tube O.D. (mm)	P-SAE/MS Thread Size	Dimensions, mm (in.)			
			L	C	E (min.)	F
SS-CM-ML6-ST7-	6	7/16-20	33.1 (1.30)	15.3 (0.60)	4.8 (0.19)	14.0 (0.55)
SS-CM-ML6-ST9-	6	9/16-18	35.6 (1.40)	15.3 (0.60)	4.8 (0.19)	18.0 (0.71)
SS-CM-ML8-ST7-	8	7/16-20	35.4 (1.39)	16.3 (0.64)	5.1 (0.20)	18.0 (0.71)
SS-CM-ML8-ST9-	8	9/16-18	36.1 (1.42)	16.3 (0.64)	6.4 (0.25)	18.0 (0.71)
SS-CM-ML10-ST7-	10	7/16-20	36.2 (1.43)	17.2 (0.68)	5.1 (0.20)	18.0 (0.71)
SS-CM-ML10-ST9-	10	9/16-18	37.3 (1.47)	17.2 (0.68)	7.1 (0.28)	18.0 (0.71)
SS-CM-ML10-SH12-	10	3/4-16	39.4 (1.55)	17.2 (0.68)	7.9 (0.31)	22.0 (0.87)
SS-CM-ML12-ST7-	12	7/16-20	40.6 (1.60)	22.8 (0.90)	5.2 (0.20)	22.0 (0.87)
SS-CM-ML12-ST9-	12	9/16-18	39.9 (1.57)	22.8 (0.90)	7.1 (0.28)	22.0 (0.87)
SS-CM-ML12-SH12-	12	3/4-16	41.7 (1.64)	22.8 (0.90)	9.5 (0.37)	22.0 (0.87)

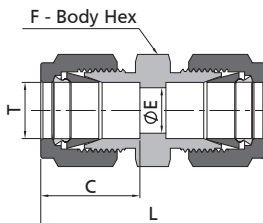
Female Connectors



Fractional Tube to NPT Thread							
Basic Ordering Number	T-Tube O.D. (in.)	P-NPT Size	Dimensions, in. (mm)				
			L	C	E	F	
SS-CF-FL4-NS4-	1/4	1/4	1.41 (35.8)	0.60 (15.2)	0.19 (4.8)	0.75 (19.1)	
SS-CF-FL4-NS6-	1/4	3/8	1.48 (37.6)	0.60 (15.2)	0.19 (4.8)	0.87 (22.2)	
SS-CF-FL4-NS8-	1/4	1/2	1.67 (42.4)	0.60 (15.2)	0.19 (4.8)	1.06 (27.0)	
SS-CF-FL5-NS4-	5/16	1/4	1.45 (36.8)	0.64 (16.3)	0.25 (6.4)	0.75 (19.1)	
SS-CF-FL6-NS4-	3/8	1/4	1.48 (37.6)	0.66 (16.8)	0.28 (7.1)	0.75 (19.1)	
SS-CF-FL6-NS6-	3/8	3/8	1.54 (39.1)	0.66 (16.8)	1.34 (7.1)	0.88 (22.2)	
SS-CF-FL6-NS8-	3/8	1/2	1.73 (43.9)	0.66 (16.8)	0.28 (7.1)	1.06 (27.0)	
SS-CF-FL8-NS4-	1/2	1/4	1.59 (40.4)	0.90 (22.9)	0.41 (10.4)	0.81 (20.6)	
SS-CF-FL8-NS6-	1/2	3/8	1.65 (41.9)	0.90 (22.9)	0.41 (10.4)	0.87 (22.2)	
SS-CF-FL8-NS8-	1/2	1/2	1.84 (46.7)	0.90 (22.9)	0.41 (10.4)	1.06 (27.0)	

Metric Tube to NPT Thread							
Basic Ordering Number	T-Tube O.D. (mm)	P-NPT Size	Dimensions, mm (in.)				
			L	C	E	F	
SS-CF-ML6-NS4-	6	1/4	35.8 (1.41)	15.3 (0.60)	4.8 (0.19)	19.0 (0.75)	
SS-CF-ML6-NS6-	6	3/8	37.7 (1.48)	15.3 (0.60)	4.8 (0.19)	22.0 (0.87)	
SS-CF-ML6-NS8-	6	1/2	42.5 (1.67)	15.3 (0.60)	4.8 (0.19)	27.0 (1.06)	
SS-CF-ML8-NS4-	8	1/4	37.0 (1.46)	16.2 (0.64)	6.4 (0.25)	19.0 (0.75)	
SS-CF-ML8-NS6-	8	3/8	38.5 (1.52)	16.2 (0.64)	6.4 (0.25)	22.0 (0.87)	
SS-CF-ML8-NS8-	8	1/2	43.3 (1.70)	16.2 (0.64)	6.4 (0.25)	27.0 (1.06)	
SS-CF-ML10-NS4-	10	1/4	37.8 (1.49)	17.2 (0.68)	7.9 (0.31)	19.0 (0.75)	
SS-CF-ML10-NS6-	10	3/8	39.4 (1.55)	17.2 (0.68)	7.9 (0.31)	22.0 (0.87)	
SS-CF-ML10-NS8-	10	1/2	44.2 (1.74)	17.2 (0.68)	7.9 (0.31)	27.0 (1.06)	
SS-CF-ML12-NS4-	12	1/4	40.3 (1.59)	22.8 (0.90)	9.5 (0.37)	22.0 (0.87)	
SS-CF-ML12-NS6-	12	3/8	41.9 (1.65)	22.8 (0.90)	9.5 (0.37)	22.0 (0.87)	
SS-CF-ML12-NS8-	12	1/2	46.7 (1.84)	22.8 (0.90)	9.5 (0.37)	27.0 (1.06)	

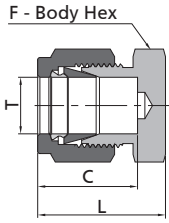
Unions



Fractional Tube						
Basic Ordering Number	T-Tube O.D. (in.)	Dimensions, in. (mm)				
		L	C	E	F	
SS-U-FL4-	1/4	1.61 (40.9)	0.60 (15.2)	0.19 (4.8)	0.50 (12.7)	
SS-U-FL5-	5/16	1.77 (45.0)	0.66 (16.8)	0.28 (7.1)	0.63 (15.9)	
SS-U-FL6-	3/8	2.02 (51.3)	0.90 (22.9)	0.41 (10.4)	0.81 (20.6)	
SS-U-FL8-	1/2	2.11 (53.6)	0.96 (24.4)	0.62 (15.7)	1.06 (27.0)	
SS-U-FL10-	5/8	2.05 (52.1)	0.96 (24.4)	0.50 (12.7)	0.94 (23.9)	

Metric Tube						
Basic Ordering Number	T-Tube O.D. (mm)	Dimensions, mm (in.)				
		L	C	E	F	
SS-U-ML6-	6	41.0 (1.61)	15.3 (0.60)	4.8 (0.19)	14.0 (0.55)	
SS-U-ML8-	8	43.2 (1.70)	16.2 (0.64)	6.4 (0.25)	15.0 (0.59)	
SS-U-ML10-	10	46.2 (1.82)	17.2 (0.68)	7.9 (0.31)	18.0 (0.71)	
SS-U-ML12-	12	51.2 (2.02)	22.8 (0.90)	9.5 (0.37)	22.0 (0.87)	
SS-U-ML14-	14	52.0 (2.05)	24.4 (0.96)	11.1 (0.44)	24.0 (0.94)	
SS-U-ML15-	15	52.0 (2.05)	24.4 (0.96)	11.9 (0.47)	24.0 (0.94)	
SS-U-ML16-	16	52.0 (2.05)	24.4 (0.96)	12.7 (0.50)	24.0 (0.94)	

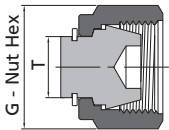
Caps



Fractional Tube					
Basic Ordering Number	T-Tube O.D. (in.)	Dimensions, in. (mm)			
		L	C	F	
SS-TC-FL4-	1/4	0.92 (23.4)	0.60 (15.2)	0.50 (12.7)	
SS-TC-FL5-	5/16	0.96 (24.4)	0.64 (16.3)	0.56 (14.3)	
SS-TC-FL6-	3/8	1.01 (25.7)	0.66 (16.8)	0.63 (15.9)	
SS-TC-FL8-	1/2	1.15 (29.2)	0.90 (22.9)	0.81 (20.6)	
SS-TC-FL10-	5/8	1.18 (30.0)	0.96 (24.4)	0.94 (23.8)	

Metric Tube					
Basic Ordering Number	T-Tube O.D. (mm)	Dimensions, mm (in.)			
		L	C	F	
SS-TC-ML6-	6	23.1 (0.91)	15.3 (0.60)	14.0 (0.55)	
SS-TC-ML8-	8	24.5 (0.96)	16.2 (0.64)	15.0 (0.59)	
SS-TC-ML10-	10	26.6 (1.05)	17.2 (0.68)	18.0 (0.71)	
SS-TC-ML12-	12	29.1 (1.15)	22.8 (0.90)	22.0 (0.87)	
SS-TC-ML14-	14	29.9 (1.18)	24.4 (0.96)	24.0 (0.94)	
SS-TC-ML15-	15	29.9 (1.18)	24.4 (0.96)	24.0 (0.94)	
SS-TC-ML16-	16	29.9 (1.18)	24.4 (0.96)	24.0 (0.94)	

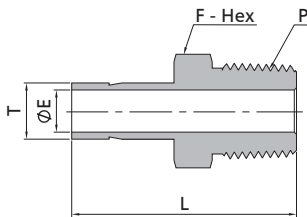
Plugs



Fractional Tube			
Basic Ordering Number	T-Tube O.D. (in.)	Dimensions, in. (mm)	
		G	
SS-TP-FL4-	1/4	0.56 (14.3)	
SS-TP-FL5-	5/16	0.63 (15.9)	
SS-TP-FL6-	3/8	0.69 (17.5)	
SS-TP-FL8-	1/2	0.87 (22.2)	
SS-TP-FL10-	5/8	1.00 (25.4)	

Metric Tube			
Basic Ordering Number	T-Tube O.D. (mm)	Dimensions, mm (in.)	
		G	
SS-TP-ML6-	6	14.0 (0.55)	
SS-TP-ML8-	8	16.0 (0.63)	
SS-TP-ML10-	10	19.0 (0.75)	
SS-TP-ML12-	12	22.0 (0.87)	
SS-TP-ML14-	14	25.0 (0.98)	
SS-TP-ML15-	15	25.0 (0.98)	
SS-TP-ML16-	16	25.0 (0.98)	

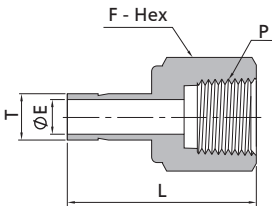
Male Adapters



Fractional Tube to NPT Thread						
Basic Ordering Number	T-Tube O.D. (in.)	P-NPT Size	Dimensions, in. (mm)			
			L	E	F	
SS-AM-FT4-NS4-	1/4	1/4	1.46 (37.1)	0.17 (4.3)	0.56 (14.3)	
SS-AM-FT4-NS6-	1/4	3/8	1.49 (37.8)	0.17 (4.3)	0.69 (17.5)	
SS-AM-FT4-NS8-	1/4	1/2	1.71 (43.4)	0.17 (4.3)	0.87 (22.2)	
SS-AM-FT5-NS4-	5/16	1/4	1.50 (38.1)	0.22 (5.6)	0.56 (14.3)	
SS-AM-FT5-NS6-	5/16	3/8	1.53 (38.9)	0.22 (5.6)	0.69 (17.5)	
SS-AM-FT5-NS8-	5/16	1/2	1.74 (44.2)	0.22 (5.6)	0.87 (22.2)	
SS-AM-FT6-NS4-	3/8	1/4	1.53 (38.9)	0.27 (6.9)	0.56 (14.3)	
SS-AM-FT6-NS6-	3/8	3/8	1.56 (39.6)	0.27 (6.9)	0.69 (17.5)	
SS-AM-FT6-NS8-	3/8	1/2	1.78 (45.2)	0.27 (6.9)	0.87 (22.2)	
SS-AM-FT8-NS4-	1/2	1/4	1.75 (44.5)	0.28 (7.1)	0.56 (14.3)	
SS-AM-FT8-NS6-	1/2	3/8	1.78 (45.2)	0.37 (9.4)	0.69 (17.5)	
SS-AM-FT8-NS8-	1/2	1/2	2.00 (50.8)	0.37 (9.4)	0.87 (22.2)	

Metric Tube to NPT Thread						
Basic Ordering Number	T-Tube O.D. (mm)	P-NPT Size	Dimensions, mm (in.)			
			L	E	F	
SS-AM-MT6-NS4-	6	1/4	38.1 (1.50)	4.1 (0.16)	14.0 (0.55)	
SS-AM-MT6-NS6-	6	3/8	39.2 (1.54)	4.1 (0.16)	18.0 (0.71)	
SS-AM-MT6-NS8-	6	1/2	42.1 (1.66)	4.1 (0.16)	22.0 (0.87)	
SS-AM-MT8-NS4-	8	1/4	39.1 (1.54)	5.6 (0.22)	14.0 (0.55)	
SS-AM-MT8-NS6-	8	3/8	39.9 (1.57)	5.6 (0.22)	19.0 (0.75)	
SS-AM-MT10-NS4-	10	1/4	39.9 (1.57)	7.1 (0.28)	14.0 (0.55)	
SS-AM-MT10-NS6-	10	3/8	40.6 (1.60)	7.1 (0.28)	18.0 (0.71)	
SS-AM-MT10-NS8-	10	1/2	46.2 (1.82)	7.1 (0.28)	22.0 (0.87)	
SS-AM-MT12-NS4-	12	1/4	46.5 (1.83)	7.1 (0.28)	14.0 (0.55)	
SS-AM-MT12-NS6-	12	3/8	46.2 (1.82)	8.8 (0.35)	18.0 (0.71)	
SS-AM-MT12-NS8-	12	1/2	52.1 (2.05)	8.8 (0.35)	22.0 (0.87)	

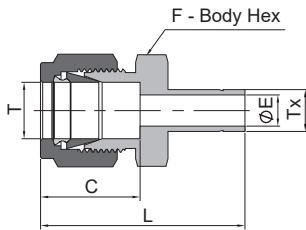
Female Adapters



Fractional Tube to NPT Thread						
Basic Ordering Number	T-Tube O.D. (in.)	P-NPT Size	Dimensions, in. (mm)			
			L	E	F	
SS-AF-FT4-NS4-	1/4	1/4	1.46 (37.1)	0.17 (4.3)	0.75 (19.1)	
SS-AF-FT4-NS6-	1/4	3/8	1.55 (39.4)	0.17 (4.3)	0.87 (22.2)	
SS-AF-FT4-NS8-	1/4	1/2	1.79 (45.5)	0.17 (4.3)	1.06 (27.0)	
SS-AF-FT5-NS4-	5/16	1/4	1.48 (37.6)	0.22 (5.6)	0.75 (19.1)	
SS-AF-FT5-NS6-	5/16	3/8	1.59 (40.4)	0.22 (5.6)	0.87 (22.2)	
SS-AF-FT6-NS4-	3/8	1/4	1.50 (38.1)	0.27 (6.9)	0.75 (19.1)	
SS-AF-FT6-NS6-	3/8	3/8	1.59 (40.4)	0.27 (6.9)	0.87 (22.2)	
SS-AF-FT6-NS8-	3/8	1/2	1.84 (46.7)	0.27 (6.9)	1.06 (27.0)	
SS-AF-FT8-NS4-	1/2	1/4	1.71 (43.4)	0.37 (9.4)	0.75 (19.1)	
SS-AF-FT8-NS6-	1/2	3/8	1.79 (45.5)	0.37 (9.4)	0.87 (22.2)	
SS-AF-FT8-NS8-	1/2	1/2	2.04 (51.8)	0.37 (9.4)	1.06 (27.0)	

Metric Tube to NPT Thread						
Basic Ordering Number	T-Tube O.D. (mm)	P-NPT Size	Dimensions, mm (in.)			
			L	E	F	
SS-AF-MT6-NS4-	6	1/4	37.1 (1.46)	4.1 (0.16)	19.0 (0.75)	
SS-AF-MT8-NS4-	8	1/4	37.6 (1.48)	5.6 (0.22)	19.0 (0.75)	
SS-AF-MT8-NS6-	8	3/8	36.5 (1.44)	5.6 (0.22)	22.0 (0.87)	
SS-AF-MT10-NS4-	10	1/4	38.1 (1.50)	7.1 (0.28)	19.0 (0.75)	
SS-AF-MT10-NS6-	10	3/8	40.1 (1.58)	7.1 (0.28)	22.0 (0.87)	
SS-AF-MT10-NS8-	10	1/2	46.5 (1.83)	7.1 (0.28)	27.0 (1.06)	
SS-AF-MT12-NS4-	12	1/4	43.7 (1.72)	8.8 (0.35)	19.0 (0.75)	
SS-AF-MT12-NS6-	12	3/8	42.9 (1.69)	8.8 (0.35)	22.0 (0.87)	
SS-AF-MT12-NS8-	12	1/2	52.3 (2.06)	8.8 (0.35)	27.0 (1.06)	

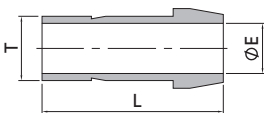
Reducers



Fractional Tube						
Basic Ordering Number	T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Dimensions, in. (mm)			
			L	C	E	F
SS-R-FL4-FT4-	1/4	1/4	1.54 (39.1)	0.60 (15.2)	0.17 (4.3)	0.50 (12.7)
SS-R-FL4-FT5-	1/4	5/16	1.57 (39.9)	0.60 (15.2)	0.19 (4.8)	0.50 (12.7)
SS-R-FL4-FT6-	1/4	3/8	1.60 (40.6)	0.60 (15.2)	0.19 (4.8)	0.50 (12.7)
SS-R-FL4-FT8-	1/4	1/2	1.82 (46.2)	0.60 (15.2)	0.19 (4.8)	0.56 (14.3)
SS-R-FL4-FT10-	1/4	5/8	1.89 (48.0)	0.60 (15.2)	0.19 (4.8)	0.69 (17.5)
SS-R-FL5-FT6-	5/16	3/8	1.65 (41.9)	0.64 (16.3)	0.25 (6.4)	0.56 (14.3)
SS-R-FL5-FT8-	5/16	1/2	1.87 (47.5)	0.64 (16.3)	0.25 (6.4)	0.56 (14.3)
SS-R-FL6-FT4-	3/8	1/4	1.63 (41.4)	0.66 (16.8)	0.17 (4.3)	0.63 (15.9)
SS-R-FL6-FT6-	3/8	3/8	1.70 (43.2)	0.66 (16.8)	0.27 (6.9)	0.63 (15.9)
SS-R-FL6-FT8-	3/8	1/2	1.91 (48.5)	0.66 (16.8)	0.28 (7.1)	0.63 (15.9)
SS-R-FL6-FT10-	3/8	5/8	1.98 (50.3)	0.66 (16.8)	0.28 (7.1)	0.69 (17.5)
SS-R-FL8-FT4-	1/2	1/4	1.77 (45.0)	0.90 (22.9)	0.17 (4.3)	0.81 (20.6)
SS-R-FL8-FT6-	1/2	3/8	1.84 (46.7)	0.90 (22.9)	0.27 (6.9)	0.81 (20.6)
SS-R-FL8-FT8-	1/2	1/2	2.06 (52.3)	0.90 (22.9)	0.37 (9.4)	0.81 (20.6)
SS-R-FL8-FT10-	1/2	5/8	2.12 (53.8)	0.90 (22.9)	0.41 (10.4)	0.81 (20.6)

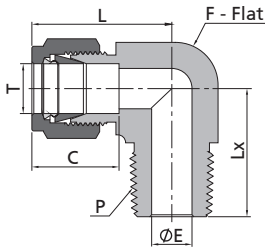
Metric Tube						
Basic Ordering Number	T-Tube O.D. (mm)	Tx-Tube O.D. (mm)	Dimensions, mm (in.)			
			L	C	E	F
SS-R-ML6-MT8-	6	8	39.9 (1.57)	15.3 (0.60)	4.8 (0.19)	14.0 (0.55)
SS-R-ML6-MT10-	6	10	40.7 (1.60)	15.3 (0.60)	4.8 (0.19)	14.0 (0.55)
SS-R-ML6-MT12-	6	12	46.3 (1.82)	15.3 (0.60)	4.8 (0.19)	14.0 (0.55)
SS-R-ML8-MT6-	8	6	40.3 (1.59)	16.2 (0.64)	4.1 (0.16)	15.0 (0.59)
SS-R-ML8-MT10-	8	10	42.0 (1.65)	16.2 (0.64)	6.4 (0.25)	15.0 (0.59)
SS-R-ML8-MT12-	8	12	47.6 (1.87)	16.2 (0.64)	6.4 (0.25)	15.0 (0.59)
SS-R-ML10-MT6-	10	6	42.4 (1.67)	17.2 (0.68)	4.1 (0.16)	18.0 (0.71)
SS-R-ML10-MT8-	10	8	43.4 (1.71)	17.2 (0.68)	5.6 (0.22)	18.0 (0.71)
SS-R-ML10-MT12-	10	12	49.8 (1.96)	17.2 (0.68)	7.9 (0.31)	18.0 (0.71)
SS-R-ML10-MT15-	10	15	51.3 (2.02)	17.2 (0.68)	7.9 (0.31)	18.0 (0.71)
SS-R-ML12-MT6-	12	6	44.9 (1.77)	22.8 (0.90)	4.1 (0.16)	22.0 (0.87)
SS-R-ML12-MT8-	12	8	45.9 (1.81)	22.8 (0.90)	5.6 (0.22)	22.0 (0.87)
SS-R-ML12-MT10-	12	10	46.7 (1.84)	22.8 (0.90)	7.1 (0.28)	22.0 (0.87)
SS-R-ML12-MT16-	12	16	53.8 (2.12)	22.8 (0.90)	9.5 (0.37)	22.0 (0.87)

Port Connectors



Fractional Tube				Metric Tube			
Basic Ordering Number	T-Tube O.D. (in.)	Dimensions, in. (mm)		Basic Ordering Number	T-Tube O.D. (mm)	Dimensions, mm (in.)	
		L	E			L	E
SS-P-FL4-	1/4	0.97 (24.6)	0.17 (4.3)	SS-P-ML6-	6	24.6 (0.97)	4.1 (0.16)
SS-P-FL5-	5/16	1.02 (25.9)	0.22 (5.6)	SS-P-ML8-	8	25.9 (1.02)	5.6 (0.22)
SS-P-FL6-	3/8	1.03 (26.2)	0.27 (6.9)	SS-P-ML10-	10	26.1 (1.03)	7.1 (0.28)
SS-P-FL8-	1/2	1.41 (35.8)	0.37 (9.4)	SS-P-ML12-	12	35.8 (1.41)	8.8 (0.35)
SS-P-FL10-	5/8	1.64 (41.7)	0.47 (11.9)	SS-P-ML15-	15	37.8 (1.49)	11.2 (0.44)
				SS-P-ML16-	16	37.8 (1.49)	12.0 (0.47)

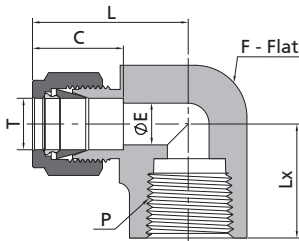
Male Elbows



Fractional Tube to NPT Thread								
Basic Ordering Number	T-Tube O.D. (in.)	P-NPT Size	Dimensions, in. (mm)					
			L	C	E	F	Lx	
SS-LM-FL4-NS4-	1/4	1/4	1.06 (26.9)	0.60 (15.2)	0.19 (4.8)	0.50 (12.7)	0.92 (23.4)	
SS-LM-FL4-NS6-	1/4	3/8	1.17 (29.7)	0.60 (15.2)	0.19 (4.8)	0.69 (17.5)	1.03 (26.2)	
SS-LM-FL4-NS8-	1/4	1/2	1.25 (31.8)	0.60 (15.2)	0.19 (4.8)	0.81 (20.6)	1.30 (33.0)	
SS-LM-FL5-NS4-	5/16	1/4	1.13 (28.7)	0.64 (16.3)	0.25 (6.4)	0.56 (14.3)	0.96 (24.4)	
SS-LM-FL5-NS6-	5/16	3/8	1.20 (30.5)	0.64 (16.3)	0.25 (6.4)	0.69 (17.5)	1.03 (26.2)	
SS-LM-FL6-NS4-	3/8	1/4	1.20 (30.5)	0.66 (16.8)	0.28 (7.1)	0.63 (15.9)	1.00 (25.4)	
SS-LM-FL6-NS6-	3/8	3/8	1.23 (31.2)	0.66 (16.8)	0.28 (7.1)	0.69 (17.5)	1.03 (26.2)	
SS-LM-FL6-NS8-	3/8	1/2	1.31 (33.3)	0.66 (16.8)	0.28 (7.1)	0.81 (20.6)	1.30 (33.0)	
SS-LM-FL8-NS4-	1/2	1/4	1.42 (36.1)	0.90 (22.9)	0.28 (7.1)	0.81 (20.6)	1.11 (28.2)	
SS-LM-FL8-NS6-	1/2	3/8	1.42 (36.1)	0.90 (22.9)	0.38 (9.7)	0.81 (20.6)	1.11 (28.2)	
SS-LM-FL8-NS8-	1/2	1/2	1.42 (36.1)	0.90 (22.9)	0.41 (10.4)	0.81 (20.6)	1.30 (33.0)	

Metric Tube to NPT Thread								
Basic Ordering Number	T-Tube O.D. (mm)	P-NPT Size	Dimensions, mm (in.)					
			L	C	E	F	Lx	
SS-LM-ML6-NS4-	6	1/4	27.0 (1.06)	15.3 (0.60)	4.8 (0.19)	12.7 (0.50)	23.4 (0.92)	
SS-LM-ML6-NS6-	6	3/8	29.8 (1.17)	15.3 (0.60)	4.8 (0.19)	17.5 (0.69)	26.2 (1.03)	
SS-LM-ML6-NS8-	6	1/2	31.8 (1.25)	15.3 (0.60)	4.8 (0.19)	20.6 (0.81)	33.0 (1.30)	
SS-LM-ML8-NS4-	8	1/4	28.8 (1.13)	16.2 (0.64)	6.4 (0.25)	14.3 (0.56)	24.4 (0.96)	
SS-LM-ML8-NS6-	8	3/8	30.6 (1.20)	16.2 (0.64)	6.4 (0.25)	17.5 (0.69)	26.2 (1.03)	
SS-LM-ML8-NS8-	8	1/2	32.6 (1.28)	16.2 (0.64)	6.4 (0.25)	20.6 (0.81)	33.0 (1.30)	
SS-LM-ML10-NS4-	10	1/4	31.5 (1.24)	17.2 (0.68)	7.1 (0.28)	17.5 (0.69)	26.2 (1.03)	
SS-LM-ML10-NS6-	10	3/8	31.5 (1.24)	17.2 (0.68)	7.9 (0.31)	17.5 (0.69)	26.2 (1.03)	
SS-LM-ML10-NS8-	10	1/2	33.5 (1.32)	17.2 (0.68)	7.9 (0.31)	20.6 (0.81)	33.0 (1.30)	
SS-LM-ML12-NS4-	12	1/4	36.0 (1.42)	22.8 (0.90)	7.1 (0.28)	20.6 (0.81)	28.2 (1.11)	
SS-LM-ML12-NS6-	12	3/8	36.0 (1.42)	22.8 (0.90)	9.5 (0.37)	20.6 (0.81)	28.2 (1.11)	
SS-LM-ML12-NS8-	12	1/2	36.0 (1.42)	22.8 (0.90)	9.5 (0.37)	20.6 (0.81)	33.0 (1.30)	
SS-LM-ML12-NS12-	12	3/4	39.8 (1.57)	22.8 (0.90)	9.5 (0.37)	27.0 (1.06)	36.8 (1.45)	

Female Elbows



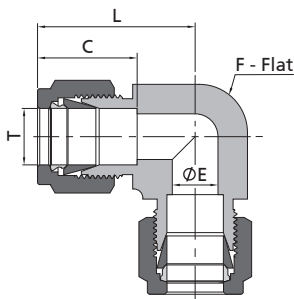
Fractional Tube to NPT Thread

Basic Ordering Number	T-Tube O.D. (in.)	P-NPT Size	Dimensions, in. (mm)				
			L	C	E	F	Lx
SS-LF-FL4-NS4-	1/4	1/4	1.17 (29.7)	0.60 (15.2)	0.19 (4.8)	0.69 (17.5)	0.88 (22.4)
SS-LF-FL4-NS6-	1/4	3/8	1.25 (31.8)	0.60 (15.2)	0.19 (4.8)	0.81 (20.6)	0.88 (22.4)
SS-LF-FL4-NS8-	1/4	1/2	1.36 (34.5)	0.60 (15.2)	0.19 (4.8)	1.00 (25.4)	1.12 (28.4)
SS-LF-FL5-NS4-	5/16	1/4	1.20 (30.5)	0.64 (16.3)	0.25 (6.4)	0.69 (17.5)	0.88 (22.4)
SS-LF-FL6-NS4-	3/8	1/4	1.23 (31.2)	0.66 (16.8)	0.28 (7.1)	0.69 (17.5)	0.88 (22.4)
SS-LF-FL6-NS6-	3/8	3/8	1.31 (33.3)	0.66 (16.8)	0.28 (7.1)	0.81 (20.6)	0.88 (22.4)
SS-LF-FL6-NS8-	3/8	1/2	1.42 (36.1)	0.66 (16.8)	0.28 (7.1)	1.00 (25.4)	1.12 (28.4)
SS-LF-FL8-NS4-	1/2	1/4	1.42 (36.1)	0.90 (22.9)	0.41 (10.4)	0.81 (20.6)	0.88 (22.4)
SS-LF-FL8-NS6-	1/2	3/8	1.42 (36.1)	0.90 (22.9)	0.41 (10.4)	0.81 (20.6)	0.88 (22.4)
SS-LF-FL8-NS8-	1/2	1/2	1.53 (38.9)	0.90 (22.9)	0.41 (10.4)	1.00 (25.4)	1.12 (28.4)

Metric Tube to NPT Thread

Basic Ordering Number	T-Tube O.D. (mm)	P-NPT Size	Dimensions, mm (in.)				
			L	C	E	F	Lx
SS-LF-ML6-NS4-	6	1/4	29.8 (1.17)	15.3 (0.60)	4.8 (0.19)	17.5 (0.69)	22.4 (0.88)
SS-LF-ML8-NS4-	8	1/4	30.6 (1.20)	16.2 (0.64)	6.4 (0.25)	17.5 (0.69)	22.4 (0.88)
SS-LF-ML10-NS4-	10	1/4	33.5 (1.32)	17.2 (0.68)	7.9 (0.31)	20.6 (0.81)	22.4 (0.88)
SS-LF-ML10-NS6-	10	3/8	33.5 (1.32)	17.2 (0.68)	7.9 (0.31)	20.6 (0.81)	22.4 (0.88)
SS-LF-ML10-NS8-	10	1/2	36.6 (1.44)	17.2 (0.68)	7.9 (0.31)	25.4 (1.00)	28.5 (1.12)
SS-LF-ML12-NS4-	12	1/4	36.0 (1.42)	22.8 (0.90)	9.5 (0.37)	20.6 (0.81)	22.4 (0.88)
SS-LF-ML12-NS6-	12	3/8	36.0 (1.42)	22.8 (0.90)	9.5 (0.37)	20.6 (0.81)	22.4 (0.88)
SS-LF-ML12-NS8-	12	1/2	38.8 (1.53)	22.8 (0.90)	9.5 (0.37)	25.4 (1.00)	28.4 (1.12)

Union Elbows



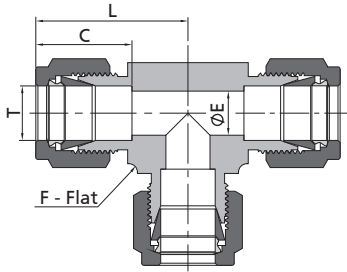
Fractional Tube

Basic Ordering Number	T-Tube O.D. (in.)	Dimensions, in. (mm)			
		L	C	E	F
SS-LU-FL4-	1/4	1.06 (26.9)	0.60 (15.2)	0.19 (4.8)	0.50 (12.7)
SS-LU-FL5-	5/16	1.13 (28.7)	0.64 (16.3)	0.25 (6.4)	0.56 (14.3)
SS-LU-FL6-	3/8	1.20 (30.5)	0.66 (16.8)	0.28 (7.1)	0.63 (15.9)
SS-LU-FL8-	1/2	1.42 (36.1)	0.90 (22.9)	0.41 (10.4)	0.81 (20.6)
SS-LU-FL10-	5/8	1.50 (38.1)	0.96 (24.4)	0.5 (12.7)	0.94 (23.8)

Metric Tube

Basic Ordering Number	T-Tube O.D. (mm)	Dimensions, mm (in.)			
		L	C	E	F
SS-LU-ML6-	6	27.0 (1.06)	15.3 (0.60)	4.8 (0.19)	12.7 (0.50)
SS-LU-ML8-	8	28.8 (1.13)	16.2 (0.64)	6.4 (0.25)	14.3 (0.56)
SS-LU-ML10-	10	31.5 (1.24)	17.2 (0.68)	7.9 (0.31)	17.5 (0.69)
SS-LU-ML12-	12	36.0 (1.42)	22.8 (0.90)	9.5 (0.37)	20.6 (0.81)
SS-LU-ML14-	14	38.0 (1.50)	24.4 (0.96)	11.0 (0.43)	23.8 (0.94)
SS-LU-ML15-	15	38.0 (1.50)	24.4 (0.96)	11.9 (0.47)	23.8 (0.94)
SS-LU-ML16-	16	38.0 (1.50)	24.4 (0.96)	12.7 (0.50)	23.8 (0.94)

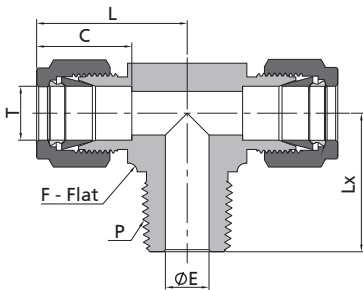
Union Tees



Fractional Tube					
Basic Ordering Number	T-Tube O.D. (in.)	Dimensions, in. (mm)			
		L	C	E	F
SS-TTT-FL4-	1/4	1.06 (26.9)	0.60 (15.2)	0.19 (4.8)	0.50 (12.7)
SS-TTT-FL5-	5/16	1.17 (29.7)	0.64 (16.2)	0.25 (6.4)	0.63 (15.9)
SS-TTT-FL6-	3/8	1.20 (30.5)	0.66 (16.8)	0.28 (7.1)	0.63 (15.9)
SS-TTT-FL8-	1/2	1.42 (36.1)	0.90 (22.9)	0.41 (10.4)	0.81 (20.6)
SS-TTT-FL10-	5/8	1.53 (38.9)	0.96 (24.4)	0.50 (12.7)	1.00 (25.4)

Metric Tube					
Basic Ordering Number	T-Tube O.D. (mm)	Dimensions, mm (in.)			
		L	C	E	F
SS-TTT-ML6-	6	27.0 (1.06)	15.3 (0.60)	4.8 (0.19)	12.7 (0.50)
SS-TTT-ML8-	8	29.9 (1.18)	16.2 (0.64)	6.4 (0.25)	15.9 (0.63)
SS-TTT-ML10-	10	31.5 (1.24)	17.2 (0.68)	7.9 (0.31)	17.5 (0.69)
SS-TTT-ML12-	12	36.0 (1.42)	22.8 (0.90)	9.5 (0.37)	20.6 (0.81)
SS-TTT-ML14-	14	38.8 (1.53)	24.4 (0.96)	11.1 (0.44)	25.4 (1.00)
SS-TTT-ML15-	15	38.8 (1.53)	24.4 (0.96)	11.9 (0.47)	25.4 (1.00)
SS-TTT-ML16-	16	38.8 (1.53)	24.4 (0.96)	12.7 (0.50)	25.4 (1.00)

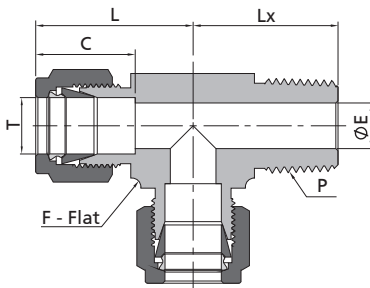
Male Branch Tees



Fractional Tube to NPT Thread								
Basic Ordering Number	T-Tube O.D. (in.)	P-NPT Size	Dimensions, in. (mm)					
			L	C	E (min.)	F	Lx	
SS-TTM-FL4-NS4-	1/4	1/4	1.06 (26.9)	0.60 (15.2)	0.19 (4.8)	0.50 (12.7)	0.92 (23.4)	
SS-TTM-FL6-NS4-	3/8	1/4	1.20 (30.5)	0.66 (16.8)	0.28 (7.1)	0.63 (15.9)	1.00 (25.4)	
SS-TTM-FL6-NS6-	3/8	3/8	1.31 (33.3)	0.66 (16.8)	0.28 (7.1)	0.81 (20.6)	1.11 (28.2)	

Metric Tube to NPT Thread								
Basic Ordering Number	T-Tube O.D. (mm)	P-NPT Size	Dimensions, mm (in.)					
			L	C	E (min.)	F	Lx	
SS-TTM-ML6-NS4-	6	1/4	27.0 (1.06)	15.3 (0.60)	4.8 (0.19)	12.7 (0.50)	23.4 (0.92)	
SS-TTM-ML8-NS4-	8	1/4	29.9 (1.18)	16.2 (0.64)	6.4 (0.25)	15.9 (0.63)	25.4 (1.00)	
SS-TTM-ML10-NS4-	10	1/4	33.5 (1.32)	17.2 (0.68)	7.1 (0.28)	20.6 (0.81)	28.2 (1.11)	
SS-TTM-ML10-NS6-	10	3/8	33.5 (1.32)	17.2 (0.68)	7.9 (0.31)	20.6 (0.81)	28.2 (1.11)	
SS-TTM-ML12-NS4-	12	1/4	36.0 (1.42)	22.8 (0.90)	7.1 (0.28)	20.6 (0.81)	28.2 (1.11)	
SS-TTM-ML12-NS6-	12	3/8	36.0 (1.42)	22.8 (0.90)	9.5 (0.37)	20.6 (0.81)	28.2 (1.11)	
SS-TTM-ML12-NS8-	12	1/2	36.0 (1.42)	22.8 (0.90)	9.5 (0.37)	20.6 (0.81)	33.0 (1.30)	

Male Run Tees



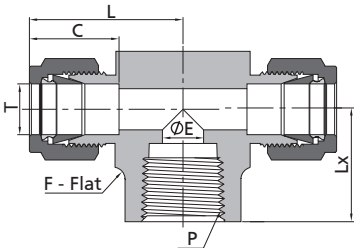
Fractional Tube to NPT Thread

Basic Ordering Number	T-Tube O.D. (in.)	P-NPT Size	Dimensions, in. (mm)				
			L	C	E (min.)	F	Lx
SS-TMT-FL4-NS4-	1/4	1/4	1.06 (26.9)	0.60 (15.2)	0.19 (4.8)	0.50 (12.7)	0.92 (23.4)
SS-TMT-FL5-NS4-	5/16	1/4	1.17 (29.7)	0.64 (16.3)	0.25 (6.4)	0.63 (15.9)	1.01 (25.7)
SS-TMT-FL6-NS4-	3/8	1/4	1.20 (30.5)	0.66 (16.8)	0.28 (7.1)	0.63 (15.9)	1.00 (25.4)
SS-TMT-FL6-NS6-	3/8	3/8	1.31 (33.3)	0.66 (16.8)	0.28 (7.1)	0.81 (20.6)	1.11 (28.2)

Metric Tube to NPT Thread

Basic Ordering Number	T-Tube O.D. (mm)	P-NPT Size	Dimensions, mm (in.)				
			L	C	E (min.)	F	Lx
SS-TMT-ML6-NS4-	6	1/4	27.0 (1.06)	15.3 (0.60)	4.8 (0.19)	12.7 (0.50)	23.4 (0.92)
SS-TMT-ML8-NS4-	8	1/4	29.9 (1.18)	16.2 (0.64)	6.4 (0.25)	15.9 (0.63)	25.4 (1.00)
SS-TMT-ML10-NS4-	10	1/4	33.5 (1.32)	17.2 (0.68)	7.1 (0.28)	20.6 (0.81)	28.2 (1.11)
SS-TMT-ML10-NS8-	10	1/2	33.5 (1.32)	17.2 (0.68)	7.9 (0.31)	20.6 (0.81)	33.0 (1.30)
SS-TMT-ML12-NS4-	12	1/4	36.0 (1.42)	22.8 (0.90)	7.1 (0.28)	20.6 (0.81)	28.2 (1.11)
SS-TMT-ML12-NS6-	12	3/8	36.0 (1.42)	22.8 (0.90)	9.5 (0.37)	20.6 (0.81)	28.2 (1.11)
SS-TMT-ML12-NS8-	12	1/2	36.0 (1.42)	22.8 (0.90)	9.5 (0.37)	20.6 (0.81)	33.0 (1.30)

Female Branch Tees



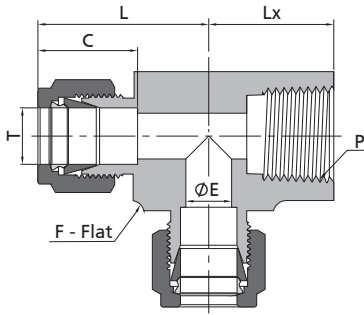
Fractional Tube to NPT Thread

Basic Ordering Number	T-Tube O.D. (in.)	P-NPT Size	Dimensions, in. (mm)				
			L	C	E	F	Lx
SS-TTF-FL4-NS4-	1/4	1/4	1.17 (29.7)	0.60 (15.2)	0.19 (4.8)	0.69 (17.5)	0.88 (22.4)
SS-TTF-FL6-NS4-	3/8	1/4	1.23 (31.2)	0.66 (16.8)	0.28 (7.1)	0.69 (17.5)	0.88 (22.4)
SS-TTF-FL6-NS6-	3/8	3/8	1.31 (33.3)	0.66 (16.8)	0.28 (7.1)	0.81 (20.6)	0.88 (22.4)

Metric Tube to NPT Thread

Basic Ordering Number	T-Tube O.D. (mm)	P-NPT Size	Dimensions, mm (in.)				
			L	C	E	F	Lx
SS-TTF-ML6-NS4-	6	1/4	29.8 (1.17)	15.3 (0.60)	4.8 (0.19)	17.5 (0.69)	22.4 (0.88)
SS-TTF-ML8-NS4-	8	1/4	30.6 (1.20)	16.2 (0.64)	6.4 (0.25)	17.5 (0.69)	22.4 (0.88)
SS-TTF-ML10-NS4-	10	1/4	33.5 (1.32)	17.2 (0.68)	7.9 (0.31)	20.6 (0.81)	22.4 (0.88)
SS-TTF-ML12-NS4-	12	1/4	36.0 (1.42)	22.8 (0.90)	9.5 (0.37)	20.6 (0.81)	22.4 (0.88)
SS-TTF-ML12-NS6-	12	3/8	36.0 (1.42)	22.8 (0.90)	9.5 (0.37)	20.6 (0.81)	22.4 (0.88)
SS-TTF-ML12-NS8-	12	1/2	38.8 (1.53)	22.8 (0.90)	9.5 (0.37)	25.4 (1.00)	28.5 (1.12)

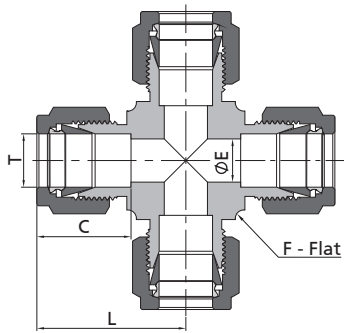
Female Run Tees



Fractional Tube to NPT Thread							
Basic Ordering Number	T-Tube O.D. (in.)	P-NPT Size	Dimensions, in. (mm)				
			L	C	E	F	Lx
SS-TFT-FL4-NS4-	1/4	1/4	1.17 (29.7)	0.60 (15.2)	0.19 (4.8)	0.69 (17.5)	0.88 (22.4)
SS-TFT-FL6-NS4-	3/8	1/4	1.23 (31.2)	0.66 (16.8)	0.28 (7.1)	0.69 (17.5)	0.88 (22.4)

Metric Tube to NPT Thread							
Basic Ordering Number	T-Tube O.D. (mm)	P-NPT Size	Dimensions, mm (in.)				
			L	C	E	F	Lx
SS-TFT-ML6-NS4-	6	1/4	29.8 (1.17)	15.3 (0.60)	4.8 (0.19)	17.5 (0.69)	22.4 (0.88)
SS-TFT-ML8-NS4-	8	1/4	30.6 (1.20)	16.2 (0.64)	6.4 (0.25)	17.5 (0.69)	22.4 (0.88)
SS-TFT-ML10-NS4-	10	1/4	33.5 (1.32)	17.2 (0.68)	7.9 (0.31)	20.6 (0.81)	22.4 (0.88)
SS-TFT-ML12-NS4-	12	1/4	36.0 (1.42)	22.8 (0.90)	9.5 (0.37)	20.6 (0.81)	22.4 (0.88)
SS-TFT-ML12-NS6-	12	3/8	36.0 (1.42)	22.8 (0.90)	9.5 (0.37)	20.6 (0.81)	23.1 (0.91)
SS-TFT-ML12-NS8-	12	1/2	38.8 (1.53)	22.8 (0.90)	9.5 (0.37)	25.4 (1.00)	28.5 (1.12)

Union Crosses



Fractional Tube					
Basic Ordering Number	T-Tube O.D. (in.)	Dimensions, in. (mm)			
		L	C	E	F
SS-C-FL4-	1/4	1.06 (26.9)	0.60 (15.2)	0.19 (4.8)	0.50 (12.7)
SS-C-FL5-	5/16	1.17 (29.7)	0.64 (16.2)	0.25 (6.4)	0.63 (15.9)
SS-C-FL6-	3/8	1.20 (30.5)	0.66 (16.8)	0.28 (7.1)	0.63 (15.9)
SS-C-FL8-	1/2	1.42 (36.1)	0.90 (22.9)	0.41 (10.4)	0.81 (20.6)

Metric Tube					
Basic Ordering Number	T-Tube O.D. (mm)	Dimensions, mm (in.)			
		L	C	E	F
SS-C-ML6-	6	27.0 (1.06)	15.3 (0.60)	4.8 (0.19)	12.7 (0.50)
SS-C-ML8-	8	29.9 (1.18)	16.2 (0.64)	6.4 (0.25)	15.9 (0.63)
SS-C-ML10-	10	33.5 (1.32)	17.2 (0.68)	7.9 (0.31)	20.6 (0.81)
SS-C-ML12-	12	36.0 (1.42)	22.8 (0.90)	9.5 (0.37)	20.6 (0.81)
SS-C-ML16-	16	37.0 (1.46)	24.4 (0.96)	12.7 (0.50)	23.8 (0.94)

6P Series Pipe Fittings

Features

- © Rolled male thread provides higher strength and hardness

Technical Data

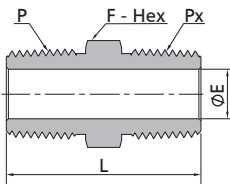
Body Material	Cold-drawn hard 316/316L SS
Working Temperature	NPT Threads: -325~400 °F (-198~204 °C) SAE/MS Straight Threads: -53~401 °F (-47~205 °C) Low Temperature FKM O-ring: -53~401 °F (-47~205 °C)
Thread Specification	NPT: ASME B1.20.1, SAE AS71051 SAE/MS: ASME B1.1, SAE J475

Materials

Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
ASTM 316 SS	16-18	10-14	2.0-3.0	>22.4

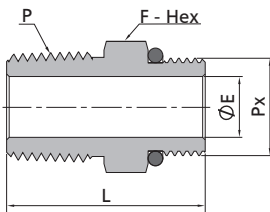
Ordering Information and Dimensions

Hex Nipples



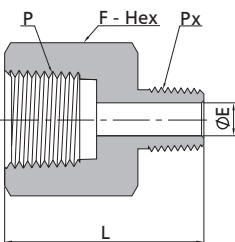
Male NPT Thread							
Ordering Number	P-NPT Size	Px-NPT Size	Dimensions, in. (mm)			Working Pressure psig (bar)	
			L	E	F		
SS-PHN-NS4-HG	1/4	1/4	1.40 (35.6)	0.28 (7.1)	0.56 (14.3)	8,000 (551)	
SS-PHN-NS6-HG	3/8	3/8	1.43 (36.3)	0.38 (9.7)	0.69 (17.5)	7,800 (537)	

Hex Nipples



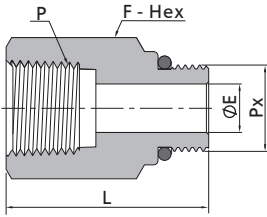
Male NPT Thread to Male SAE/MS Straight Thread							
Ordering Number	P-NPT Size	Px-SAE Nominal Size	Px-SAE/MS Thread Specification	Dimensions, in. (mm)			Working Pressure psig (bar)
				L	E	F	
SS-PHN-NS4-ST7-HG	1/4	4	7/16-20	1.20 (30.5)	0.20 (5.1)	0.56 (14.3)	5,075 (350)
SS-PHN-NS6-ST9-HG	3/8	6	9/16-18	1.26 (32.0)	0.28 (7.1)	0.69 (17.5)	5,075 (350)

Adapters



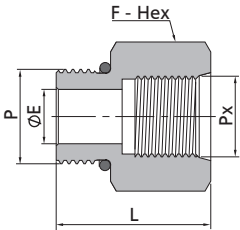
Female NPT Thread to Male NPT Thread							
Ordering Number	P-NPT Size	Px-NPT Size	Dimensions, in. (mm)			Working Pressure psig (bar)	
			L	E	F		
SS-PA-NS4-HG	1/4	1/4	1.40 (35.6)	0.28 (7.1)	0.75 (19.1)	6,600 (454)	
SS-PA-NS6-NS4-HG	3/8	1/4	1.50 (38.1)	0.28 (7.1)	0.87 (22.2)	5,300 (365)	

Adapters



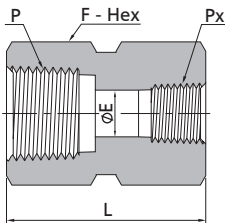
Female NPT Thread to Male SAE/MS Straight Thread							
Ordering Number	P-NPT Size	Px-SAE Nominal Size	Px-SAE/MS Thread Specification	Dimensions, in. (mm)			Working Pressure psig (bar)
				L	E	F	
SS-PA-NS4-ST7-HG	1/4	4	7/16-20	1.32 (33.5)	0.20 (5.1)	0.75 (19.1)	5,075 (350)

Reducing Bushings



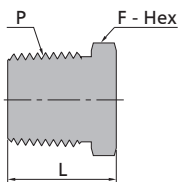
Male SAE/MS Straight Thread to Female SAE/MS Straight Thread								
Ordering Number	P-SAE Nominal Size	P-SAE/MS Thread Specification	Px-SAE Nominal Size	Px-SAE/MS Thread Specification	Dimensions, in. (mm)			Working Pressure psig (bar)
					L	E	F	
SS-PRB-ST9-US7-HG	6	9/16-18	4	7/16-20	1.12 (28.4)	0.28 (7.1)	0.81 (20.6)	5,075 (350)
SS-PRB-SH12-US7-HG	8	3/4-16	4	7/16-20	0.98 (24.9)	0.39 (9.9)	0.87 (22.2)	5,075 (350)
SS-PRB-SH12-US9-HG	8	3/4-16	6	9/16-18	1.19 (30.2)	0.42 (10.7)	1.00 (25.4)	5,075 (350)

Hex Couplings

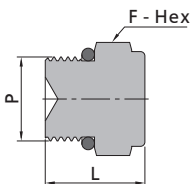


Female NPT Thread							
Ordering Number	P-NPT Size	Px-NPT Size	Dimensions, in. (mm)			Working Pressure psig (bar)	
			L	E	F		
SS-PCG-NS4-HG	1/4	1/4	1.19 (30.2)	0.45 (11.4)	0.75 (19.1)	6,600 (454)	
SS-PCG-NS6-NS4-HG	3/8	1/4	1.38 (35.1)	0.45 (11.4)	0.87 (22.2)	5,300 (365)	
SS-PCG-NS6-HG	3/8	3/8	1.31 (33.3)	0.59 (15.0)	0.87 (22.2)	5,300 (365)	

Pipe Plugs

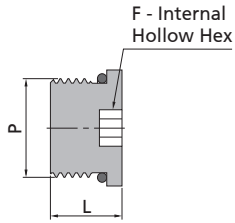


Male NPT Thread			
Ordering Number	P-NPT Size	Dimensions, in. (mm)	
		L	F
SS-PP-NS4-HG	1/4	0.75 (19.1)	0.56 (14.3)
SS-PP-NS6-HG	3/8	0.78 (19.8)	0.69 (17.5)



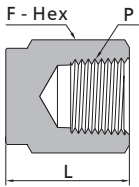
Male SAE/MS Straight Thread				
Ordering Number	P-SAE Nominal Size	P-SAE/MS Thread Specification	Dimensions, in. (mm)	
			L	F
SS-PP-ST6-HG	3	3/8-24	0.61 (15.5)	0.50 (12.7)
SS-PP-ST7-HG	4	7/16-20	0.76 (19.3)	0.56 (14.3)
SS-PP-ST8-HG	5	1/2-20	0.71 (18.1)	0.63 (15.9)
SS-PP-ST9-HG	6	9/16-18	0.82 (20.8)	0.69 (17.5)
SS-PP-SH12-HG	8	3/4-16	0.89 (22.6)	0.87 (22.2)

Hollow Hex Plugs



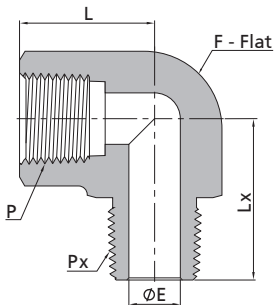
Male SAE/MS Straight Thread				
Ordering Number	P-SAE Nominal Size	P-SAE/MS Thread Specification	Dimensions, in. (mm)	
			L	F
SS-PI-ST6-HG	3	3/8-24	0.38 (9.7)	0.16 (4.0)
SS-PI-ST7-HG	4	7/16-20	0.45 (11.4)	0.19 (4.8)
SS-PI-ST9-HG	6	9/16-18	0.48 (12.2)	0.25 (6.4)
SS-PI-SH12-HG	8	3/4-16	0.56 (14.2)	0.31 (7.9)

Pipe Caps



Female NPT Thread				
Ordering Number	P-NPT Size	Dimensions, in. (mm)		Working Pressure psig (bar)
		L	F	
SS-PC-NS4-HG	1/4	0.91 (23.1)	0.75 (19.1)	6,600 (454)
SS-PC-NS6-HG	3/8	1.03 (26.2)	0.87 (22.2)	5,300 (365)
SS-PC-NS8-HG	1/2	1.34 (34.0)	1.06 (27.0)	4,900 (337)

Street Elbows



Female NPT Thread to Male NPT Thread							
Ordering Number	P-NPT Size	Px-NPT Size	Dimensions, in. (mm)				Working Pressure psig (bar)
			L	E	F	Lx	
SS-PSE-NS4-NS6-HG	1/4	3/8	1.17 (29.7)	0.34 (8.6)	0.69 (17.5)	1.17 (29.7)	7,200 (496)

BU Series Ball Valves



Features

- EC79 certified
- Spring-loaded seat provides leak-tight integrity and reduces seat wear from pressure surges
- Panel mounting available upon request
- 100% of the valves leak tested with 6,000 psig (414 bar) hydrogen mixed gas



Technical Data

Max. Working Pressure	6,000 psig (414 bar)
Working Temperature	-40~250 °F (-40~121 °C)
Body Material	Cold-drawn hard 316/316L SS
Seat Material	PEEK
Stem/Seat O-ring	Low-Temperature FKM
Packing Bolt Washer	Silver-Plated 316 SS
Seat Backup Ring	PTFE

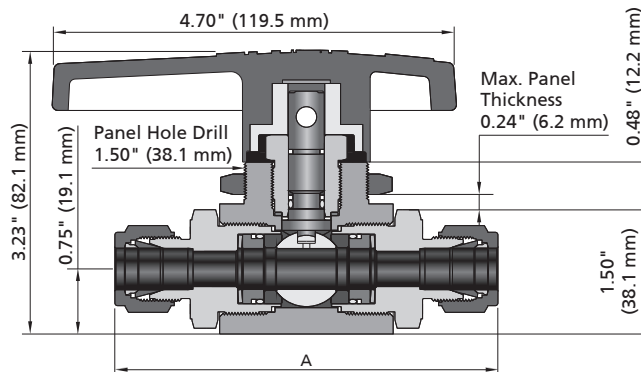
Materials

Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
ASTM 316 SS	16-18	10-14	2.0-3.0	>22.4

Ordering Information and Dimensions

To order a valve with EC79 certification, add “-EC79” suffix to the standard ordering number.

To order a valve complying with EC79 but without third party certification, add “-HG” suffix to the standard ordering number. The complete ordering number is labeled on the packing box.



Ordering Number	Connection Type and Size		Orifice in. (mm)	Cv	Dimensions, in. (mm)
					A
BUSS-FL6-P12-	6D Series Tube Fittings	3/8"	0.28 (7.1)	4.0	4.20 (106.6)
BUSS-FL8-P12-		1/2"	0.41 (10.3)	7.2	4.40 (111.8)
BUSS-ML10-P12-		10 mm	0.31 (7.9)	5.2	4.21 (107.0)
BUSS-US12-P12-	Female SAE/MS	3/4-16	0.42 (10.7)	7.5	4.02 (102.0)

BF Series Ball Valves

Features

- ⦿ Automatic compensation of seat sealing provides long service life
- ⦿ Pneumatic actuator optional
- ⦿ 3-way valve configurations optional
- ⦿ 100% of the valves leak tested with 6,000 psig (414 bar) hydrogen mixed gas



Technical Data

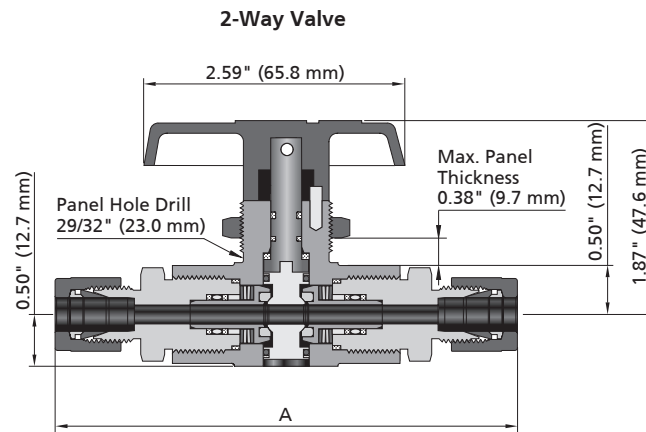
Max. Working Pressure	6,000 psig (414 bar)
Working Temperature	-40~248 °F (-40~120 °C)
Body Material	316/316L SS
Seat Material	PEEK
O-ring	Low-Temperature FKM

Materials

Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
ASTM 316 SS	16-18	10-14	2.0-3.0	>22.4

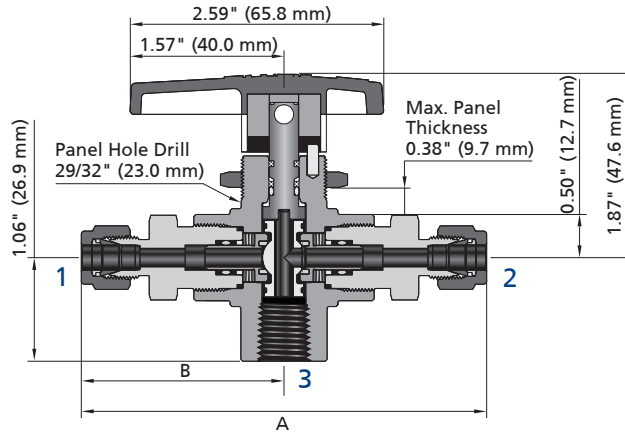
Ordering Information and Dimensions

Manual



Ordering Number	Connection Type and Size		Orifice in. (mm)	Cv	Dimension, in. (mm)
					A
BFSS-FL4-P-HG	6D Series Tube Fittings	1/4"	0.19 (4.8)	1.6	4.14 (105.2)
BFSS-FL6-P-HG		3/8"			4.39 (111.5)
BFSS-ML10-P-HG		10 mm			4.41 (112.0)

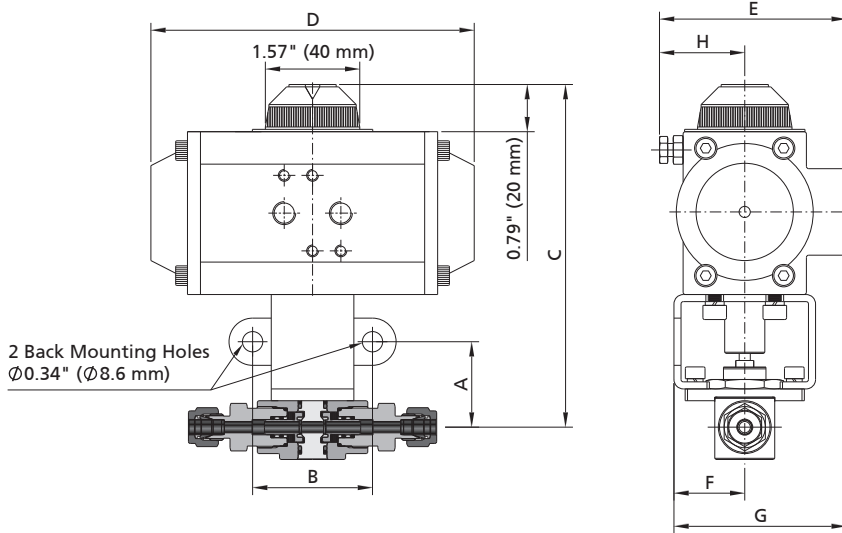
3-Way Valve



Ordering Number	Connection Type and Size				Orifice in. (mm)	Cv	Dimensions, in. (mm)	
	Connection 1 & 2		Connection 3				A	B
BFSS-FL4-P-3-HG	6D Series Tube Fittings	1/4"	Female NPT	1/4	0.19 (4.8)	0.75	4.14 (105.2)	2.07 (52.6)
BFSS-FL6-P-3-HG		3/8"					4.39 (111.5)	2.19 (55.6)
BFSS-ML10-P-3-HG		10 mm					4.41 (112.0)	2.20 (55.9)

Pneumatic Actuated

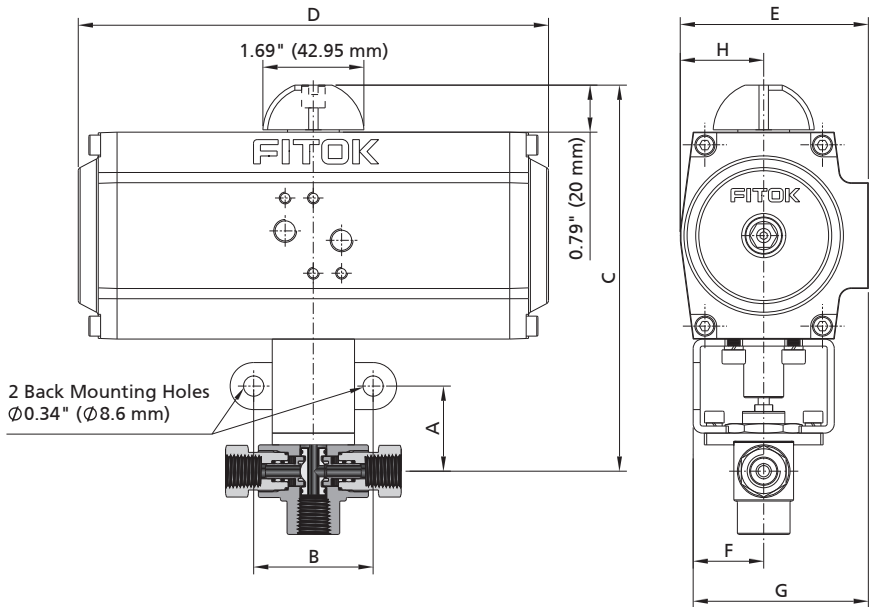
2-Way Valve



Ordering Number	Connection Type and Size		Orifice in. (mm)	Cv	Dimensions, in. (mm)							
					A	B	C	D	E	F	G	H
BFSS-FL4-P-O-HG	6D Series Tube Fittings	1/4"	0.19 (4.8)	1.6	1.43 (36.2)	2.00 (50.8)	6.01 (151.2)	6.06 (154.0)	2.78 (70.5)	1.38 (35.0)	3.01 (76.5)	1.14 (29.0)
BFSS-FL6-P-D-HG		3/8"		1.4								
BFSS-ML10-P-C-HG		10 mm		1.3								

Note: "-O", "-D", "-C" are designators for pneumatic actuator
 -O: 90° normally open pneumatic actuator;
 -D: 90° double acting pneumatic actuator;
 -C: 90° normally closed pneumatic actuator.

3-Way Valve



Ordering Number	Connection Type and Size				Orifice in. (mm)	Cv	Dimensions, in. (mm)							
	Connection 1 & 2		Connection 3				A	B	C	D	E	F	G	H
BFSS-FNS4-P-LX3-HG	Female NPT	1/4"	Female NPT	1/4"	0.19 (4.8)	0.75	1.43 (36.2)	2.00 (50.8)	1.97 (164.2)	7.87 (200.0)	3.15 (80.0)	1.18 (30.0)	2.93 (74.5)	1.40 (35.5)
BFSS-FL4-P-LX3-HG	6D Series Tube Fittings	1/4"												
BFSS-ML6-P-LX3-HG		3/8"												
BFSS-ML10-P-RX3-HG		10 mm												

NF Series Needle Valves

Features

- ⦿ One-piece forged body
- ⦿ Upper stem thread lubricant isolated from system media
- ⦿ Specially treated surface of the stem tip provides better shut-off and sealing for hydrogen gas
- ⦿ Panel mounting available upon request
- ⦿ 100% of the valves leak tested with 6,000 psig (414 bar) hydrogen mixed gas



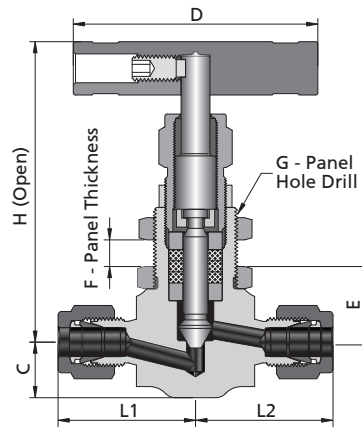
Technical Data

Max. Working Pressure	6,000 psig (414 bar)
Working Temperature	-40~450 °F (-40~232 °C)
Body Material	316/316L SS
Packing Material	PTFE
Stem Tip Material	Hardened 316 SS
Stem Tip Type	Taper

Materials

Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
ASTM 316 SS	16-18	10-14	2.0-3.0	>22.4

Ordering Information and Dimensions



Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimensions, in. (mm)								
				L1	L2	H	D	C	E	F	G	
NFSS-FL4-7-Y-HG	6D Series Tube Fittings	1/4"	0.16 (4.0)	0.35	1.22 (30.9)	1.22 (30.9)	2.85 (72.5)	2.17 (55.0)	0.49 (12.5)	0.71 (18.0)	0.25 (6.4)	0.77 (19.6)
NFSS-FL6-8-Y-HG		3/8"	0.25 (6.4)	0.85	1.44 (36.5)	1.44 (36.5)	3.38 (85.8)	2.50 (63.5)	0.62 (15.8)	0.87 (22.0)	0.38 (9.7)	0.96 (24.4)

CH Series Check Valves



Features

- ◎ EC79 certified
- ◎ Any mounting direction is acceptable
- ◎ 100% of the valves leak tested with 6,000 psig (414 bar) hydrogen mixed gas



Technical Data

Max. Working Pressure	6,000 psig (414 bar)
Cracking Pressure	0~30 psig (0~2.1 bar)
Working Temperature	-40~248 °F (-40~120 °C)
Body Material	Cold-drawn hard 316/316L SS
O-ring	EPDM

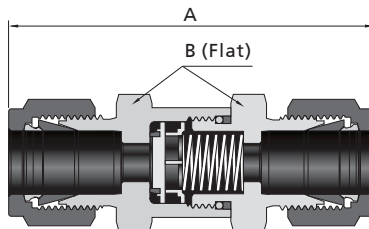
Materials

Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
ASTM 316 SS	16-18	10-14	2.0-3.0	>22.4

Ordering Information and Dimensions

To order a valve with EC79 certification, add "-EC79" suffix to the standard ordering number.

To order a valve complying with EC79 but without third party certification, add "-HG" suffix to the standard ordering number. The complete ordering number is labeled on the packing box.



Ordering Number	Connection Type and Size	Cv	Cracking Pressure Range, psig (bar)	Dimensions, in. (mm)		
				A	B	
CHSS-FL4-	6D Series Tube Fittings	1/4"	0.67	1~5 (0.06~0.34)	2.43 (61.7)	11/16 (17.5)
CHSS-FL4-1-		1/4"	0.67	0~3 (0~0.21)	2.43 (61.7)	11/16 (17.5)
CHSS-FL6-2-		3/8"	1.80	0~4 (0~0.28)	2.75 (69.9)	1.0 (25.4)
CHSS-FL6-3-		3/8"	1.80	7~15 (0.49~1.1)	2.75 (69.9)	1.0 (25.4)
CHSS-FL8-4-		1/2"	1.80	20~30 (1.4~2.1)	2.96 (75.2)	1.0 (25.4)

RV Series Proportional Relief Valves

Features

- ⦿ Set pressure can be customized
- ⦿ Designed to eliminate back-pressure effect
- ⦿ 100% of the valves is factory tested at the set pressure



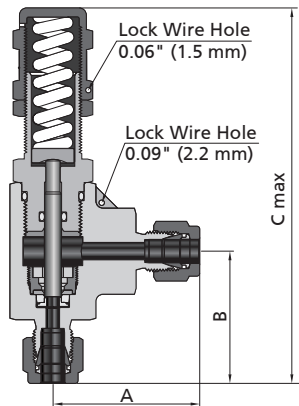
Technical Data

Max. Outlet Pressure	1,500 psig (103 bar)
Set Pressure	50~6,000 psig (3.4~414 bar)
Working Temperature	-40~250 °F (-40~121 °C)
Body Material	316/316L SS
O-ring	EPDM

Materials

Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
ASTM 316 SS	16-18	10-14	2.0-3.0	>22.4

Ordering Information and Dimensions



Ordering Number	Connection Type and Size		Orifice in. (mm)	Cv	Set Pressure Range, psig (bar)	Dimensions, in. (mm)		
						A	B	C
RVSS-FL4-6-C-HG	6D Series Tube Fittings	1/4"	0.14 (3.6)	0.41	4,500~6,000 (310~414)	1.60 (40.6)	1.44 (36.6)	4.14 (105.2)
RVSS-FL6-6-J-HG		3/8"			3,500~4,500 (241~310)	1.60 (40.6)	1.44 (36.6)	4.14 (105.2)
RVSS-FL8-6-W-HG		1/2"			2,500~3,500 (172~241)	1.72 (43.7)	1.72 (43.7)	5.81 (147.6)
RVSS-ML6-6-P-HG		6 mm			1,500~2,500 (103~172)	1.60 (40.6)	1.44 (36.6)	4.14 (105.2)
RVSS-ML8-6-Y-HG		8 mm			700~1,500 (48.3~103)	1.60 (40.6)	1.44 (36.6)	4.14 (105.2)
RVSS-ML12-6-O-HG		12 mm			300~700 (20.7~48.3)	1.83 (46.5)	1.83 (46.5)	5.92 (150.4)
RVSS-ML12-6-F-HG		12 mm			50~300 (3.4~20.7)	1.83 (46.5)	1.83 (46.5)	5.92 (150.4)

EV Series Excess Flow Valves

Features

- ⦿ The flow going through the bleed vent is lower than 1% of the flow rate in the trip range
- ⦿ The green ring identifies excess flow



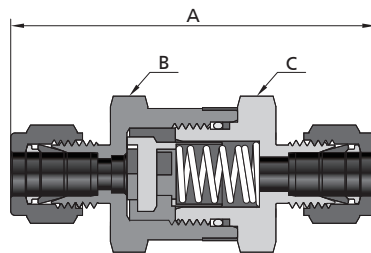
Technical Data

Max. Working Pressure	6,000 psig (414 bar)
Working Temperature	-40~250 °F (-40~121 °C)
Body Material	Cold-drawn hard 316/316L SS
O-ring	EPDM

Materials

Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
ASTM 316 SS	16-18	10-14	2.0-3.0	>22.4

Ordering Information and Dimensions

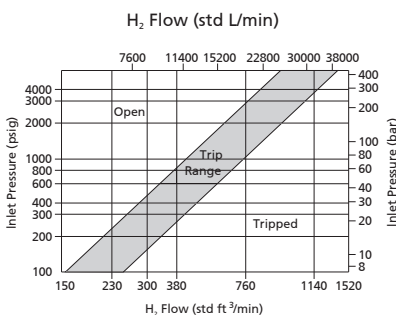


Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimensions, in. (mm)		
				A	B	C
EVSS-FL4-4-HG	6D Series Tube Fittings	1/4"	0.5	2.43 (61.7)	0.69 (17.5)	0.69 (17.5)
EVSS-FL6-6-HG		3/8"	1.1	2.75 (69.9)	1.0 (25.4)	1.0 (25.4)
EVSS-ML12-8-HG		12 mm	1.1	2.96 (75.2)	1.0 (25.4)	1.0 (25.4)

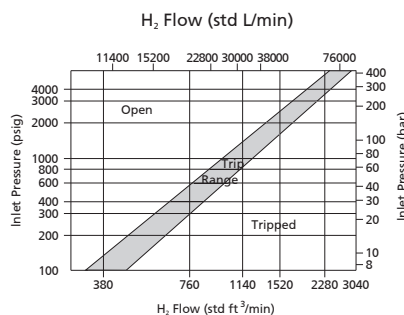
Flow Data at 70°F (20°C)

H₂ Flow

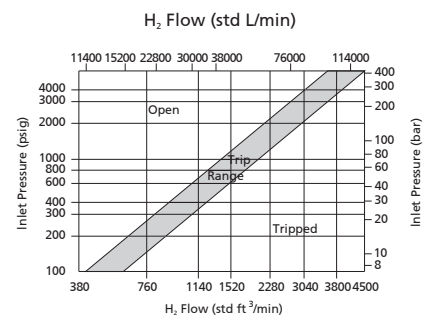
EVSS-FL4-4-HG



EVSS-FL6-6-HG



EVSS-ML12-8-HG





FT Series Filters

Features

- EC79 certified
- Easy to replace filter element without removing body from system
- Nominal pore sizes for sintered element: 7 and 15 μm



Technical Data

Max. Working Pressure	6,000 psig (414 bar)
Max. Differential Pressure	1,000 psig (69 bar)
Working Temperature	-40~248 °F (-40~120 °C)
Body Material	316/316L SS
Filter Element	Sintered 316 SS
Gasket	316 SS, Silver-Plated

Materials

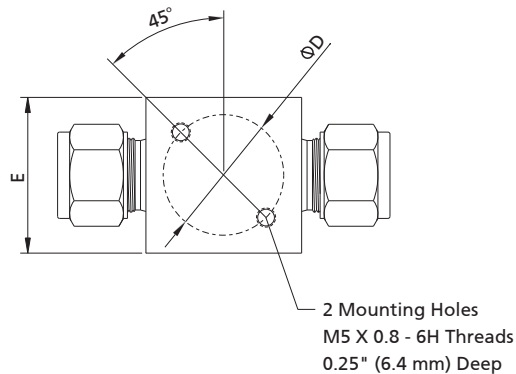
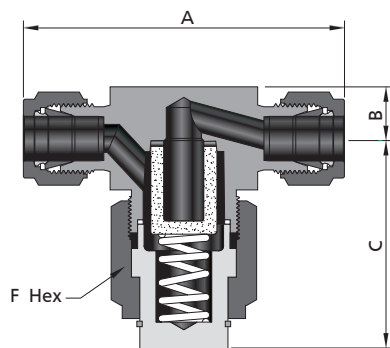
Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
ASTM 316 SS	16-18	10-14	2.0-3.0	>22.4

Ordering Information and Dimensions

To order a filter with EC79 certification, add "-EC79" suffix to the standard ordering number.

To order a filter complying with EC79 but without third party certification, add "-HG" suffix to the standard ordering number.

The complete ordering number is labeled on the packing box.



Ordering Number	Connection Type and Size	Orifice in. (mm)	Nominal Pore Size	Effective Filter Element Area in. ² (mm ²)	Dimensions, in. (mm)						
					A	B	C	ØD	E	F	
FTSS-FL4-7-	6D Series Tube Fittings	1/4"	0.17 (4.4)	7	1.30 (830)	2.47 (62.7)	0.38 (9.7)	1.49 (37.8)	1.00 (25.4)	1.00 (25.4)	1 (25.4)
FTSS-FL4-15-			15								
FTSS-FL6-7-	6D Series Tube Fittings	3/8"	0.25 (6.4)	7	2.00 (1280)	2.84 (72.1)	0.46 (11.7)	1.74 (44.2)	1.13 (28.6)	1.13 (28.6)	1.13 (28.6)
FTSS-FL6-15-			15								
FTSS-FL8-7-	6D Series Tube Fittings	1/2"	0.25 (6.4)	7	2.00 (1280)	3.04 (77.2)	0.46 (11.7)	1.74 (44.2)	1.13 (28.6)	1.13 (28.6)	1.13 (28.6)
FTSS-FL8-15-			15								

QC Series Quick-Connects

Features

- ⦿ Interchangeable with other key manufacturers' products
- ⦿ Push-to-connect coupling to enable quick and easy operation
- ⦿ Locking mechanism with large contact area to ensure reliable stem retainment
- ⦿ Stem protector, body protector and keyed options available

Technical Data

Max. Working Pressure	Coupled	Uncoupled and When Coupling and Uncoupling
	QC4: 3,000 psig (207 bar) QC6: 1,500 psig (103 bar)	QC4: 250 psig (17.2 bar) QC6: 250 psig (17.2 bar)
Working Temperature	-40~250 °F (-40~121 °C)	
Body Material	Cold-drawn hard 316/316L SS	
O-ring	EPDM	

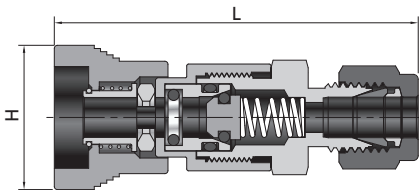
Materials

Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
<i>ASTM 316 SS</i>	<i>16-18</i>	<i>10-14</i>	<i>2.0-3.0</i>	<i>>22.4</i>

Ordering Information and Dimensions

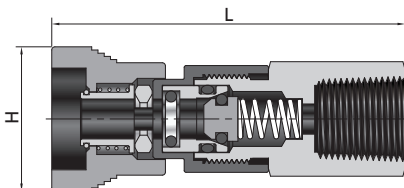
Bodies

Tube Fitting



Fitting Size in.	Ordering Number	Dimensions	
		H in.	L in. (mm)
1/4	SS-QC4-FL4-B-HG	0.91 (23.1)	2.30 (58.4)
mm	—	mm (in.)	mm (in.)
6	SS-QC4-ML6-B-HG	23.1 (0.91)	58.4 (2.30)

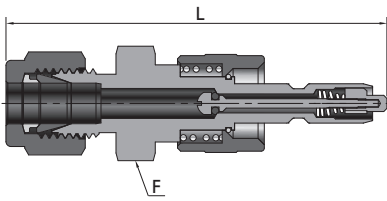
Female NPT



NPT Size in.	Ordering Number	Dimensions	
		H in.	L in. (mm)
1/4	SS-QC4-FNS4-B-HG	0.91 (23.1)	2.42 (61.5)
1/4	SS-QC6-FNS4-B-HG	1.03 (26.2)	2.54 (64.5)

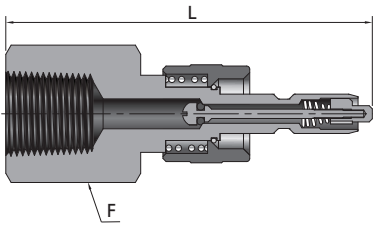
Double-End Shut Off (DESO) Stems

Tube Fitting



Fitting Size in.	Ordering Number	Flow Coefficient (Cv)	Dimensions	
			F in.	L in. (mm)
1/4	SS-QC4-FL4-D-HG	0.2	5/8	2.42 (61.5)
mm			mm	mm (in.)
6	SS-QC4-ML6-D-HG	0.2	16	61.5 (2.42)

Female NPT

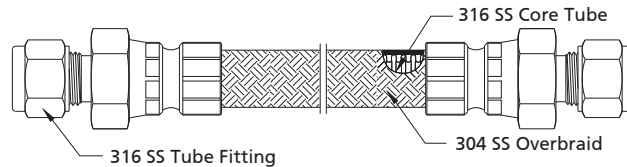


BSPT Size in.	Ordering Number	Flow Coefficient (Cv)	Dimensions	
			F in. (mm)	L in. (mm)
1/4	SS-QC4-FNS4-D-HG	0.2	0.75 (19.05)	2.32 (58.9)
1/4	SS-QC6-FNS4-D-HG	0.5	0.75 (19.05)	2.47 (62.7)

MH & MM Series Metal Hoses

Features

- ⦿ Core tube and fitting material: 316 SS
- ⦿ Overbraid material: 304 SS
- ⦿ Welded fitting-to-hose construction to ensure reliable seal
- ⦿ Stock components for on-demand customized hose assemblies
- ⦿ Every hose factory tested with helium to a maximum leak rate of 1×10^{-7} mbar-l/s

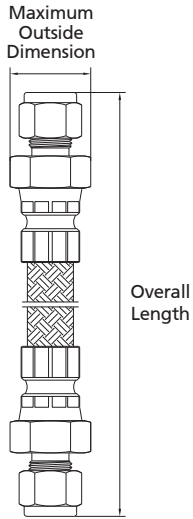


Technical Data

MH Series							
Nominal Hose Size	Inside Diameter	Min. Bend Radius		Temperature Range	Working Pressure at 70 °F (20 °C)	Burst Pressure at 70 °F (20 °C)	Series and Size Designator
		Static	Dynamic				
		in. (mm)	in. (mm)				
1/4 (6.4)	0.28 (7.1)	2.25 (57.2)	10.00 (254.0)	-325~800 (-198~426)	3,100 (213)	12,400 (854)	MH4
3/8 (9.7)	0.42 (10.6)	3.00 (76.2)	12.00 (305.0)		2,000 (137)	8,000 (551)	MH6
1/2 (12.7)	0.53 (13.5)	4.50 (114)	16.00 (406.0)		1,800 (124)	7,200 (496)	MH8

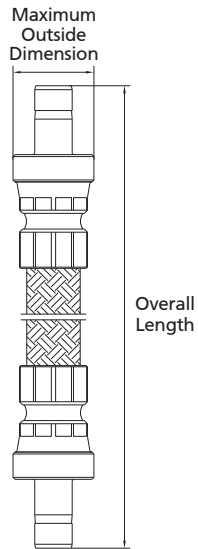
MM Series							
Nominal Hose Size	Inside Diameter	Min. Bend Radius		Temperature Range	Working Pressure at 70 °F (20 °C)	Burst Pressure at 70 °F (20 °C)	Series and Size Designator
		Annular Convolute Core					
		Static	Dynamic				
in. (mm)	in. (mm)	in. (mm)	in. (mm)	°F (°C)	psig (bar)	psig (bar)	
1/4 (6.4)	0.25 (6.4)	0.79 (20.0)	4.33 (110.0)	-325~800 (-198~426)	1,600 (110)	6,400 (440)	MM4
3/8 (9.7)	0.37 (9.5)	0.98 (25.0)	5.91 (150.0)		1,470 (101)	6,000 (413)	MM6
1/2 (12.7)	0.50 (12.7)	1.18 (30.0)	4.88 (124.0)		1,110 (76.4)	4,500 (310)	MM8

Ordering Information and Dimensions



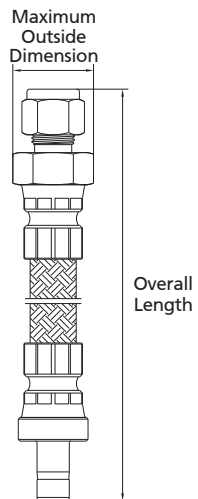
Tube Fitting End

Ordering Number	Nominal Hose Size	Tube Fitting Size	Overall Length	Minimum Inside Diameter	Maximum Outside Dimension
		in.	in. (mm)	in. (mm)	in. (mm)
SS-MH4-FL4-F24-HG	1/4	1/4	24.00 (610.0)	0.19 (4.8)	0.94 (23.8)
SS-MM4-FL4-F36-R-HG			36.00 (914.0)	0.19 (4.8)	0.87 (22.0)
SS-MH4-FL4-M1000-HG			39.40 (1,000.0)	0.19 (4.8)	0.94 (23.8)
SS-MH6-FL6-F24-HG	3/8	3/8	24.00 (610.0)	0.28 (7.1)	1.09 (27.7)
SS-MM6-FL6-F36-R-HG			36.00 (914.0)	0.28 (7.1)	1.01 (25.7)
SS-MM6-FL6-M1000-R-HG			39.40 (1,000.0)	0.28 (7.1)	1.01 (25.7)
SS-MH8-FL8-F24-HG	1/2	1/2	24.00 (610.0)	0.41 (10.4)	1.30 (33.1)
SS-MM8-FL8-F36-R-HG			36.00 (914.0)	0.41 (10.4)	1.15 (29.3)
SS-MH8-FL8-M1000-HG			39.40 (1,000.0)	0.41 (10.4)	1.30 (33.1)



Tube Adapter End

Ordering Number	Nominal Hose Size	Tube Adapter Size	Overall Length	Minimum Inside Diameter	Maximum Outside Dimension
		in.	in. (mm)	in. (mm)	in. (mm)
SS-MH4-FT4-F24-HG	1/4	1/4	24.00 (610.0)	0.17 (4.3)	0.81 (20.6)
SS-MM4-FT4-F36-R-HG			36.00 (914.0)	0.17 (4.3)	0.76 (19.2)
SS-MH4-FT4-M1000-HG			39.40 (1,000.0)	0.17 (4.3)	0.81 (20.6)
SS-MH6-FT6-F24-HG	3/8	3/8	24.00 (610.0)	0.27 (6.8)	1.01 (25.6)
SS-MM6-FT6-F36-R-HG			36.00 (914.0)	0.27 (6.8)	0.91 (23.1)
SS-MM6-FT6-M1000-R-HG			39.40 (1,000.0)	0.27 (6.8)	0.91 (23.1)
SS-MH8-FT8-F24-HG	1/2	1/2	24.00 (610.0)	0.37 (9.4)	1.14 (29.0)
SS-MM8-FT8-F36-R-HG			36.00 (914.0)	0.37 (9.4)	1.02 (26.0)
SS-MH8-FT8-M1000-HG			39.40 (1,000.0)	0.37 (9.4)	1.14 (29.0)



Tube Fitting to Tube Adapter End

Ordering Number	Nominal Hose Size	Tube Fitting Size	Overall Length	Minimum Inside Diameter	Maximum Outside Dimension
		in.	in. (mm)	in. (mm)	in. (mm)
SS-MH4-FL4-FT4-F24-HG	1/4	1/4	24.00 (610.0)	0.17 (4.3)	0.94 (23.8)
SS-MM4-FL4-FT4-F36-R-HG			36.00 (914.0)	0.37 (9.4)	1.30 (33.1)
SS-MH8-FL8-FT8-M1000-HG	1/2	1/2	39.40 (1,000.0)	0.17 (4.3)	0.87 (22.0)
SS-MM8-FL8-FT8-M1000-R-HG			39.40 (1,000.0)	0.37 (9.4)	1.15 (29.3)

TMP Series Tubing

Features

- FITOK Enhanced-316/316L stainless steel with Ni_{eq} not less than 28.5% provides better resistance to hydrogen embrittlement
- Complies with ASTM A269/ASTM A213
- Working temperature: -325 to 1000 °F (-198 to 537 °C)
- Standard lengths: 10 ft, 20 ft, 1 m, 2 m, 3 m and 6 m; customized lengths are also available



Materials

UNS	Grade	FITOK Designator	Composition %			
			C	Cr	Ni	Mo
Enhanced-S31600/S31603	Enhanced-316/316L	SH	≤0.030	17-18	12-14	2.6-3.0

Mechanical Properties

UNS	Grade	Yield Strength ksi (MPa)	Tensile Strength ksi (MPa)	Elongation %	Hardness	
					TMP Series	TMP series with "-AT" suffix in part number
Enhanced-S31600/S31603	Enhanced-316/316L	≥30 (205)	≥75 (515)	≥35	≤80 HRB	72-78 HRB

Dimensional Tolerance

Tube O.D. (D) in. (mm)	O.D. Tolerance, in. (mm)		Wall Thickness Tolerance %
	TMP Series	TMP series with "-AT" suffix in part number	
3/32 (2.38) ≤ D < 3/16 (4.76)	+0.003 (0.08)/-0	+/-0.002 (0.05)	+/-10
3/16 (4.76) ≤ D ≤ 1 (25.4)	+/-0.004 (0.10)		

Ordering Information

To order a TMP series tube with "-AT" suffix in part number, add "-AT" suffix at the end of the standard ordering number.

Ordering Number ^①		Tube O.D.	Wall Thickness	Working Pressure psig (bar)
SH-TMP-4-035-20F	SH-TMP-4-035-6M	1/4"	0.035"	5,100 (350)
SH-TMP-4-049-20F	SH-TMP-4-049-6M	1/4"	0.049"	7,500 (517)
SH-TMP-5-049-20F	SH-TMP-5-049-6M	5/16"	0.049"	5,800 (400)
SH-TMP-6-065-20F	SH-TMP-6-065-6M	3/8"	0.065"	6,500 (448)
SH-TMP-8-065-20F	SH-TMP-8-065-6M	1/2"	0.065"	5,100 (352)
SH-TMP-8-083-20F	SH-TMP-8-083-6M	1/2"	0.083"	6,700 (462)
SH-TMP-10-083-20F	SH-TMP-10-083-6M	5/8"	0.083"	5,200 (359)
—	SH-TMP-6MM-1.0-6M	6 mm	1.0 mm	6,090 (420)
—	SH-TMP-8MM-1.2-6M	8 mm	1.2 mm	5,655 (390)
—	SH-TMP-8MM-1.5-6M	8 mm	1.5 mm	7,540 (520)
—	SH-TMP-10MM-1.5-6M	10 mm	1.5 mm	5,800 (400)
—	SH-TMP-12MM-2.0-6M	12 mm	2.0 mm	6,815 (470)
—	SH-TMP-14MM-2.0-6M	14 mm	2.0 mm	5,510 (380)
—	SH-TMP-15MM-2.0-6M	15 mm	2.0 mm	5,220 (360)
—	SH-TMP-16MM-2.5-6M	16 mm	2.5 mm	5,800 (400)

① In the ordering number, "6M" designator refers to 6 m tubing length and "20F" designator refers to 20 ft tubing length.

TCT Series Tubing

Features

- FITOK Enhanced-316/316L stainless steel with Ni_{eq} not less than 28.5% provides better resistance to hydrogen embrittlement
- Complies with ASTM A269
- Working temperature: -325 to 1,000 °F (-198 to 537 °C)



Materials

UNS	Grade	FITOK Designator	Composition %			
			C	Cr	Ni	Mo
Enhanced-S31600/S31603	Enhanced-316/316L	SH	≤0.030	17-18	12-14	2.6-3.0

Mechanical Properties

UNS	Grade	Yield Strength ksi (MPa)	Tensile Strength ksi (MPa)	Elongation %	Hardness	
					TCT Series	TCT series with "-AT" suffix in part number
Enhanced-S31600/S31603	Enhanced-316/316L	≥30 (205)	≥75 (515)	≥35	≤80 HRB	72-78 HRB

Dimensional Tolerance

Tube O.D. (D) in. (mm)	O.D. Tolerance, in. (mm)		Wall Thickness Tolerance %
	TCT Series	TCT series with "-AT" suffix in part number	
3/32 (2.38) ≤ D < 3/16 (4.76)	+0.003 (0.08)/-0	+/-0.002 (0.05)	+/-10
3/16 (4.76) ≤ D ≤ 1 (25.4)	+/-0.004 (0.10)		

Ordering Information

To order a TCT series tube with "-AT" suffix in part number, add "-AT" suffix at the end of the standard ordering number.

Ordering Number ^①	Tube O.D.	Wall Thickness	Working Pressure psig (bar)
SH-TCT-4-035-CL11F	1/4"	0.035"	5,100 (350)
SH-TCT-4-049-CL11F	1/4"	0.049"	7,500 (517)
SH-TCT-6-065-CL11F	3/8"	0.065"	6,500 (448)
SH-TCT-8-065-CL11F	1/2"	0.065"	5,100 (352)
SH-TCT-8-083-CL11F	1/2"	0.083"	6,700 (462)
SH-TCT-6MM-1.0-CL11M	6 mm	1.0 mm	6,090 (420)
SH-TCT-8MM-1.2-CL11M	8 mm	1.2 mm	5,655 (390)
SH-TCT-8MM-1.5-CL11M	8 mm	1.5 mm	7,540 (520)
SH-TCT-10MM-1.5-CL11M	10 mm	1.5 mm	5,800 (400)
SH-TCT-12MM-2.0-CL11M	12 mm	2.0 mm	6,815 (470)

① In ordering number, "CL11F" and "CL11M" designators refers to random length grade, which are detailed in Tubing catalog.

Products for Hydrogen Applications up to 20,000 psig (1,379 bar)

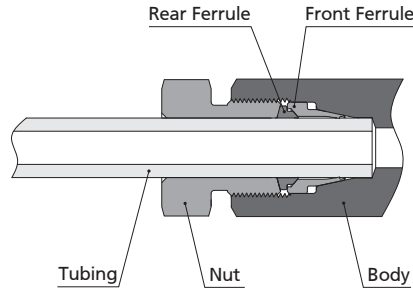




20D Series Tube Fittings

Features

- ⦿ EC79 certified
- ⦿ Long tube-support area provides better vibration resistance
- ⦿ The dimension tolerance and hardness variation are smaller than those of the normal tube fittings. It enables the tube fitting for hydrogen applications can be assembled by torque or turns optional
- ⦿ When assembled by torque with FITOK specially made tubing with "-AT" suffix in part number, gap gauge is governing



Technical Data

Body Material	Cold-drawn hard 316/316L SS
Max. Working Pressure	Tube: 20,000 psig (1,379 bar) NPT: 15,000 psig (1,034 bar)
Working Temperature	Tube: -325~800 °F (-198~427 °C) NPT: -325~400 °F (-198~204 °C)

Matching Tubing

For 20D series tube fittings with "-EC79" or "-HG" suffix in part number, the matching tubing is as follows.

Tubing Type	Features
FITOK specially made tubing (T20D series with "-AT" suffix in part number)	The dimension tolerance and hardness variation are controlled smaller than those of T20D series tubing. Allow for assembly by torque or by turns. The gap gauge is always governing.
T20D series cold-drawn 1/8-hard tubing	Allow for assembly by torque or by turns. The gap gauge is governing just when assembled by turns.
T15A series anneal tubing	Don't allow for assembly by torque. Just allow for assembly by turns. The gap gauge is governing.

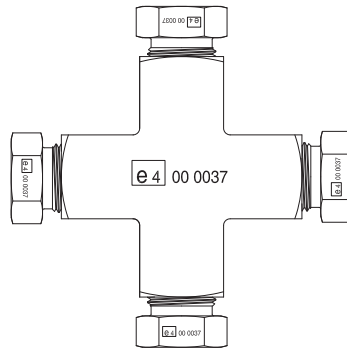
Note: 20D series tube fittings can work with cone & thread tubing (T20M series), even if it's not the best match. It can be installed by turns but not governed by gap gauge.

Materials

Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
ASTM 316 SS	16-18	10-14	2.0-3.0	>22.4

Ordering Information and Marking

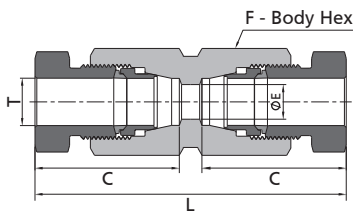
To order a fitting with EC79 certification, add “-EC79” suffix to the standard ordering number. The marking on the fitting is shown as follows:



Marking on EC79 Certified Tube Fittings

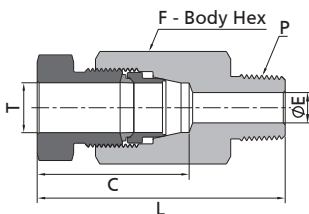
To order a fitting complying with EC79 but without third party certification, add “-HG” suffix to the standard ordering number. The marking on the fitting is the same as FITOK standard tube fittings. The complete ordering number is labeled on the packing box.

Unions



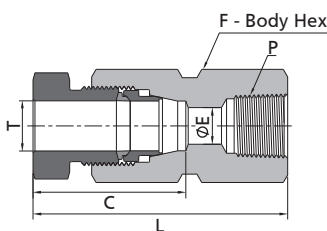
Tube		Dimensions, in. (mm)			
Basic Ordering Number	T-Tube O.D. in.	L	C	E	F
		SS-DU-DFF4-	1/4	3.00 (76.2)	1.38 (35.2)
SS-DU-DFF6-	3/8	3.07 (77.9)	1.42 (36.1)	0.25 (6.4)	0.75 (19.1)
SS-DU-DFF8-	1/2	3.36 (85.4)	1.56 (39.6)	0.37 (9.5)	1.00 (25.4)

Male Connectors



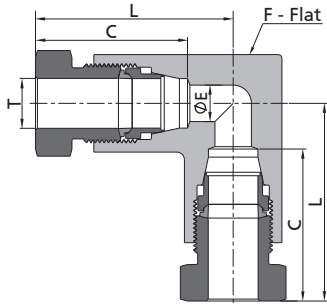
Tube to NPT Thread		Dimensions, in. (mm)				
Basic Ordering Number	T-Tube O.D. in.	P-NPT Size	L	C	E	F
			SS-DCM-DFF4-NS4-	1/4	1/4	2.08 (52.8)
SS-DCM-DFF4-NS6-	1/4	3/8	2.08 (52.8)	1.39 (35.2)	0.19 (4.8)	0.69 (17.5)
SS-DCM-DFF4-NS8-	1/4	1/2	2.32 (59.0)	1.39 (35.2)	0.19 (4.8)	0.87 (22.2)
SS-DCM-DFF6-NS4-	3/8	1/4	2.17 (55.1)	1.42 (36.1)	0.25 (6.4)	0.75 (19.1)
SS-DCM-DFF6-NS6-	3/8	3/8	2.17 (55.1)	1.42 (36.1)	0.25 (6.4)	0.75 (19.1)
SS-DCM-DFF6-NS8-	3/8	1/2	2.30 (58.3)	1.42 (36.1)	0.25 (6.4)	0.87 (22.2)
SS-DCM-DFF8-NS4-	1/2	1/4	2.53 (64.3)	1.56 (39.6)	0.25 (6.4)	1.00 (25.4)
SS-DCM-DFF8-NS6-	1/2	3/8	2.53 (64.3)	1.56 (39.6)	0.31 (7.9)	1.00 (25.4)
SS-DCM-DFF8-NS8-	1/2	1/2	2.65 (67.4)	1.56 (39.6)	0.37 (9.5)	1.00 (25.4)

Female Connectors



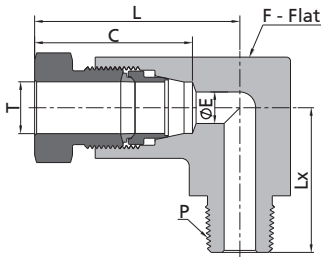
Tube to NPT Thread		Dimensions, in. (mm)				
Basic Ordering Number	T-Tube O.D. in.	P-NPT Size	L	C	E	F
			SS-DCF-DFF4-FNS4-	1/4	1/4	2.33 (59.1)
SS-DCF-DFF6-FNS4-	3/8	1/4	2.29 (58.1)	1.42 (36.1)	0.25 (6.4)	0.94 (23.8)
SS-DCF-DFF8-FNS4-	1/2	1/4	2.78 (70.6)	1.56 (39.6)	0.37 (9.5)	1.00 (25.4)
SS-DCF-DFF8-FNS8-	1/2	1/2	3.03 (77.0)	1.56 (39.6)	0.37 (9.5)	1.38 (34.9)

Union Elbows



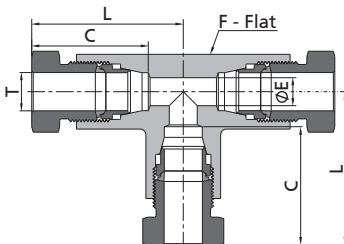
Tube		Dimensions, in. (mm)			
Basic Ordering Number	T-Tube O.D. in.	L	C	E	F
		SS-DLU-DFF4-	1/4	1.70 (43.1)	1.38 (35.2)
SS-DLU-DFF6-	3/8	1.67 (42.4)	1.42 (36.1)	0.25 (6.4)	0.75 (19.1)
SS-DLU-DFF8-	1/2	2.03 (51.6)	1.56 (39.6)	0.37 (9.5)	1.00 (25.4)

Male Elbows



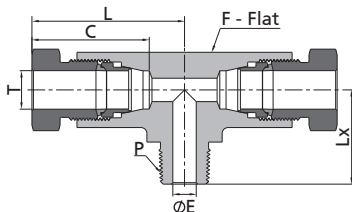
Tube to NPT Thread		Dimensions, in. (mm)					
Basic Ordering Number	T-Tube O.D. in.	P-NPT Size	L	Lx	C	E	F
			SS-DLM-DFF4-NS4-	1/4	1/4	1.70 (43.1)	0.94 (23.8)
SS-DLM-DFF4-NS6-	1/4	3/8	1.70 (43.1)	1.00 (25.4)	1.38 (35.2)	0.19 (4.8)	0.75 (19.1)
SS-DLM-DFF4-NS8-	1/4	1/2	1.70 (43.1)	1.38 (34.9)	1.38 (35.2)	0.19 (4.8)	1.00 (25.4)
SS-DLM-DFF6-NS4-	3/8	1/4	1.67 (42.4)	1.00 (25.4)	1.42 (36.1)	0.25 (6.4)	0.75 (19.1)
SS-DLM-DFF6-NS6-	3/8	3/8	1.67 (42.4)	1.06 (27.0)	1.42 (36.1)	0.25 (6.4)	0.75 (19.1)
SS-DLM-DFF6-NS8-	3/8	1/2	1.67 (42.4)	1.38 (34.9)	1.42 (36.1)	0.25 (6.4)	1.00 (25.4)
SS-DLM-DFF8-NS4-	1/2	1/4	2.03 (51.6)	1.19 (30.2)	1.56 (39.6)	0.25 (6.4)	1.00 (25.4)
SS-DLM-DFF8-NS6-	1/2	3/8	2.03 (51.6)	1.19 (30.2)	1.56 (39.6)	0.31 (7.9)	1.00 (25.4)
SS-DLM-DFF8-NS8-	1/2	1/2	2.03 (51.6)	1.38 (34.9)	1.56 (39.6)	0.37 (9.5)	1.00 (25.4)

Union Tees



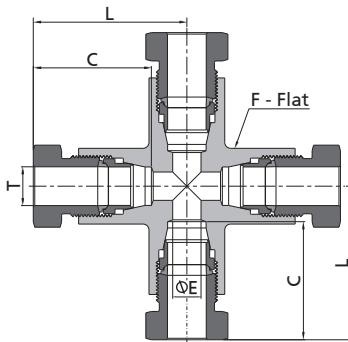
Tube		Dimensions, in. (mm)			
Basic Ordering Number	T-Tube O.D. in.	L	C	E	F
		SS-DT-DFF4-	1/4	1.70 (43.1)	1.38 (35.2)
SS-DT-DFF6-	3/8	1.67 (42.4)	1.42 (36.1)	0.25 (6.4)	0.75 (19.1)
SS-DT-DFF8-	1/2	2.03 (51.6)	1.56 (39.6)	0.37 (9.5)	1.00 (25.4)

Male Branch Tees



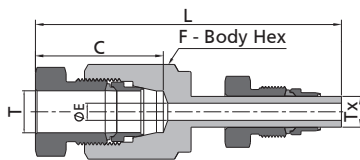
Tube to NPT Thread		Dimensions, in. (mm)					
Basic Ordering Number	T-Tube O.D. in.	P-NPT Size	L	Lx	C	E	F
			SS-DT-DFF4-DFF4-NS4-	1/4	1/4	1.70 (43.1)	1.00 (25.4)
SS-DT-DFF6-DFF6-NS4-	3/8	1/4	1.67 (42.4)	1.06 (27.0)	1.42 (36.1)	0.25 (6.4)	0.75 (19.1)
SS-DT-DFF8-DFF8-NS4-	1/2	1/4	2.03 (51.6)	1.19 (30.2)	1.56 (39.6)	0.25 (6.4)	1.00 (25.4)
SS-DT-DFF8-DFF8-NS6-	1/2	3/8	2.03 (51.6)	1.19 (30.2)	1.56 (39.6)	0.31 (7.9)	1.00 (25.4)

Union Crosses



Tube		Dimensions, in. (mm)			
Basic Ordering Number	T-Tube O.D. in.	L	C	E	F
		SS-DX-DFF4-	1/4	1.70 (43.1)	1.38 (35.2)
SS-DX-DFF6-	3/8	1.67 (42.4)	1.42 (36.1)	0.25 (6.4)	0.75 (19.1)
SS-DX-DFF8-	1/2	2.03 (51.6)	1.56 (39.6)	0.37 (9.5)	1.00 (25.4)

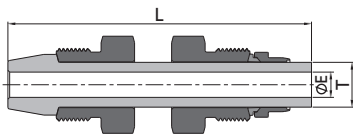
Reducers



Tube			Dimensions, in. (mm)			
Basic Ordering Number	T-Tube O.D. in.	Tx-Tube O.D. in.	L	C	E	F
			SS-DR-DFF4-DFT6-	1/4	3/8	3.20 (82.1)
SS-DR-DFF6-DFT8-	3/8	1/2	3.43 (87.1)	1.42 (36.1)	0.25 (6.4)	0.75 (19.1)
SS-DR-DFF8-DFT6-	1/2	3/8	3.53 (89.7)	1.56 (39.6)	0.21 (5.3)	1.00 (25.4)

The right ends of reducers will be preassembled with ferrules before ex-work.

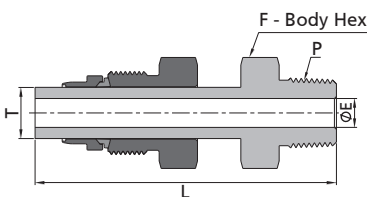
Port Connectors



Tube		Dimensions, in. (mm)	
Basic Ordering Number	T-Tube O.D. in.	L	E
		SS-DP-DFF4-	1/4
SS-DP-DFF6-	3/8	2.72 (69.0)	0.21 (5.3)
SS-DP-DFF8-	1/2	3.04 (77.3)	0.28 (7.1)

The ferrules and nuts are included and pre-assembled before ex-work.

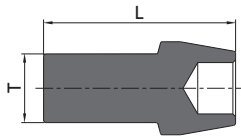
Adapters



Tube to NPT Thread				Dimensions, in. (mm)		
Basic Ordering Number	T-Tube O.D. in.	P-NPT Size	L	E	F	
			SS-DAM-DFT4-NS4-	1/4	1/4	2.30 (58.5)
SS-DAM-DFT6-NS4-	3/8	1/4	2.38 (60.4)	0.21 (5.3)	0.56 (14.3)	
SS-DAM-DFT6-NS8-	3/8	1/2	2.67 (67.9)	0.21 (5.3)	0.87 (22.2)	
SS-DAM-DFT8-NS4-	1/2	1/4	2.55 (64.8)	0.25 (6.4)	0.56 (14.3)	
SS-DAM-DFT8-NS8-	1/2	1/2	2.84 (72.2)	0.28 (7.1)	0.87 (22.2)	

The ferrules and nuts are included and pre-assembled before ex-work.

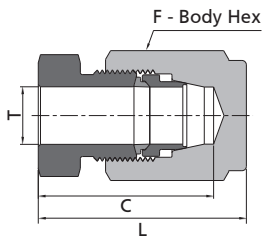
Plugs



Tube		
Basic Ordering Number	T-Tube O.D. in.	Dimensions, in. (mm)
		L
SS-TP-DFF4-	1/4	1.20 (30.4)
SS-TP-DFF6-	3/8	1.19 (30.2)
SS-TP-DFF8-	1/2	1.36 (34.6)

When using a plug, ferrules are not required.

Caps



Tube				
Basic Ordering Number	T-Tube O.D. in.	Dimensions, in. (mm)		
		L	C	F
SS-DTC-DFF4-	1/4	1.70 (43.1)	1.38 (35.2)	0.63 (15.9)
SS-DTC-DFF6-	3/8	1.76 (44.8)	1.42 (36.1)	0.75 (19.1)
SS-DTC-DFF8-	1/2	1.85 (47.0)	1.56 (39.6)	1.00 (25.4)

PMH Series Pipe Fittings

Features

- ⦿ Rolled male thread provides higher strength and hardness
- ⦿ Higher working pressures on standard pipe fitting sizes

Technical Data

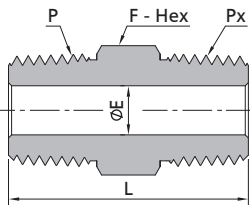
Body Material	Cold-drawn hard 316/316L SS
Max. Working Pressure	15,000 psig (1,034 bar)
Working Temperature	-325~400 °F (-198~204 °C)

Materials

Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
ASTM 316 SS	16-18	10-14	2.0-3.0	>22.4

Ordering Information and Dimensions

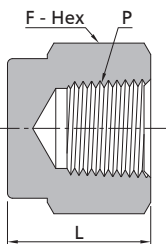
Hex Nipples



Male NPT Thread

Ordering Number	P-NPT Size	Px-NPT Size	Dimensions, in. (mm)		
			L	F	E
SS-HPN-NS4-HG	1/4	1/4	1.47 (37.4)	0.56 (14.3)	0.25 (6.4)
SS-HPN-NS6-HG	3/8	3/8	1.52 (38.6)	0.69 (17.5)	0.31 (7.9)
SS-HPN-NS8-HG	1/2	1/2	1.95 (49.6)	0.87 (22.2)	0.38 (9.6)

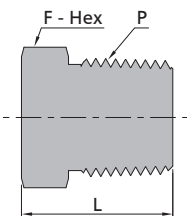
Pipe Caps



Female NPT Thread

Ordering Number	P-NPT Size	Dimensions, in. (mm)	
		L	F
SS-HPC-FNS4-HG	1/4	0.91 (23.1)	0.94 (23.8)
SS-HPC-FNS6-HG	3/8	1.03 (26.2)	1.13 (28.6)
SS-HPC-FNS8-HG	1/2	1.34 (34.0)	1.37 (34.9)

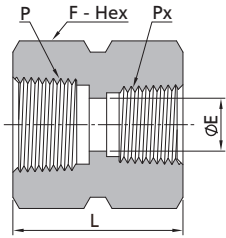
Pipe Plugs



Male NPT Thread

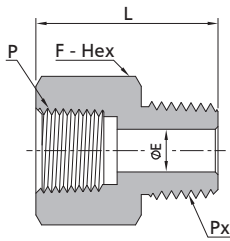
Ordering Number	P-NPT Size	Dimensions, in. (mm)	
		L	F
SS-HPP-NS4-HG	1/4	0.87 (22.2)	0.56 (14.3)
SS-HPP-NS6-HG	3/8	0.93 (23.6)	0.69 (17.5)
SS-HPP-NS8-HG	1/2	1.16 (29.5)	0.87 (22.2)

Hex Couplings



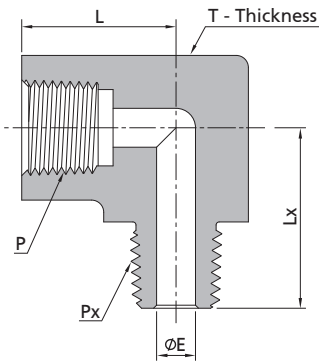
Female NPT Thread					
Ordering Number	P-NPT Size	Px-NPT Size	Dimensions, in. (mm)		
			L	E	F
SS-HPG-FNS4-HG	1/4	1/4	1.32 (33.5)	0.41 (10.4)	0.94 (23.8)
SS-HPG-FNS6-HG	3/8	3/8	1.32 (33.5)	0.54 (13.8)	1.13 (28.6)
SS-HPG-FNS8-HG	1/2	1/2	1.72 (43.8)	0.67 (17.0)	1.37 (34.9)

Adapters



Female NPT Thread to Male NPT Thread					
Ordering Number	P-NPT Size	Px-NPT Size	Dimensions, in. (mm)		
			L	E	F
SS-HPA-FNS4-NS4-HG	1/4	1/4	1.37 (34.9)	0.25 (6.4)	0.94 (23.8)
SS-HPA-FNS4-NS6-HG	1/4	3/8	1.37 (34.9)	0.31 (7.9)	0.94 (23.8)
SS-HPA-FNS6-NS4-HG	3/8	1/4	1.42 (36.0)	0.25 (6.4)	1.13 (28.6)
SS-HPA-FNS6-NS6-HG	3/8	3/8	1.42 (36.0)	0.31 (7.9)	1.13 (28.6)
SS-HPA-FNS6-NS8-HG	3/8	1/2	1.61 (41.0)	0.38 (9.6)	1.13 (28.6)
SS-HPA-FNS8-NS6-HG	1/2	3/8	1.72 (43.1)	0.31 (7.9)	1.37 (34.9)
SS-HPA-FNS8-NS8-HG	1/2	1/2	1.89 (48.0)	0.38 (9.6)	1.37 (34.9)

Street Elbows



Female NPT Thread to Male NPT Thread						
Ordering Number	P-NPT Size	Px-NPT Size	Dimensions, in. (mm)			
			L	E	Lx	T
SS-HPE-FNS4-NS4-HG	1/4	1/4	1.00 (25.4)	0.25 (6.4)	1.06 (27.0)	0.75 (19.1)
SS-HPE-FNS4-NS6-HG	1/4	3/8	1.00 (25.4)	0.31 (7.9)	1.06 (27.0)	0.75 (19.1)
SS-HPE-FNS6-NS6-HG	3/8	3/8	1.20 (30.6)	0.31 (7.9)	1.20 (30.6)	1.00 (25.4)
SS-HPE-FNS6-NS8-HG	3/8	1/2	1.20 (30.6)	0.38 (9.6)	1.38 (35.0)	1.00 (25.4)
SS-HPE-FNS8-NS8-HG	1/2	1/2	1.50 (38.1)	0.38 (9.6)	1.61 (40.8)	1.37 (34.9)

AMH Series Adapter Fittings

Feature

- Available for a variety of connection types

Technical Data

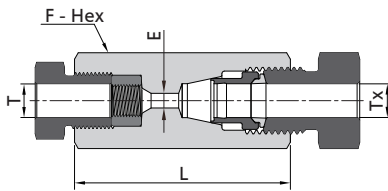
Body Material	Cold-drawn hard 316/316L SS
Max. Working Pressure	NPT: 15,000 psig (1,034 bar) Tube: 20,000 psig (1,379 bar)
Working Temperature	NPT: -325~400 °F (-198~204 °C) Tube: -325~800 °F (-198~427 °C)

Materials

Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
ASTM 316 SS	16-18	10-14	2.0-3.0	>22.4

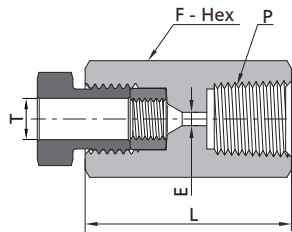
Ordering Information and Dimensions

20M Series Medium Pressure Fittings to 20D Series Tube Fittings



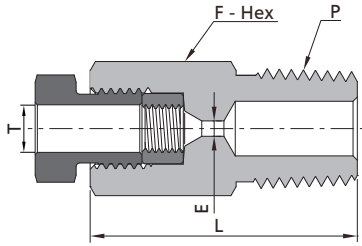
Ordering Number	T-Tube O.D. in.	Tx-Tube O.D. in.	Dimensions, in. (mm)		
			L	E	F
SS-FFC-MF4-DFF4-HG	1/4	1/4	1.67 (42.3)	0.11 (2.8)	0.63 (15.9)
SS-FFC-MF4-DFF6-HG	1/4	3/8	1.76 (44.7)	0.11 (2.8)	0.75 (19.1)
SS-FFC-MF6-DFF4-HG	3/8	1/4	1.85 (47.1)	0.19 (4.8)	0.75 (19.1)
SS-FFC-MF6-DFF6-HG	3/8	3/8	1.89 (47.9)	0.20 (5.2)	0.75 (19.1)
SS-FFC-MF6-DFF8-HG	3/8	1/2	2.06 (52.2)	0.20 (5.2)	1.00 (25.4)
SS-FFC-MF9-DFF6-HG	9/16	3/8	2.07 (52.6)	0.25 (6.4)	1.00 (25.4)
SS-FFC-MF9-DFF8-HG	9/16	1/2	2.24 (57.0)	0.31 (7.9)	1.00 (25.4)

20M Series Medium Pressure Fittings to Female NPT



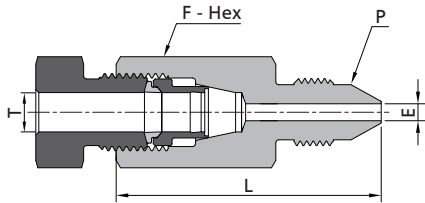
Ordering Number	T-Tube O.D. in.	P-NPT Size	Dimensions, in. (mm)		
			L	E	F
SS-FFC-MF4-FNS4-HG	1/4	1/4	1.63 (41.3)	0.11 (2.8)	0.94 (23.8)
SS-FFC-MF4-FNS6-HG	1/4	3/8	1.63 (41.3)	0.11 (2.8)	1.13 (28.6)
SS-FFC-MF6-FNS4-HG	3/8	1/4	1.75 (44.5)	0.20 (5.1)	0.94 (23.8)
SS-FFC-MF6-FNS6-HG	3/8	3/8	1.81 (46.0)	0.20 (5.1)	1.13 (28.6)
SS-FFC-MF6-FNS8-HG	3/8	1/2	2.13 (54.0)	0.20 (5.1)	1.37 (34.9)
SS-FFC-MF9-FNS6-HG	9/16	3/8	2.00 (50.8)	0.31 (7.9)	1.13 (28.6)
SS-FFC-MF9-FNS8-HG	9/16	1/2	2.25 (57.2)	0.31 (7.9)	1.37 (34.9)

20M Series Medium Pressure Fittings to Male NPT



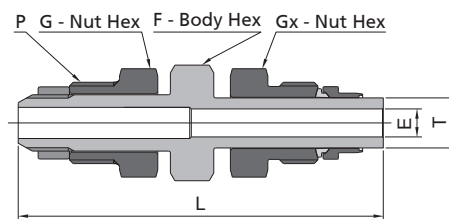
20M Series Medium Pressure Fittings to Male NPT						
Ordering Number	T-Tube O.D. in.	P-NPT Size	Dimensions, in. (mm)			
			L	E	F	
SS-FMA-MF4-NS4-HG	1/4	1/4	1.37 (34.9)	0.11 (2.8)	0.63 (15.9)	
SS-FMA-MF4-NS6-HG	1/4	3/8	1.37 (34.9)	0.11 (2.8)	0.69 (17.5)	
SS-FMA-MF6-NS4-HG	3/8	1/4	1.50 (38.1)	0.20 (5.2)	0.75 (19.1)	
SS-FMA-MF6-NS6-HG	3/8	3/8	1.50 (38.1)	0.20 (5.2)	0.75 (19.1)	
SS-FMA-MF6-NS8-HG	3/8	1/2	1.63 (41.3)	0.20 (5.2)	0.87 (22.2)	
SS-FMA-MF9-NS6-HG	9/16	3/8	1.75 (44.5)	0.31 (7.9)	1.00 (25.4)	
SS-FMA-MF9-NS8-HG	9/16	1/2	1.94 (49.2)	0.31 (7.9)	1.00 (25.4)	

20D Series Tube Fittings to Male Medium Pressure



20D Series Tube Fittings to Male Medium Pressure						
Ordering Number	T-Tube O.D. in.	P-Size	Dimensions, in. (mm)			
			L	E	F	
SS-FMA-DFF4-MM4-HG	1/4	1/4	1.67 (42.3)	0.11 (2.8)	0.63 (15.9)	
SS-FMA-DFF4-MM6-HG	1/4	3/8	1.79 (45.5)	0.19 (4.8)	0.63 (15.9)	
SS-FMA-DFF6-MM4-HG	3/8	1/4	1.82 (46.3)	0.11 (2.8)	0.75 (19.1)	
SS-FMA-DFF6-MM6-HG	3/8	3/8	1.89 (47.9)	0.20 (5.2)	0.75 (19.1)	
SS-FMA-DFF6-MM9-HG	3/8	9/16	1.94 (49.4)	0.25 (6.4)	0.94 (23.8)	
SS-FMA-DFF8-MM6-HG	1/2	3/8	2.12 (53.8)	0.20 (5.2)	1.00 (25.4)	
SS-FMA-DFF8-MM9-HG	1/2	9/16	2.24 (57.0)	0.31 (7.9)	1.00 (25.4)	

Split Male Medium Pressure to Split Male 20D Series Tube Fittings



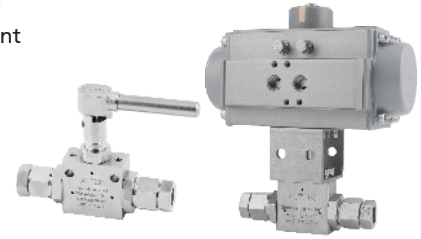
Split Male Medium Pressure to Split Male 20D Series Tube Fittings ^①							
Ordering Number	T-Tube O.D. in.	P-Size	Dimensions, in. (mm)				
			L	E	F	G	Gx
SS-MMA-MCT4-DFT4-HG	1/4	1/4	2.70 (68.7)	0.11 (2.8)	0.63 (15.9)	0.50 (12.7)	0.63 (15.9)
SS-MMA-MCT6-DFT6-HG	3/8	3/8	3.15 (80.1)	0.20 (5.2)	0.75 (19.1)	0.63 (15.9)	0.75 (19.1)
SS-MMA-MCT9-DFT8-HG	1/2	9/16	3.65 (92.6)	0.28 (7.1)	1.00 (25.4)	0.94 (23.8)	0.94 (23.8)
SS-MMA-MCT12-DFT12-HG	3/4	3/4	5.98 (152.0)	0.44 (11.1)	1.50 (38.1)	1.19 (30.2)	1.38 (34.9)

① The right ends of the adaptor will be preassembled with ferrules before shipping, please follow the Reinstallation Instructions in H-06 when installing the adaptors.

15B Series Ball Valves

Features

- Coned-disc spring loaded seat structure to offer sufficient and stable initial sealing force
- Stem designed with XM-19 material to offer higher strength and hydrogen embrittlement resistance
- Seat designed with PEEK+30% carbon fiber to provide better erosion resistance and high temperature resistance
- EPDM O-ring with excellent low temperature resistance and burst resistance, applied for harsh working conditions, such as low temperature and high pressure
- Pneumatic actuator options available
- 100% of the valves leak tested with 10,150 psig (700 bar) hydrogen mixed gas



Technical Data

Max. Working Pressure	10152 psig at -40 °F (700 bar at -40 °C) 15000 psig at 185 °F (1034 bar at 85 °C)
Working Temperature	-40~185 °F (-40~85 °C)
Body Material	Cold-drawn hard 316/316L
Seat Material	PEEK+30% carbon fiber
O-ring	EPDM

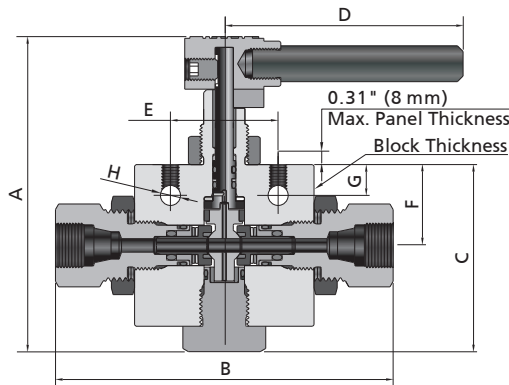
For service in other temperature ranges, please contact FITOK Group or an authorized FITOK distributor.

Materials

Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
ASTM 316 SS	16-18	10-14	2.0-3.0	>22.4

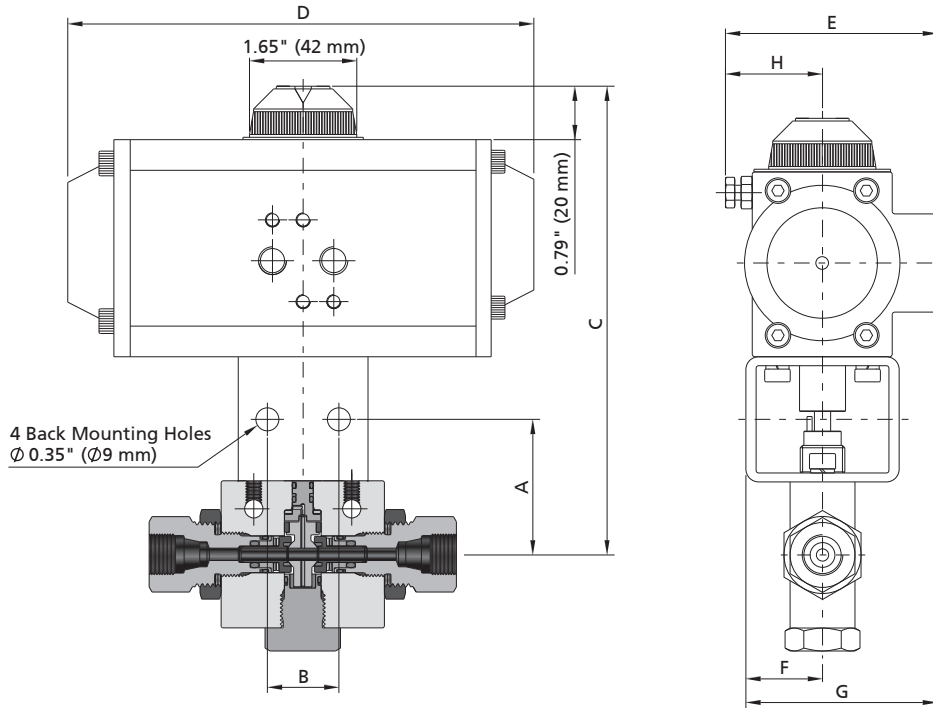
Ordering Information and Dimensions

Manual



Ordering Number	Connection Type and Size		Orifice in. (mm)	Cv	Dimensions, in. (mm)									
					A	B	C	D	E	F	G	H	Block Thickness	
15BSS-DFF4-4-1-HG	20D Series Tube Fittings	1/4"	0.19 (4.8)	1.27										
15BSS-DFF6-4-1-HG		3/8"	0.25 (6.4)	1.51	4.39 (111.5)	4.70 (119.5)	2.60 (66.2)	3.33 (84.5)	1.50 (38.1)	1.13 (28.6)	0.43 (10.9)	0.28 (7.1)	1.00 (25.4)	
15BSS-FNS4-4-1-HG	Female NPT	1/4	0.25 (6.4)	1.51										

Pneumatic Actuated



Ordering Number	Connection Type and Size		Orifice in. (mm)	Cv	Dimensions, in. (mm)							
					A	B	C	D	E	F	G	H
15BSS-DF4-4-1-O-HG	20D Series Tube Fittings	1/4"	0.19 (4.8)	1.27	2.09 (53.1)	1.10 (28)	7.19 (182.6)	6.04 (153.5)	3.33 (84.5)	1.18 (30)	3.09 (78.5)	1.42 (36)
15BSS-DF6-4-1-C-HG		3/8"	0.25 (6.4)	1.51								
15BSS-FNS4-4-1-D-HG	Female NPT	1/4	0.25 (6.4)	1.51								

Note: "-O", "-D", "-C" are designators for pneumatic actuator
 -O: 90° normally open pneumatic actuator;
 -C: 90° normally closed pneumatic actuator;
 -D: 90° double acting pneumatic actuator.

20N Series Needle Valves

Features

- ◎ XM-19 material applied for the lower stem to provide higher strength and hydrogen embrittlement resistance
- ◎ Specially treated surface of the stem tip provides better shut-off and sealing for hydrogen gas
- ◎ 100% of the valves leak tested with 10,150 psig (700 bar) hydrogen mixed gas



Technical Data

Needle Valve	
Max. Working Pressure	20,000 psig (1,379 bar)
Working Temperature	-40~450 °F (-40~232 °C)
Body Material	Cold-drawn hard 316/316L SS
Packing Material	PTFE

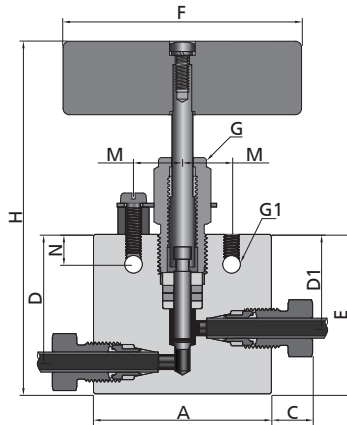
Actuator	
Max. Operating Pressure of Pneumatic Actuator	100 psig (6.9 bar)
Working Temperature	-10~200 °F (-23~93 °C)
Cylinder Material	Anodized Aluminum
O-ring Material	Buna N

Materials

Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
ASTM 316 SS	16-18	10-14	2.0-3.0	>22.4

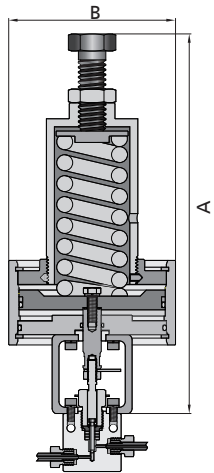
Ordering Information and Dimensions

Manual

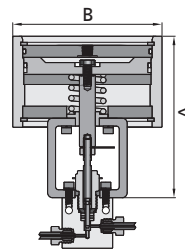


Ordering Number	Connection Type and Size		Orifice in. (mm)	Cv	Dimensions, in. (mm)											
					A	C	D	D1	E	F	G	G1	H	M	N	Block Thickness
20NSS-DFF4-1-HG	20D Series Tube Fittings	1/4"	0.19 (4.8)	0.65	2.33 (59.2)	0.52 (13.3)	1.62 (41.2)	1.19 (30.2)	2.00 (50.8)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	4.90 (124.5)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
20NSS-DFF6-1-HG		3/8"	0.25 (6.4)	0.95	2.27 (57.6)	0.54 (13.6)	1.62 (41.2)	1.19 (30.2)	2.00 (50.8)	3.00 (76.2)	0.75 (19.1)	0.22 (5.6)	4.97 (126.3)	0.62 (15.8)	0.38 (9.7)	0.75 (19.1)
20NSS-DFF8-1-HG		1/2"	0.37 (9.5)	1.90	2.86 (72.7)	0.60 (15.3)	2.37 (60.3)	1.75 (44.5)	2.88 (73.2)	4.00 (101.6)	1.00 (25.4)	0.34 (8.6)	6.21 (157.7)	0.69 (17.5)	0.50 (12.7)	1.00 (25.4)

Pneumatic Actuated



Normally Closed Pneumatic Actuator



Normally Open Pneumatic Actuator

Ordering Number	Connection Type and Size		Orifice in. (mm)	Cv	Area of Piston sq.in. (sq. cm)	Dimensions, in. (mm)	
						A	B
20NSS-DFF4-1-C-HG	20D Series Tube Fittings	1/4"	0.19 (4.8)	0.65	19.95 (128.7)	13.08 (332.3)	5.75 (146.0)
20NSS-DFF6-1-O-HG		3/8"	0.25 (6.4)	0.95	19.95 (128.7)	5.94 (151.0)	5.75 (146.0)
20NSS-DFF8-1-C-HG		1/2"	0.37 (9.5)	1.90	51.20 (330.3)	16.24 (412.5)	6.54 (166.0)

Note: "-C", "-O" are designators for pneumatic actuator
 -C: normally closed pneumatic actuator;
 -O: normally open pneumatic actuator.

20C Series Check Valves

Features

- ◎ Any mounting direction is acceptable
- ◎ 100% of the valves leak tested with 10,150 psig (700 bar) hydrogen mixed gas



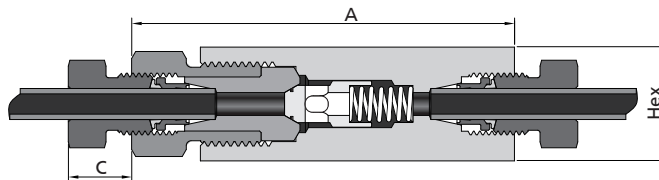
Technical Data

Max. Working Pressure	20,000 psig (1,379 bar)
Cracking pressure	14~26 psig (0.966~1.794 bar)
Working Temperature	-40~185 °F (-40~85 °C)
Body Material	Cold-drawn hard 316/316L SS
O-ring	EPDM

Materials

Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
ASTM 316 SS	16-18	10-14	2.0-3.0	>22.4

Ordering Information and Dimensions



Ordering Number	Connection Type and Size		Orifice in. (mm)	Cv	Dimensions, in. (mm)		
					A	C	Hex
20CSS-DFF4-HG	20D Series Tube Fittings	1/4"	0.19 (4.9)	0.63	3.35 (85.0)	0.52 (13.3)	0.81 (20.6)
20CSS-DFF6-HG		3/8"	0.25 (6.4)	1.70	3.72 (94.6)	0.53 (13.5)	1.00 (25.4)
20CSS-DFF8-HG		1/2"	0.36 (9.12)	3.40	4.41 (112.0)	0.60 (15.3)	1.38 (35.1)

HSR Series Relief Valves

Features

- ⦿ Soft seat design to provide bubble tight shut-off for gas applications
- ⦿ Set pressure can be customized
- ⦿ Mounting in any direction is acceptable
- ⦿ 100% of the valves is factory tested at the set pressure



Technical Data

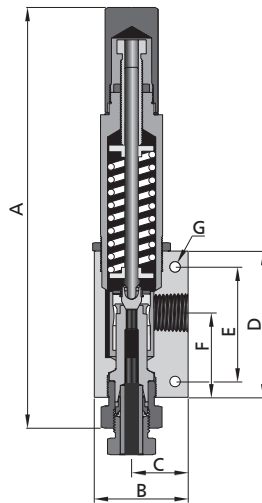
Max. Working Pressure	20,000 psig (1,379 bar)	
Set Pressure	HSRSS-DFF8-FNS12-1-HG	1,500~5,000 psig (103~345 bar)
	HSRSS-DFF8-FNS12-2-HG	5,000~10,000 psig (345~690 bar)
	HSRSS-DFF8-FNS12-3-HG	10,000~20,000 psig (690~1,379 bar)
Maximum Back Pressure	500 psig (34.5 bar)	
Working Temperature	-40~400 °F (-40~204 °C)	
Body Material	Cold-drawn hard 316/316L SS	

Materials

Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
ASTM 316 SS	16-18	10-14	2.0-3.0	>22.4

Ordering Information and Dimensions

Please specify the required set pressure when ordering. Maximum system operating pressure should not exceed 90% of the set pressure.



Ordering Number	Connection Type and Size				Orifice in. (mm)	Cv	Dimensions, in.(mm)						
	Inlet		Outlet				A	B	C	D	E	F	G
HSRSS-DFF8-FNS12-1-HG	20D Series Tube Fittings	1/2"	Female NPT	3/4	0.31 (7.9)	1.2	9.46 (240.4)	2.00 (50.8)	1.19 (30.2)	3.25 (82.6)	2.25 (57.1)	1.94 (49.3)	0.28 (7.2)
HSRSS-DFF8-FNS12-2-HG					0.25 (6.4)	0.8							
HSRSS-DFF8-FNS12-3-HG					0.16 (4.0)	0.3							

Note: G is the diameter of mounting holes.

20FC Series Filters

Features

- ⦿ Cup design offers approximately six times the effective filter area of disc-type units
- ⦿ Easy to replace filter element
- ⦿ Pressure differential less than 1,000 psig (69 bar) in a flowing condition
- ⦿ 5 μm element nominal pore size as standard, other sizes available upon request



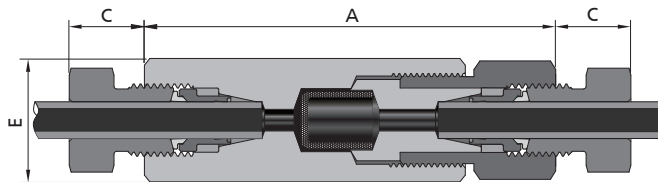
Technical Data

Max. Working Pressure	20,000 psig (1,379 bar)
Working Temperature	-60~400 °F (-50~204 °C)
Body Material	Cold-drawn hard 316/316L SS

Materials

Grade	Composition %			Ni _{eq} %
	Cr	Ni	Mo	
FITOK Tailor-Made 316/316L SS	17-18	12-14	2.6-3.0	≥28.5
ASTM 316 SS	16-18	10-14	2.0-3.0	>22.4

Ordering Information and Dimensions

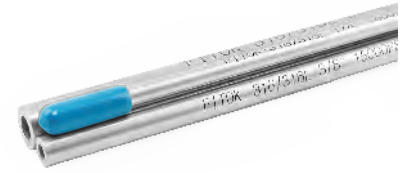


Ordering Number	Connection Type and Size		Orifice in. (mm)	Nominal Pore Size	Effective Filter Element Area in. ² (mm ²)	Dimensions, in. (mm)		
						A	C	E (Hex)
20FCSS-DFF4-5-HG	20D Series Tube Fittings	1/4"	0.19 (4.8)	5	0.81 (522.6)	3.34 (84.8)	0.52 (13.3)	0.81 (20.6)
20FCSS-DFF6-5-HG		3/8"	0.31 (7.9)			3.51 (89.2)	0.54 (13.6)	1.00 (25.4)
20FCSS-DFF8-5-HG		1/2"	0.44 (11.1)			4.30 (109.2)	0.60 (15.3)	1.38 (35.0)

T15A Series Tubing

Features

- FITOK Enhanced-316/316L stainless steel with Ni_{eq} not less than 28.5% provides better resistance to hydrogen embrittlement
- Heavy-wall annealed seamless tubing complies with ASTM A269
- Working temperature: -325 to 1000 °F (-198 to 537 °C)
- The best match for T15A series tubing is with 20D series tube fittings
- Standard lengths: 10 ft, 20 ft, 1 m, 2 m, 3 m and 6 m; customized lengths are also available



Materials

UNS	Grade	FITOK Designator	Composition %							
			C	Mn	P	S	Si	Cr	Ni	Mo
Enhanced-S31600/S31603	Enhanced-316/316L	SH	≤0.030	≤2.00	≤0.045	≤0.03	≤1.00	17-18	12-14	2.6-3.0

Mechanical Properties

UNS	Grade	Yield Strength ksi (MPa)	Tensile Strength ksi (MPa)	Elongation %	Hardness
Enhanced-S31600/S31603	Enhanced-316/316L	≥30 (205)	≥75 (515)	≥30	≤90 HRB

Dimensional Tolerance

Tube O.D. in.	O.D. Tolerance in. (mm)	Wall Thickness Tolerance %
1/4	±0.005 (0.13)	±10
3/8		
1/2		
3/4		

Ordering Information

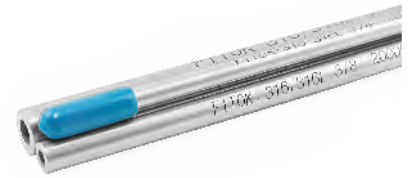
Ordering Number ^①		Tube O.D. in.	Wall Thickness in.	Working Pressure psig (bar)
SH-T15A-4-083-20F	SH-T15A-4-083-6M	1/4	0.083	15,000 (1,034)
SH-T15A-6-118-20F	SH-T15A-6-118-6M	3/8	0.118	
SH-T15A-8-156-20F	SH-T15A-8-156-6M	1/2	0.156	
SH-T15A-12-240-20F	SH-T15A-12-240-6M	3/4	0.240	

^① In the ordering number, "6M" designator refers to 6 m tubing length, "20F" designator refers to 20 ft tubing length.

T20D Series Tubing

Features

- © FITOK Enhanced-316/316L stainless steel with Nieq not less than 28.5% provides better resistance to hydrogen embrittlement
- © Working temperature: -325 to 800 °F (-198 to 427 °C)
- © The best match for T20D series tubing is with 20D series tube fittings
- © Standard lengths: 10 ft, 20 ft, 1 m, 2 m, 3 m and 6 m; customized lengths are also available



Materials

UNS	Grade	FITOK Designator	Composition %							
			C	Mn	P	S	Si	Cr	Ni	Mo
Enhanced-S31600/S31603	Enhanced-316/316L	SH	≤0.030	≤2.00	≤0.045	≤0.03	≤1.00	17-18	12-14	2.6-3.0

Mechanical Properties

UNS	Grade	Yield Strength ksi (MPa)	Tensile Strength ksi (MPa)	Elongation %	Hardness	
					T20D Series	T20D series with "-AT" suffix in part number
Enhanced-S31600/S31603	Enhanced-316/316L	75-110 (517-758)	105-140 (724-965)	≥25	≤26 HRC	22-26 HRC

Dimensional Tolerance

Tube O.D. in.	O.D. Tolerance in. (mm)		Wall Thickness Tolerance %
	T20D Series	T20D series with "-AT" suffix in part number	
1/4	+/-0.005 (0.13)	+/-0.002 (0.05)	+/-10
3/8			
1/2			
3/4			

Ordering Information

To order a T20D series tube with "-AT" suffix in part number, add "-AT" suffix at the end of the standard ordering number.

Ordering Number ^①		Tube O.D. in.	Wall Thickness in.	Working Pressure psig (bar)
SH-T20D-4-065-20F	SH-T20D-4-065-6M	1/4	0.065	20,000 (1,379)
SH-T20D-6-083-20F	SH-T20D-6-083-6M	3/8	0.083	
SH-T20D-8-109-20F	SH-T20D-8-109-6M	1/2	0.109	
SH-T20D-12-165-20F	SH-T20D-12-165-6M	3/4	0.165	

^① In the ordering number, "6M" designator refers to 6 m tubing length, "20F" designator refers to 20 ft tubing length.

T20M Series Tubing

Features

- ⦿ FITOK Enhanced-316/316L stainless steel with Ni_{eq} not less than 28.5% provides better resistance to hydrogen embrittlement
- ⦿ Working temperature: -325 to 800 °F (-198 to 427 °C)
- ⦿ Standard lengths: 10 ft, 20 ft, 1 m, 2 m, 3 m and 6 m; customized lengths are also available



Materials

UNS	Grade	FITOK Designator	Composition %							
			C	Mn	P	S	Si	Cr	Ni	Mo
Enhanced-S31600/S31603	Enhanced-316/316L	SH	≤0.030	≤2.00	≤0.045	≤0.03	≤1.00	17-18	12-14	2.6-3.0

Mechanical Properties

UNS	Grade	Yield Strength ksi (MPa)	Tensile Strength ksi (MPa)	Elongation %	Hardness
Enhanced-S31600/S31603	Enhanced-316/316L	87-110 (599-758)	105-140 (729-965)	≥25	≥98 HRB

Dimensional Tolerance

Tube O.D. in.	O.D. Tolerance in. (mm)	Tube I.D. in.	I.D. Tolerance in. (mm)
1/4	-0.002, -0.007 (-0.05, -0.17)	0.109	0, -0.005 (0, -0.13)
3/8		0.203	
9/16		0.312	
3/4	-0.005, -0.01 (-0.13, -0.26)	0.438	+/-0.005 (0.13)

Ordering Information

Ordering Number ^①		Tube O.D. in.	Tube I.D. in.	Working Pressure psig (bar)
SH-T20M-4-20F	SH-T20M-4-6M	1/4	0.109	20,000 (1,379)
SH-T20M-6-20F	SH-T20M-6-6M	3/8	0.203	
SH-T20M-9-20F	SH-T20M-9-6M	9/16	0.312	
SH-T20M-12-20F	SH-T20M-12-6M	3/4	0.438	

① In the ordering number, "6M" designator refers to 6 m tubing length, "20F" designator refers to 20 ft tubing length.

Coned and Threaded Nipples



Ordering Number ^①	Tube O.D. in.	Tube I.D. in.	Length L ^② in. (mm)
SH-T20M-4CT-3N	1/4	0.109	3.00 (76.2)
SH-T20M-4CT-6N	1/4	0.109	6.00 (152.4)
SH-T20M-4CT-12N	1/4	0.109	12.00 (304.8)
SH-T20M-6CT-3N	3/8	0.203	3.00 (76.2)
SH-T20M-6CT-6N	3/8	0.203	6.00 (152.4)
SH-T20M-6CT-12N	3/8	0.203	12.00 (304.8)
SH-T20M-9CT-4N	9/16	0.312	4.00 (101.6)
SH-T20M-9CT-8N	9/16	0.312	8.00 (203.2)
SH-T20M-9CT-12N	9/16	0.312	12.00 (304.8)
SH-T20M-12CT-4N	3/4	0.438	4.00 (101.6)
SH-T20M-12CT-8N	3/4	0.438	8.00 (203.2)
SH-T20M-12CT-12N	3/4	0.438	12.00 (304.8)

① In ordering number, "N" designator refers to the unit of length in inches.

② Nipples in customized length available upon request.

Differences of Medium Pressure Tubing

For 20D series tube fittings, FITOK provides customers with T15A, T20D and T20M series tubing for connection. Among them, 20D series tube fittings best match with T20D series tubing, which is recommended.

FITOK T15A, T20D and T20M series tubing are all made of dual certified 316/316L and the differences between them are shown in table below.

Performances of FITOK Medium Pressure Tubing				
Type	T15A Series	T20D Series	T20D series with "-AT" suffix in part number	T20M Series
Manufacturing Process	Annealed	Cold-Drawn 1/8-Hard		Cold-Drawn Hard
Max. Working Pressure, psig (MPa)	15,000 (103)	20,000 (138)		
Yield Strength, ksi	≥30	75-110		87-110
Tensile Strength, ksi	≥75	105-140		
Hardness	≤90 HRB	≤26 HRC	22-26 HRC	≥98 HRB
Elongation, %	≥30	≥25		

Dimensions of FITOK Medium Pressure Tubing								
Tube O.D. in.	T15A Series		T20D Series		T20D series with "-AT" suffix in part number		T20M Series	
	O.D. Tolerance in. (mm)	Wall Thickness in.	O.D. Tolerance in. (mm)	Wall Thickness in.	O.D. Tolerance in. (mm)	Wall Thickness in.	O.D. Tolerance in. (mm)	Tube I.D. in.
1/4	±0.005 (0.13)	0.083	±0.005 (0.13)	0.065	±0.002 (0.05)	0.065	-0.002, -0.007 (-0.05, -0.17)	0.109
3/8		0.118		0.083		0.083	-0.005, -0.01 (-0.13, -0.25)	0.203
1/2		0.156		0.109		0.109	-	-
9/16		-		-		-	-0.005, -0.01 (-0.13, -0.25)	0.312
3/4		0.240		0.165		0.165	-0.005, -0.01 (-0.13, -0.25)	0.438

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