VFK

VFK FLUID CONTROL CO.,LTD

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Tube Fittings

Chemical & Petrochemical

Oil & Gas

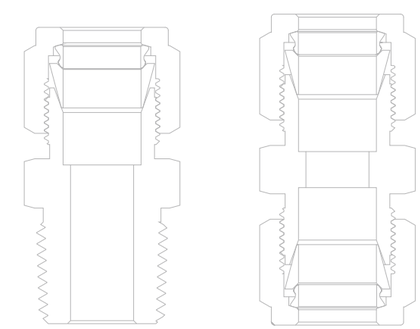
Process Control

Power Plant

Hydraulics

Instrumentation

Alternative Energy



VFK

Advanced Fluid Control

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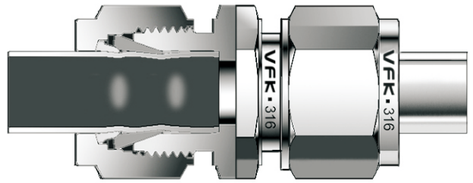
Features

- Sizes range from 1/16" to1 1/2" and 2 mm to 38 mm.
- Diverse materials and configurations are available.
- Precision machined components ensure perfect deformation of the ferrules and tubing.
- Hardened threads with smooth surface finish avoid galling and help to extend the fitting service life.
- Female nut threads are silver-plated to reduce the friction against the body threads.
- Radius junction design with elbows provides smooth Flow path.
- Every fitting is stamped with size, material, and heat code.
- Fittings are easy to disconnect and retighten.



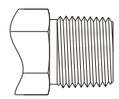
Technical Data

Thread Ends

NPT Threads (NPT)

Comply with ASME B1.20.1, SAE AS71051.
Installation torque complies with UL 842.

- ☐ 60° thread angle
- ☐ Pitch measured in inch
- ☐ Truncation of root and crest are parallel
- ☐ Taper 1:16
- ☐ Type of sealing:thread sealant



Thread Size	Thread/in.	Dia. at Reference Plane (mm)			Handtight Engagement (mm)	required Torque N·m(lbf·in)
		Max. Dia.	Pitch Dia.	Min. Dia.		
1/16	27	7.894	7.142	6.389	4.064	——
1/8		10.242	9.489	8.737	4.102	17 (150.5)
1/4	18	13.616	12.487	11.358	5.785	28 (247.8)
3/8		17.055	15.926	14.797	6.096	51 (451.4)
1/2	14	21.224	19.772	18.321	8.128	90 (796.5)
3/4		26.569	25.117	23.666	8.618	113 (1000)
1	11.5	33.228	31.461	29.694	10.160	137 (1212.5)
1 1/4		41.985	40.218	38.451	10.668	164 (1451.4)
1 1/2		48.054	46.287	44.520	10.668	175 (1548.8)
2		60.092	58.325	56.558	11.065	186 (1646.1)

Working Pressures of NPT Thread Ends

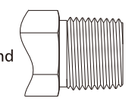
Thread Size	316 Stainless Steel and Carbon Steel				Brass			
	Male		Female		Male		Female	
	psig	bar	psig	bar	psig	bar	psig	bar
1/16	11000	757	6700	460	5500	378	3300	227
1/8	10000	689	6500	447	5000	344	3200	220
1/4	8000	551	6600	454	4000	275	3300	227
3/8	7800	537	5300	365	3900	268	2600	179
1/2	7700	530	4900	337	3800	261	2400	165
3/4	7300	502	4600	316	3600	248	2300	158
1	5300	365	4400	303	2600	179	2200	151
1 1/4	6000	410	5000	344	3000	200	2500	172
1 1/2	5000	344	4600	317	2500	172	2300	158
2	3900	268	3900	268	1900	130	1900	130

Working pressure are based on ANSI/ASME B31.3 at ambient temperature.

ISO Tapered Threads (R, R1, R2, Rc, RT, PT, BSPT, ZG)

Comply with ISO 7-1, EN 10226-1, BS 21, DIN 2999, JIS B0203.
The installation torque is the same as that of NPT thread ends.

- 55° thread angle
- Pitch measured in inch
- Truncation of root and crest are round
- Taper 1:16
- Type of sealing: thread sealant



Thread Data

Thread Size	Thread/ in.	Dia. at Reference Plane (mm)			Gauge Length
		Max. Dia.	Pitch Dia.	Min. Dia.	
1/16	28	7.723	7.142	6.561	4.0
1/8		9.728	9.147	8.566	4.0
1/4	19	13.157	12.301	11.445	6.0
3/8		16.662	15.806	14.950	6.4
1/2	14	20.955	19.793	18.631	8.2
3/4		26.441	25.279	24.117	9.5
1	11	33.249	31.770	30.291	10.4
1 1/4		41.910	40.431	38.952	12.7
1 1/2		47.803	46.324	44.845	12.7
2		59.614	58.135	56.656	15.9

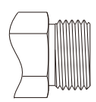
Working Pressures of ISO Tapered Thread Ends

The working pressures of ISO tapered thread ends are the same with that of the NPT thread ends.

ISO Parallel Threads (G, RP, PF, BSPP)

Comply with ISO 228-1, DIN ISO 228-1, JIS B0202, BS 2779.

- 55° thread angle
- Pitch measured in inch
- Truncation of root and crest



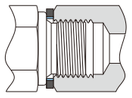
Thread Data

Thread Size	Thread/ in.	Basic Dia. (mm)		
		Max. Dia.	Pitch Dia.	Min. Dia.
1/16	28	7.723	7.142	6.561
1/8		9.728	9.147	8.566
1/4	19	13.157	12.301	11.445
3/8		16.662	15.806	14.950
1/2	14	20.955	19.793	18.631
5/8		22.911	21.749	20.587
3/4		26.441	25.279	24.117
7/8		30.201	29.039	27.877
1	11	33.249	31.770	30.291
1 1/8		37.897	36.418	34.939
1 1/4		41.910	40.431	38.952
1 1/2		47.803	46.324	44.845
1 3/4		53.746	52.267	50.788
2		59.614	58.135	56.656

Types of Sealing for ISO parallel threads

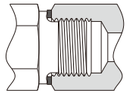
1. RS Stud End, RS Gasket and RP Port

- RS stud end complies with DIN 3852-2 type A
- For RS gasket, see page 84
- RP port complies with DIN 3852-2 type-X



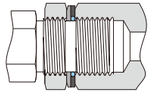
2. RP Stud End, RP Gasket and RP Port

- RP stud end complies with DIN 3852-2 type B
- For RP gasket, see page 85
- RP port complies with DIN 3852-2 type X
- The RP gasket can be used with a RS fitting



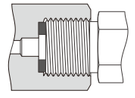
3. PP Stud End and RP Port

- RP port complies with DIN 3852-2 type X



4. RG Port, RG Gasket and BP Stud End

- RG port complies with EN 837-1/3
- For RG gasket, see page 85



Working Pressures of Adjustable ISO Parallel Thread Ends(BSPP)

Thread Size	316 Stainless Steel and Carbon Steel	
	psig	bar
1/8 1/4 3/8	4568	315
1/2 3/4 1	2320	160

SAE/MS Straight Threads (UN, UNJ)

Comply with ASME B1.1, SAE J475, ISO R725.

- 60° thread angle
- Pitch measured in inch
- Truncation of root and crest are parallel

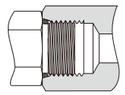
Thread Data

Thread Size	Thread/ in.	Basic Dia. (mm)		
		Max. Dia.	Pitch Dia.	Min. Dia.
5/16-24	24	7.938	7.249	6.792
3/8-24	24	9.525	8.837	8.380
7/16-20	20	11.113	10.287	9.738
1/2-20	20	12.700	11.875	11.326
9/16-18	18	14.288	13.325	12.761
3/4-16	16	19.050	18.019	17.330
7/8-14	14	22.225	21.046	20.262
1 1/16-12	12	26.988	25.613	24.719
1 3/16-12	12	30.163	28.788	27.871
1 5/16-12	12	33.338	31.963	31.046
1 5/8-12	12	41.275	39.901	38.984
1 7/8-12	12	47.625	46.251	45.324
2 1/2-12	12	63.500	62.126	61.209

Types of Sealing for SAE/MS threads

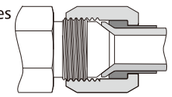
1. ST Stud End and ISO 11926-1 Port

- ST stud end complies with ISO 11926-3
- For O-ring, see page 86



2. 37° Flare (AN) Stud and Flared Tubing

- The type of sealing complies with SAE J514



Working Pressures of SAE/MS Thread Ends

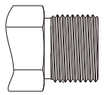
Thread Size	316 Stainless Steel and Carbon Steel			
	Non-adjustable		Adjustable	
	psig	bar	psig	bar
5/16-24	4568	315	4568	315
3/8-24				
7/16-20				
1/2-20				
9/16-18			3626	250
3/4-16				
7/8-14	3626	250	2900	200
1 1/16-12				
1 3/16-12	2900	200	2320	160
1 5/16-12				
1 5/8-12	2320	160	1813	125
1 7/8-12				
2 1/2-12	1813	125	1450	100

Working pressures are based on ISO 11926-3 at ambient temperature.

Metric Threads (M)

Comply with ISO 261.

- 60° thread angle
- Pitch measured in mm
- Truncation of root and crest are parallel

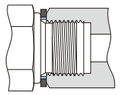


Thread Data

Thread Size	Pitch (mm)	Basic Dia. (mm)		
		Max. Dia.	Pitch Dia.	Min. Dia.
M6 x 1	1	6.000	5.350	4.917
M8 x 1		8.000	7.350	6.917
M10 x 1		10.000	9.350	8.917
M12 x 1.5	1.5	12.000	11.026	10.376
M14 x 1.5		14.000	13.026	12.376
M16 x 1.5		16.000	15.026	14.376
M18 x 1.5		18.000	17.026	16.376
M20 x 1.5		20.000	19.026	18.376
M22 x 1.5		22.000	21.026	20.376
M24 x 1.5		24.000	23.026	22.376
M27 x 2	2	27.000	25.701	24.835
M30 x 2		30.000	28.701	27.835
M33 x 2		33.000	31.701	30.835
M36 x 2		36.000	34.701	33.835
M39 x 2		39.000	37.701	36.835
M42 x 2		42.000	40.701	39.835
M45 x 2		45.000	43.701	42.835
M48 x 2		48.000	46.701	45.835

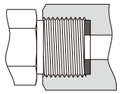
Types of Sealing for Metric Threads

1. MR Stud End, RS-M gasket and MS Port



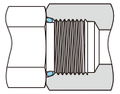
- MR stud end complies with DIN 3852-1 type A
- For RS-M gasket

2. MS Stud End, RG-M gasket and MS Port



- For RG-M gasket

3. MO Stud End and ISO 6149-1 Port



- MO stud end complies with ISO 6149-3
- For O-ring

Working Pressures of Metric Thread Ends

1. Working Pressures for MR/MS Stud End and MS Port

Thread Size	316 Stainless Steel and Carbon Steel			
	Male		Female	
	psig	bar	psig	bar
M6 x 1	12000	825	6900	476
M8 x 1	11000	759	6700	462
M10 x 1	10000	690	6500	448
M12 x 1.5	9000	621	6500	448
M14 x 1.5	8000	552	6600	455
M16 x 1.5	7800	538	5800	400
M18 x 1.5	7800	538	5300	366
M20 x 1.5	7700	531	5000	345
M22 x 1.5	7700	531	4900	338
M27 x 2	7300	503	4600	317
M30 x 2	6100	421	4500	310
M33 x 2	5300	366	4400	303
M36 x 2	5100	352	4000	276
M39 x 2	5000	345	3900	269
M42 x 2	6000	414	5000	345
M45 x 2	5400	372	4700	324
M48 x 2	5000	345	4600	317

2. Working Pressures for MO Stud Ends

Thread Size	Stainless Steel and Carbon Steel			
	Non-adjustable		Adjustable	
	psig	bar	psig	bar
M8 x 1	5800	400	4568	315
M10 x 1				
M12 x 1.5				
M14 x 1.5				
M16 x 1.5	4568	315	3626	250
M18 x 1.5				
M20 x 1.5				
M22 x 1.5				
M27 x 2	2900	200	2320	160
M30 x 2				
M33 x 2				
M42 x 2				
M48 x 2				
M60 x 2	2320	160	1450	100

Working pressures are based on ISO 6149-3 at ambient temperature.

◎ Working Temperatures

Tube Ends

Material	Minimum Temperature	Maximum Temperature
Stainless Steel	-325° F (-198° C)	800° F (426° C)
Brass	-325° F (-198° C)	400° F (204° C)
Alloy 400/R-405	-325° F (-198° C)	800° F (426° C)

Thread Ends

The working temperatures of the thread ends may be limited by the teFJon tape or thread sealant or, when applicable, the gaskets or O-rings as follows:

Component	Material	Minimum Temperature	Maximum Temperature
RS gasket	Buna N	-22° F (-30° C)	230° F (110° C)
	FJuorocarbon FKM	-4° F (-20° C)	400° F (204° C)
RP/RG gasket	Copper	-452° F (-269° C)	500° F (260° C)
	Stainless Steel	-425° F (-254° C)	1000° F (538° C)
	PTFE	-65° F (-54° C)	450° F (232° C)
	Vulcanized Fibre	-76° F (-60° C)	221° F (105° C)
O-ring	Buna N	-22° F (-30° C)	230° F (110° C)
	FJuorocarbon FKM	-4° F (-20° C)	400° F (204° C)

Working Pressures

- The maximum working pressure of the tube ends at ambient temperature are rated by the used VFK tubings. Refer to VFK tubing data.
- The maximum working pressure of the thread ends at ambient temperature are stated above.
- To get the maximum working pressure at elevated temperature, use the maximum working pressure at ambient temperature to multiply the factors in the form of Elevated Temperature Factors in page 9.
- The whole fitting is rated by the smallest value among its ends.

Materials

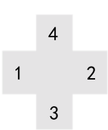
Material	Bar Stock	Forging	Designator
316 stainless steel	ASTM A276, ASME SA479, EN 1.4401	ASTM A182, ASME SA182, EN 1.4401	SS
304 stainless steel	ASTM A276, ASME SA479, EN 1.4301	ASTM A182, ASME SA182, EN 1.4301	S4
321 stainless steel	ASTM A276, ASME SA479, EN 1.4541	ASTM A182, ASME SA182, EN 1.4541	S1
Alloy 20	ASTM B473	ASTM B462	A20
Alloy 400/R-405	ASTM B164, ASME SB164	ASTM B564, ASME SB564	M
Alloy 600	ASTM B166, ASME SB166	ASTM B564, ASME SB564	INC
Alloy 625	ASTM B446	ASTM B564, ASME SB564	A65
Alloy C-276	ASTM B574	ASTM B564	HC
Aluminum	ASTM B211	ASTM B247	AL
Brass	ASTM B16/B453	ASTM B283	B
Carbon steel	ASTM A108	/	CS
Nylon	ASTM D4066	/	PA
PTFE	ASTM D1710	ASTM D3294	T
Duplex 2205	ASTM A479	ASTM A182	D5
Duplex 2507	ASTM A479	ASTM A182	D7
Titanium (grade 4)	ASTM B348	ASTM B381	TI

Ordering Information

A	B	C	D	E	F
Body Material	Fitting Series	Port 1 Type	Port 1 Size	Port 2 Type	Port 2 Size
SS	21	FX	4	N	4

- Add material designator and fitting name as a prefix to the basic ordering number to get the complete ordering number.
- Tee and cross are described by the first run (Port 1 and 2) and the next branch (Port 3 and 4).

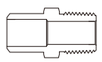
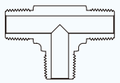
Example:



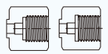
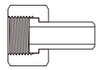
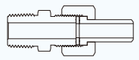
1. Straight connector with 1/4" tube, 1/4 Male NPT thread and 316 stainless steel material, the complete ordering number is SS21-FX4N4.

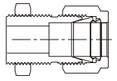
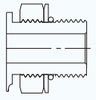
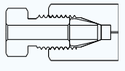
2. Male run tee with 1/4" tube on port 1&2, male NPT with 1/4" on port 3, the complete ordering number is SS23-FX4FX4N4.

Product Information

Product Type	Schematic Diagram	VFK Designator	Product Type	Schematic Diagram	VFK Designator	Product Type	Schematic Diagram	VFK Designator
Union		21	45° Elbow		25	Pipe Plug		26
Elbow		22	Tee		23	Cross		24
Hollow Hex Plug		261	Plug		262	Caps		263
Vent Protector		264						

Port Information

Port Discription	Schematic Diagram	VFK Designator	Port Discription	Schematic Diagram	VFK Designator	Port Discription	Schematic Diagram	VFK Designator
Female NPT ASME B1.20.1		FN	Female ISO (RS-M/O Ring) Metric Thread		MP	Female SAE (O-Ring) UN,UNJ		FST
Male NPT ASME B1.20.1		N	Female ISO (RG-M Gasket) Metric Thread		FM	Male SAE (O-Ring) UN,UNJ		ST
Female BSPT ISO 7-1		FR	Male ISO (RP-M Gasket) Metric Thread		MR	Male SAE (37° Flare) UN,UNJ		AN
Male BSPT ISO 7-1		R	Male ISO (RG-M Gasket) Metric Thread		MS	Female SAE (37° Flare) UN,UNJ		FAN
Female BSPP (RS & RP Stud) ISO 228-1		FP	Male ISO (O-Ring) Metric Thread		MO	BSPP 阳螺纹 (RS Stud) ISO 228-1		BS
Female BSPP (RG Stud) ISO 228-1		FG/FJ	Male BSPP (RP Stud) ISO 228-1		BR	Male BSPP (RG Stud) ISO 228-1		BP
Pipe to Tube Butt Weld		PUW	Pipe tp Pipe Union		PUP	Union Ball Joint		UBJ
Male Pipe to Tube Butt Weld		MUW	Male ISO (RS-M Gasket) Metric Thread		MRS			

Port Discription	Schematic Diagram	VFK Designator	Port Discription	Schematic Diagram	VFK Designator	Port Discription	Schematic Diagram	VFK Designator
Fractional Tube Fitting Metric Tube Fitting		FX MX	Fractional Bulkhead Tube Fitting Metric Bulkhead Tube Fitting		BFX BMX	Fractional Thermocouple Tube Fitting Metric Thermocouple Tube Fitting		TFX TMX
Male NPT (O-Ring) ASME B1.20.1 Male SAE (O-Ring) UN,UNJ		NO STO	Male BSPP (PP Stud & RP Port) ISO 228-1 Male SAE (ST Stud & RP Port) UN,UNJ		SBP SOT	Fractional Tube Swaging Metric Swaging Tube		SFX SMX
Fractional Tube Butt Weld Metric Tube Butt Weld Pipe Butt Weld		TB MTB PB	PIPE Socket Weld Fractional Tube Socket Weld Metic Tube Socket Weld		PS TS MTS	Fractional Soft Plug Tube Fitting Metric Soft Plug Tube Fitting		AT NT
Fractional Tube Metric Tube		FT MT	Fractional chromatograph Internal Tube Fitting		FS	Fractional chromatograph External Tube Fitting		FXS

Installation Instructions

◎ VFK tube fittings up to 1" or 25 mm

1. Loosen the nut 1/4 turn from finger-tight position.
2. Insert tubing into the tube fitting, make sure that the tubing rests firmly on the shoulder of the port.
3. Finger-tighten the nut.
4. Tighten the nut 1 1/4 turns with wrench while holding steady the body of the fitting or the valve (Fig.1).

For small-sized fittings (1/16", 1/8" and 3/16", 2 mm, 3 mm and 4 mm), tighten the nut 3/4 turn with wrench (Fig.2).

◎ VFK tube fittings over 1" or 25 mm

1. Use presetting tool to install the ferrules onto the tube, please refer to the instruction of Hydraulic Presetting Tool for details.
2. Insert the preset tubing with ferrules and nut into the body of fitting, finger tight.
3. Tighten the nut one-half turn with wrench.

◎ Reinstallation (all sizes)

1. Mark on the nut and body before disassembling the fitting.
2. Tighten the nut to the marked location before reinstallation.
3. Tighten the nut slightly with wrench.

◎ Plugs and Port Connectors

1.Tighten the plug or port connector 1/4 turn from the finger-tight position while holding steady the body of the fitting.

For small-sized fittings (1/16", 1/8" and 3/16", 2 mm, 3 mm and 4 mm), tighten the nut 1/8 turn with wrench.

2.Reinstallation: Tighten slightly with a wrench from the finger-tight position.

The Installation Instructions of the tube adapter end of Port Connectors are the same as the VFK Tube Fittings.

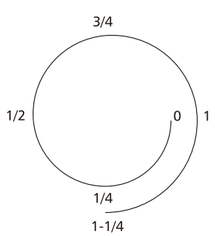


Fig.1

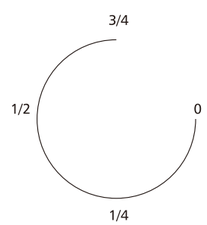


Fig.2

Stainless Steel Seamless Tubing

Features

◎ Sizes range from 1/16" to 1 1/2" and 3 mm to 38 mm.
◎ Material, size, specification and heat code are indicated on the tubing surface.
◎ Pickling surface finish and mechanical polished surface finish tubes are available.

Material Standards

Grade	UNS Designation	ASTM	ASME
316/316L	S31600/S31603	A269/A213	SA213
304/304L	S31400/S31403		
321	S32100		

Allowable Working Pressure

◎ The allowable working pressures in the table below for fractional tubing and metric tubing are based on ASME B31.3 at ambient temperature.
◎ The data in the table are applied to 316 SS, 304 SS and 321 SS. For 316L SS and 304L SS, multiply the data in the table by 0.84 to get the allowable working pressure.
◎ To work out the allowable working pressure at elevated temperature, take allowable working pressure at ambient temperature to multiply the factors in the table of Elevated Temperature Factors.

Fractional Tubing

Tube O.D. (in.)	Nominal Wall Thickness, in.															
	0.010	0.012	0.014	0.016	0.020	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120	0.134	0.156	0.188
	Working Pressure, psig															
	Note: For gas service, select a tube thickness outside of the shaded area															
1/16	5660	6870	8180	9490	12100											
1/8						8580	11000									
3/16						5450	7070	10300								
1/4						4040	5150	7570	10300							
5/16							4040	5860	8080							
3/8							3330	4850	5860							
1/2							2600	3530	4750	6260						
5/8								2930	4040	5250	6060					
3/4								2420	3330	4240	4950	5860				
7/8								2020	2830	3640	4240	4850				
1									2420	3130	3640	4240	4750			
1 1/4										2420	2830	3330	3640	4150	4950	
1 1/2											2320	2730	3030	3430	4040	4950

Metric Tubing

Tube O.D. (mm)	Nominal Wall Thickness, mm												
	0.8	1.0	1.2	1.5	1.8	2.0	2.2	2.5	2.8	3.0	3.5	4.0	4.5
	Working Pressure, bar												
	Note: For gas service, select a tube thickness outside of the shaded area												
3	677												
6	313	424	545	717									
8		313	394	525									
10		242	303	404	515	586							
12		202	252	333	414	475							
14		162	202	273	343	384	434						
15		151	192	252	313	364	404						
16			172	232	293	333	374	404					
18			151	202	263	293	323	374					
20			141	182	232	263	293	333	384				
22			121	162	202	232	263	303	343				
25					182	202	232	263	293	323			
28						182	202	232	263	283	333		
30						172	182	212	242	263	313		
32						162	172	202	222	242	293	333	
38							141	162	192	202	242	273	313

Elevated Temperature Factors

Temperature		Material				
°F	°C	316	316L	304	304L	321
100	38	1.0	1.0	1.0	1.0	1.0
200	93	1.0	1.0	1.0	1.0	1.0
300	149	1.0	1.0	1.0	1.0	1.0
400	204	0.97	0.93	0.94	0.94	1.0
500	260	0.90	0.86	0.88	0.88	0.97
600	316	0.85	0.81	0.82	0.84	0.92
650	343	0.84	0.79	0.81	0.82	0.90
700	371	0.82	0.77	0.80	0.81	0.88
750	399	0.8	0.75	0.78	0.80	0.86
800	427	0.80	0.74	0.76	0.78	0.85
850	454	0.79	0.72	0.75	0.77	0.84
900	486	0.78		0.73		0.83
950	510	0.77		0.72		0.82
1000	538	0.76		0.69		0.81

Example to calculate the allowable working pressure:
Type 316L SS 12 mm O.D.×1.5 mm wall at 800°F (427°C)

1. The allowable working pressure for 316 SS at ambient temperature is 333 bar (shown in the table above), multiply by 0.84 to get 316L SS data. So allowable working pressure for 316L SS at ambient temperature is 333 bar × 0.84 = 280 bar.
2. The elevated temperature factor for 800°F (427°C) is 0.74 (shown in the table above). So the allowable working pressure for 316L SS 12 mm O.D. × 1.5 mm wall at 800°F (427°C) is 280 bar × 0.74 = 207 bar.

Ordering Information

Fractional Tubing

Tube O.D. (in.)	Nominal Wall Thickness (in.)	Basic Ordering Number					Weight	
		316	316L	304	304L	321	lb/ft	Kg/m
1/8	0.028	SSST2-028-	6LST2-028-	S4ST2-028-	4LST2-028-	S1ST2-028-	0.030	0.044
1/4	0.035	SSST4-035-	6LST4-035-	S4ST4-035-	4LST4-035-	S1ST4-035-	0.082	0.122
	0.049	SSST4-049-	6LST4-049-	S4ST4-049-	4LST4-049-	S1ST4-049-	0.107	0.159
	0.065	SSST4-065-	6LST4-065-	S4ST4-065-	4LST4-065-	S1ST4-065-	0.131	0.194
3/8	0.035	SSST6-035-	6LST6-035-	S4ST6-035-	4LST6-035-	S1ST6-035-	0.129	0.192
	0.049	SSST6-049-	6LST6-049-	S4ST6-049-	4LST6-049-	S1ST6-049-	0.173	0.258
	0.065	SSST6-065-	6LST6-065-	S4ST6-065-	4LST6-065-	S1ST6-065-	0.219	0.326
1/2	0.035	SSST8-035-	6LST8-035-	S4ST8-035-	4LST8-035-	S1ST8-035-	0.177	0.263
	0.049	SSST8-049-	6LST8-049-	S4ST8-049-	4LST8-049-	S1ST8-049-	0.240	0.357
	0.065	SSST8-065-	6LST8-065-	S4ST8-065-	4LST8-065-	S1ST8-065-	0.307	0.457
5/8	0.065	SSST10-065-	6LST10-065-	S4ST10-065-	4LST10-065-	S1ST10-065-	0.396	0.589
3/4	0.065	SSST12-065-	6LST12-065-	S4ST12-065-	4LST12-065-	S1ST12-065-	0.484	0.720
1	0.083	SSST16-083-	6LST16-083-	S4ST16-083-	4LST16-083-	S1ST16-083-	0.827	1.231
1 1/4	0.109	SSST20-109-	6LST20-109-	S4ST20-109-	4LST20-109-	S1ST20-109-	1.352	2.012
1 1/2	0.134	SSST24-134-	6LST24-134-	S4ST24-134-	4LST24-134-	S1ST24-134-	1.989	2.961

Metric Tubing

Tube O.D. (mm)	Nominal Wall Thickness (mm)	Basic Ordering Number					Weight
		316	316L	304	304L	321	Kg/m
3	0.5	SSST3M-0.5-	6LST3M-0.5-	S4ST3M-0.5-	4LST3M-0.5-	S1ST3M-0.5-	0.031
	0.7	SSST3M-0.7-	6LST3M-0.7-	S4ST3M-0.7-	4LST3M-0.7-	S1ST3M-0.7-	0.040
6	1.0	SSST6M-1.0-	6LST6M-1.0-	S4ST6M-1.0-	4LST6M-1.0-	S1ST6M-1.0-	0.125
	1.5	SSST6M-1.5-	6LST6M-1.5-	S4ST6M-1.5-	4LST6M-1.5-	S1ST6M-1.5-	0.169
8	1.0	SSST8M-1.0-	6LST8M-1.0-	S4ST8M-1.0-	4LST8M-1.0-	S1ST8M-1.0-	0.175
	1.5	SSST8M-1.5-	6LST8M-1.5-	S4ST8M-1.5-	4LST8M-1.5-	S1ST8M-1.5-	0.244
10	1.0	SSST10M-1.0-	6LST10M-1.0-	S4ST10M-1.0-	4LST10M-1.0-	S1ST10M-1.0-	0.226
	1.5	SSST10M-1.5-	6LST10M-1.5-	S4ST10M-1.5-	4LST10M-1.5-	S1ST10M-1.5-	0.320
12	1.0	SSST12M-1.0-	6LST12M-1.0-	S4ST12M-1.0-	4LST12M-1.0-	S1ST12M-1.0-	0.276
	1.5	SSST12M-1.5-	6LST12M-1.5-	S4ST12M-1.5-	4LST12M-1.5-	S1ST12M-1.5-	0.395
	2.0	SSST12M-2.0-	6LST12M-2.0-	S4ST12M-2.0-	4LST12M-2.0-	S1ST12M-2.0-	0.501
14	1.0	SSST14M-1.0-	6LST14M-1.0-	S4ST14M-1.0-	4LST14M-1.0-	S1ST14M-1.0-	0.326
	1.5	SSST14M-1.5-	6LST14M-1.5-	S4ST14M-1.5-	4LST14M-1.5-	S1ST14M-1.5-	0.470
	2.0	SSST14M-2.0-	6LST14M-2.0-	S4ST14M-2.0-	4LST14M-2.0-	S1ST14M-2.0-	0.602
16	1.0	SSST16M-1.0-	6LST16M-1.0-	S4ST16M-1.0-	4LST16M-1.0-	S1ST16M-1.0-	0.376
	1.5	SSST16M-1.5-	6LST16M-1.5-	S4ST16M-1.5-	4LST16M-1.5-	S1ST16M-1.5-	0.545
	2.0	SSST16M-2.0-	6LST16M-2.0-	S4ST16M-2.0-	4LST16M-2.0-	S1ST16M-2.0-	0.702
18	1.0	SSST18M-1.0-	6LST18M-1.0-	S4ST18M-1.0-	4LST18M-1.0-	S1ST18M-1.0-	0.426
	1.5	SSST18M-1.5-	6LST18M-1.5-	S4ST18M-1.5-	4LST18M-1.5-	S1ST18M-1.5-	0.620
	2.0	SSST18M-2.0-	6LST18M-2.0-	S4ST18M-2.0-	4LST18M-2.0-	S1ST18M-2.0-	0.802
20	2.0	SSST20M-2.0-	6LST20M-2.0-	S4ST20M-2.0-	4LST20M-2.0-	S1ST20M-2.0-	0.903
22	2.0	SSST22M-2.0-	6LST22M-2.0-	S4ST22M-2.0-	4LST22M-2.0-	S1ST22M-2.0-	1.003
25	2.0	SSST25M-2.0-	6LST25M-2.0-	S4ST25M-2.0-	4LST25M-2.0-	S1ST25M-2.0-	1.153
	2.5	SSST25M-2.5-	6LST25M-2.5-	S4ST25M-2.5-	4LST25M-2.5-	S1ST25M-2.5-	1.410
28	2.8	SSST28M-2.8-	6LST28M-2.8-	S4ST28M-2.8-	4LST28M-2.8-	S1ST28M-2.8-	1.769
30	3.0	SSST30M-3.0-	6LST30M-3.0-	S4ST30M-3.0-	4LST30M-3.0-	S1ST30M-3.0-	2.031
32	3.5	SSST32M-3.5-	6LST32M-3.5-	S4ST32M-3.5-	4LST32M-3.5-	S1ST32M-3.5-	2.501
38	4.0	SSST38M-4.0-	6LST38M-4.0-	S4ST38M-4.0-	4LST38M-4.0-	S1ST38M-4.0-	3.410

Add the actual length (foot or meter) and surface finish code as a suffix to the basic ordering number to get the complete ordering number. "AP" for pickling surface finish, "MP" for mechanical polished surface finish.

For example:

1. 12 feet long, outside diameter 1/2", wall thickness 0.049", and pickling surface finish 316L SS seamless tube, the complete ordering number is 6LST8-049-12-AP.
2. 3 meters long, outside diameter 1/2", wall thickness 0.049", and mechanical polished surface finish 316L SS seamless tube, the complete ordering number is 6LST8-049-3M-MP.
3. 3 meters long, outside diameter 12 mm, wall thickness 1.0 mm, and pickling surface finish 304L SS seamless tube, the complete ordering number is 4LST12M-1.0-3M-AP.

Stainless Steel Seamless Pipe

Features

- Nominal pipe sizes from NPS 1/8 to NPS 2.
- Material, size, specification and heat code are indicated on the pipe surface.

Material Standard

Grade	UNS Designation	ASTM	ASME
316/316L	S31600/S31603	A312	SA312
304/304L	S31400/S31403		
321	S32100		

Allowable Working Pressure

- The allowable working pressures in the form are based on ASME B31.3 at ambient temperature.
- The data in the form are applied to 316 SS, 304 SS and 321 SS. For 316L SS and 304L SS, multiply the data in the form by 0.84 to get the allowable working pressure.
- The elevated temperature factors are the same with those of OK stainless steel seamless tubing.

NPS	Schedule Number (ASME B36.19M)			
	5S	10S	40S	80S
	Working Pressure, psig (bar)			
1/8	/	3940 (272)	5750 (397)	8700 (600)
1/4	/	3960 (273)	5620 (387)	8130 (560)
3/8	/	3110 (215)	4540 (313)	6660 (459)
1/2	2470 (170)	3220 (222)	4370 (301)	6190 (427)
3/4	1960 (135)	2540 (175)	3550 (245)	5040 (348)
1	1550 (107)	2680 (185)	3330 (229)	4650 (320)
1 1/4	1230 (85)	2110 (146)	2760 (190)	3890 (268)
1 1/2	1070 (74)	1830 (126)	2460 (170)	3520 (243)
2	840 (58)	1430 (99)	2060 (142)	2990 (206)

Ordering Information

NPS	Schedule Number	Basic Ordering Number					Weight	
		316	316L	304	304L	321	lb/ft	Kg/m
1/8	40S	SSSP2-40S-	6LSP2-40S-	S4SP2-40S-	4LSP2-40S-	S1SP2-40S-	0.250	0.372
	80S	SSSP2-80S-	6LSP2-80S-	S4SP2-80S-	4LSP2-80S-	S1SP2-80S-	0.321	0.478
1/4	40S	SSSP4-40S-	6LSP4-40S-	S4SP4-40S-	4LSP4-40S-	S1SP4-40S-	0.433	0.645
	80S	SSSP4-80S-	6LSP4-80S-	S4SP4-80S-	4LSP4-80S-	S1SP4-80S-	0.546	0.812
3/8	40S	SSSP6-40S-	6LSP6-40S-	S4SP6-40S-	4LSP6-40S-	S1SP6-40S-	0.579	0.862
	80S	SSSP6-80S-	6LSP6-80S-	S4SP6-80S-	4LSP6-80S-	S1SP6-80S-	0.754	1.122
1/2	40S	SSSP8-40S-	6LSP8-40S-	S4SP8-40S-	4LSP8-40S-	S1SP8-40S-	0.868	1.292
	80S	SSSP8-80S-	6LSP8-80S-	S4SP8-80S-	4LSP8-80S-	S1SP8-80S-	1.110	1.652
3/4	40S	SSSP12-40S-	6LSP12-40S-	S4SP12-40S-	4LSP12-40S-	S1SP12-40S-	1.154	1.717
	80S	SSSP12-80S-	6LSP12-80S-	S4SP12-80S-	4LSP12-80S-	S1SP12-80S-	1.504	2.238
1	40S	SSSP16-40S-	6LSP16-40S-	S4SP16-40S-	4LSP16-40S-	S1SP16-40S-	1.713	2.549
	80S	SSSP16-80S-	6LSP16-80S-	S4SP16-80S-	4LSP16-80S-	S1SP16-80S-	2.216	3.297
1 1/4	40S	SSSP20-40S-	6LSP20-40S-	S4SP20-40S-	4LSP20-40S-	S1SP20-40S-	2.319	3.450
	80S	SSSP20-80S-	6LSP20-80S-	S4SP20-80S-	4LSP20-80S-	S1SP20-80S-	3.057	4.549
1 1/2	40S	SSSP24-40S-	6LSP24-40S-	S4SP24-40S-	4LSP24-40S-	S1SP24-40S-	2.773	4.126
	80S	SSSP24-80S-	6LSP24-80S-	S4SP24-80S-	4LSP24-80S-	S1SP24-80S-	3.705	5.513
2	40S	SSSP32-40S-	6LSP32-40S-	S4SP32-40S-	4LSP32-40S-	S1SP32-40S-	3.727	5.546
	80S	SSSP32-80S-	6LSP32-80S-	S4SP32-80S-	4LSP32-80S-	S1SP32-80S-	5.123	7.624

Add the actual foot (feet)/meter (meters) as a suffix to the basic ordering number to complete the ordering number.

Example:

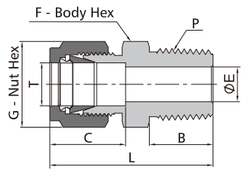
1. 12 feet long, NPS 1/2, schedule number 40S, 316 SS seamless pipe, the complete ordering number is SSSP8-40S-12.
2. 2 meters long, NPS 1/2, schedule number 40S, 316 SS seamless pipe, the complete ordering number is SSSP8-40S-2M.

Pipe Dimension

NPS	Outside Diameter		Schedule Number																				
			5S	5	10S	10	20	30	40S	40	STD	60	80S	80	XS	100	120	140	160	XXS
	In.	mm	Nominal Wall Thickness, mm																	
1/8	0.405	10.287			1.245	1.245		1.448	1.727	1.727	1.727		2.413	2.413	2.413					
1/4	0.540	13.716			1.651	1.651		1.854	2.235	2.235	2.235		3.023	3.023	3.023					
3/8	0.675	17.145			1.651	1.651		1.854	2.311	2.311	2.311		3.200	3.200	3.200					
1/2	0.840	21.336	1.651	1.651	2.108	2.108		2.413	2.769	2.769	2.769		3.734	3.734	3.734				4.775	7.468
3/4	1.050	26.670	1.651	1.651	2.108	2.108		2.413	2.870	2.870	2.870		3.912	3.912	3.912				5.563	7.823
1	1.315	33.401	1.651	1.651	2.769	2.769		2.900	3.378	3.378	3.378		4.547	4.547	4.547				6.350	9.093
1 1/4	1.660	42.164	1.651	1.651	2.769	2.769		2.972	3.556	3.556	3.556		4.851	4.851	4.851				6.350	9.703
1 1/2	1.900	48.260	1.651	1.651	2.769	2.769		3.175	3.683	3.683	3.683		5.080	5.080	5.080				7.137	10.160
2	2.375	60.325	1.651	1.651	2.769	2.769		3.175	3.912	3.912	3.912		5.537	5.537	5.537				8.738	11.074
2 1/2	2.875	73.025	2.108	2.108	3.048	3.048		4.775	5.156	5.156	5.156		7.010	7.010	7.010				9.525	14.021
3	3.500	88.900	2.108	2.108	3.048	3.048		4.775	5.486	5.486	5.486		7.620	7.620	7.620				11.125	15.240
3 1/2	4.000	101.600	2.108	2.108	3.048	3.048		4.775	5.740	5.740	5.740		8.077	8.077	8.077					
4	4.500	114.300	2.108	2.108	3.048	3.048		4.775	6.020	6.020	6.020		8.560	8.560	8.560		11.125		13.487	17.120
5	5.563	141.300	2.769	2.769	3.404	3.404			6.553	6.553	6.553		9.525	9.525	9.525		12.700		15.875	19.050
6	6.625	168.275	2.769	2.769	3.404	3.404			7.112	7.112	7.112		10.973	10.973	10.973		14.275		18.263	21.946
8	8.625	219.075	2.769	2.769	3.759	3.759	6.350	7.036	8.179	8.179	8.179	10.312	12.700	12.700	12.700	15.088	18.263	20.625	23.012	22.225
10	10.750	273.050	3.404	3.404	4.191	4.191	6.350	7.798	9.271	9.271	9.271	12.700	12.700	15.088	12.700	18.263	21.438	25.400	28.575	25.400
12	12.750	323.850	3.962	3.962	4.572	4.572	6.350	8.382	9.525	10.312	9.525	14.275	12.700	17.475	12.700	21.438	25.400	28.575	33.325	25.400
14	14.000	355.600	3.962	3.962	4.775	6.350	7.925	9.525	9.525	11.125	9.525	15.088	12.700	19.050	12.700	23.825	27.788	31.750	35.712	
16	16.000	406.400	4.191	4.191	4.775	6.350	7.925	9.525	9.525	12.700	9.525	16.662	12.700	21.438	12.700	26.187	30.963	36.525	40.488	
18	18.000	457.200	4.191	4.191	4.775	6.350	7.925	11.125	9.525	14.275	9.525	19.050	12.700	23.825	12.700	29.362	34.925	39.675	45.237	
20	20.000	508.000	4.775	4.775	5.537	6.350	9.525	12.700	9.525	15.088	9.525	20.625	12.700	26.187	12.700	32.537	38.100	44.450	50.013	
22	22.000	558.800	4.775	4.775	5.537	6.350	9.525	12.700			9.525	22.225		28.575	12.700	34.925	41.275	47.625	53.975	
24	24.000	609.600	5.537	5.537	6.350	6.350	9.525	14.275	9.525	17.475	9.525	24.613	12.700	30.963	12.700	38.887	46.025	52.375	59.538	
26	26.000	660.400				7.925	12.700				9.525				12.700					
28	28.000	711.200		7.925	7.925	7.925	12.700	15.875			9.525				12.700					
30	30.000	762.000	6.350	7.925		7.925	12.700	15.875		17.475	9.525				12.700					
32	32.000	812.800				7.925	12.700	15.875		17.475	9.525				12.700					
34	34.000	863.600				7.925	12.700	15.875		19.050	9.525				12.700					
36	36.000	914.400				7.925	12.700	15.875			9.525				12.700					

1. The schedule numbers of 5S, 10S, 40S, and 80S comply with ASME B36.19M.
2. The others comply with ASME B36.10M.

Male Connectors

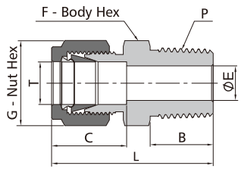


Fractional Tube — NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/16	1/16	21-FX1N1	23.9	9.7	8.6	1.3	7.9	7.9
1/16	1/8	21-FX1N2	26.2	9.7	8.6	1.3	7.9	11.1
1/16	1/4	21-FX1N4	31.0	14.2	8.6	1.3	7.9	14.3
1/8	1/16	21-FX2N1	29.7	9.7	12.7	2.3	11.1	11.1
1/8	1/8	21-FX2N2	30.5	9.7	12.7	2.3	11.1	11.1
1/8	1/4	21-FX2N4	35.6	14.2	12.7	2.3	11.1	14.3
1/8	3/8	21-FX2N6	35.8	14.2	12.7	2.3	11.1	17.5
1/8	1/2	21-FX2N8	42.2	19.1	12.7	2.3	11.1	22.2
3/16	1/16	21-FX3N1	31.2	9.7	13.7	2.3	12.7	11.1
3/16	1/8	21-FX3N2	31.2	9.7	13.7	3.0	12.7	11.1
3/16	1/4	21-FX3N4	36.3	14.2	13.7	3.0	12.7	14.3
1/4	1/16	21-FX4N1	32.8	9.7	15.2	3.0	14.3	12.7
1/4	1/8	21-FX4N2	32.8	9.7	15.2	4.8	14.3	12.7
1/4	1/4	21-FX4N4	37.8	14.2	15.2	4.8	14.3	14.3
1/4	3/8	21-FX4N6	38.4	14.2	15.2	4.8	14.3	17.5
1/4	1/2	21-FX4N8	44.7	19.1	15.2	4.8	14.3	22.2
1/4	3/4	21-FX4N12	46.2	19.1	15.2	4.8	14.3	27.0
5/16	1/8	21-FX5N2	34.0	9.7	16.3	4.8	15.9	14.3
5/16	1/4	21-FX5N4	38.6	9.7	16.3	6.4	15.9	14.3
5/16	3/8	21-FX5N6	39.1	14.2	16.3	6.4	15.9	17.5
5/16	1/2	21-FX5N8	45.5	19.1	16.3	6.4	15.9	22.2
3/8	1/8	21-FX6N2	35.3	9.7	16.8	4.8	17.5	15.9
3/8	1/4	21-FX6N4	39.9	14.2	16.8	7.1	17.5	15.9
3/8	3/8	21-FX6N6	39.9	14.2	16.8	7.1	17.5	17.5
3/8	1/2	21-FX6N8	46.2	19.1	16.8	7.1	17.5	22.2
3/8	3/4	21-FX6N12	47.8	19.1	16.8	7.1	17.5	27.0
3/8	1	21-FX6N16	47.0	23.9	16.8	7.1	17.5	34.9
1/2	1/8	21-FX8N2	38.9	9.7	22.9	4.8	22.2	20.6
1/2	1/4	21-FX8N4	43.4	14.2	22.9	7.1	22.2	20.6
1/2	3/8	21-FX8N6	43.4	14.2	22.9	9.7	22.2	20.6
1/2	1/2	21-FX8N8	49.0	19.1	22.9	10.4	22.2	22.2
1/2	3/4	21-FX8N12	50.5	19.1	22.9	10.4	22.2	27.0
1/2	1	21-FX8N16	57.2	23.9	22.9	10.4	22.2	34.9
5/8	1/4	21-FX10N4	44.2	14.2	24.4	7.1	25.4	23.8
5/8	3/8	21-FX10N6	44.2	14.2	24.4	9.7	25.4	23.8
5/8	1/2	21-FX10N8	49.0	19.1	24.4	11.9	25.4	23.8
5/8	3/4	21-FX10N12	50.5	19.1	24.4	12.7	25.4	27.0
3/4	3/8	21-FX12N6	45.7	14.2	24.4	10.4	28.6	27.0
3/4	1/2	21-FX12N8	50.5	19.1	24.4	11.9	28.6	27.0
3/4	3/4	21-FX12N12	50.5	19.1	24.4	15.7	28.6	27.0
3/4	1	21-FX12N16	57.2	23.9	24.4	15.7	28.6	34.9
7/8	1/2	21-FX14N8	50.5	19.1	25.9	11.9	31.8	30.2
7/8	3/4	21-FX14N12	50.5	19.1	25.9	15.7	31.8	30.2
7/8	1	21-FX14N16	57.2	23.9	25.9	18.3	31.8	34.9
1	1/2	21-FX16N8	57.4	19.1	31.2	11.9	38.1	34.9
1	3/4	21-FX16N12	57.4	19.1	31.2	15.7	38.1	34.9
1	1	21-FX16N16	62.2	23.9	31.2	22.4	38.1	34.9
1 1/8	1	21-FX18N16	62.2	23.9	31.2	22.4	46.0	41.3
1 1/4	1	21-FX20N16	77.2	23.9	41.1	22.4	47.6	44.5
1 1/4	1 1/4	21-FX20N20	77.2	23.9	41.1	27.7	47.6	44.5
1 1/2	1 1/2	21-FX24N24	88.9	26.2	50.0	34.0	57.2	54.0

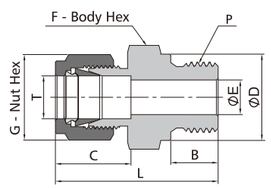
1. Dimensions are for reference only, subject to change.
2. Dimensions shown are in finger-tight position.

Male Connectors



Fractional Tube — ISO Tapered Thread (RT)

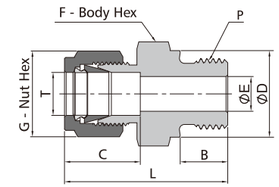
T-Tube O.D. (in.)	P-RT Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/8	1/8	21-FX2R2	30.5	9.7	12.7	2.3	11.1	11.1
1/8	1/4	21-FX2R4	35.6	14.2	12.7	2.3	11.1	14.3
1/4	1/8	21-FX4R2	32.8	9.7	15.2	4.8	14.3	12.7
1/4	1/4	21-FX4R4	37.8	14.2	15.2	4.8	14.3	14.3
1/4	3/8	21-FX4R6	38.4	14.2	15.2	4.8	14.3	17.5
1/4	1/2	21-FX4R8	44.7	19.1	15.2	4.8	14.3	22.2
5/16	1/8	21-FX5R2	34.0	9.7	16.3	4.8	15.9	14.3
5/16	1/4	21-FX5R4	38.6	9.7	16.3	6.4	15.9	14.3
3/8	1/8	21-FX6R2	35.3	9.7	16.8	4.8	17.5	15.9
3/8	1/4	21-FX6R4	39.9	14.2	16.8	7.1	17.5	15.9
3/8	3/8	21-FX6R6	39.9	14.2	16.8	7.1	17.5	17.5
3/8	1/2	21-FX6R8	46.2	19.1	16.8	7.1	17.5	22.2
3/8	3/4	21-FX6R12	47.8	19.1	16.8	7.1	17.5	27.0
1/2	1/4	21-FX8R4	43.4	14.2	22.9	7.1	22.2	20.6
1/2	3/8	21-FX8R6	43.4	14.2	22.9	9.7	22.2	20.6
1/2	1/2	21-FX8R8	49.0	19.1	22.9	10.4	22.2	22.2
1/2	3/4	21-FX8R12	50.5	19.1	22.9	10.4	22.2	27.0
5/8	1/2	21-FX10R8	49.0	19.1	24.4	11.9	25.4	23.8
3/4	3/4	21-FX12R12	50.5	19.1	24.4	15.7	28.6	27.0
3/4	1	21-FX12R16	57.2	23.9	24.4	15.7	28.6	34.9
1	3/4	21-FX16R12	57.4	19.1	31.2	15.7	38.1	34.9
1	1	21-FX16R16	62.2	23.9	31.2	22.4	38.1	34.9



Fractional Tube — ISO Parallel Thread (BS)

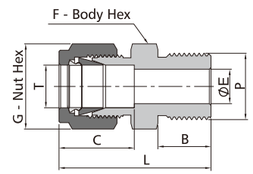
T-Tube O.D. (in.)	P-RS Size	Basic Ordering Number	Dimension, mm						
			L	B	C	E	G	F	D
1/8	1/8	21-FX2BS2	30.0	7.1	12.7	2.3	11.1	14.3	13.7
1/8	1/4	21-FX2BS4	35.3	11.2	12.7	2.3	11.1	19.1	18.0
1/8	3/8	21-FX2BS6	36.3	11.2	12.7	2.3	11.1	22.2	21.8
1/4	1/8	21-FX4BS2	32.3	7.1	15.2	4.0	14.3	14.3	13.7
1/4	1/4	21-FX4BS4	37.6	11.2	15.2	4.8	14.3	19.1	18.0
1/4	3/8	21-FX4BS6	38.9	11.2	15.2	4.8	14.3	22.2	21.8
1/4	1/2	21-FX4BS8	44.7	14.2	15.2	4.8	14.3	27.0	25.9
3/8	1/8	21-FX6BS2	37.8	7.1	16.8	4.0	17.5	15.9	13.7
3/8	1/4	21-FX6BS4	39.1	11.2	16.8	5.9	17.5	19.1	18.0
3/8	3/8	21-FX6BS6	40.4	11.2	16.8	7.1	17.5	22.2	21.8
3/8	1/2	21-FX6BS8	46.2	14.2	16.8	7.1	17.5	27.0	25.9
1/2	1/4	21-FX8BS4	42.7	11.2	22.9	5.9	22.2	20.6	18.0
1/2	3/8	21-FX8BS6	43.2	11.2	22.9	7.9	22.2	22.2	21.8
1/2	1/2	21-FX8BS8	49.0	14.2	22.9	10.4	22.2	27.0	25.9
3/4	1/2	21-FX12BS8	49.0	14.2	24.4	11.9	28.6	27.0	25.9
3/4	3/4	21-FX12BS12	52.9	15.7	24.4	15.7	28.6	33.3	32.0
1	1/2	21-FX16BS8	55.5	14.2	31.2	11.9	38.1	34.9	25.9
1	3/4	21-FX16BS12	57.7	15.7	31.2	16.0	38.1	34.9	32.0
1	1	21-FX16BS16	59.9	18.3	31.2	19.8	38.1	41.3	39.1

Male Connectors



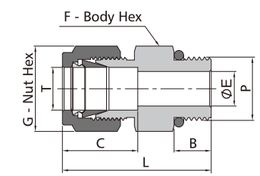
Fractional Tube — ISO Parallel Thread (BR)

T-Tube O.D. (in.)	P-RP Size	Basic Ordering Number	Dimension, mm						
			L	B	C	E	G	F	D
1/8	1/8	21-FX2BR2	30.0	7.1	12.7	2.3	11.1	14.3	13.7
1/8	1/4	21-FX2BR4	35.3	11.2	12.7	2.3	11.1	19.1	18.0
1/4	1/8	21-FX4BR2	32.3	7.1	15.2	4.1	14.3	14.3	13.8
1/4	1/4	21-FX4BR4	37.6	11.2	15.2	4.8	14.3	19.1	18.0
1/2	3/8	21-FX8BR6	40.4	11.2	22.9	7.9	22.2	22.2	21.8
1/2	1/2	21-FX8BR8	49.0	14.2	22.9	10.4	22.2	27.0	25.9
3/4	1/2	21-FX12BR8	49.0	14.2	24.4	11.9	28.6	27.0	25.9
3/4	3/4	21-FX12BR12	52.9	15.7	24.4	15.7	28.6	33.3	32.0
1	1	21-FX16BR16	59.9	18.3	31.2	19.8	38.1	41.3	39.1



Fractional Tube — ISO Parallel Thread (BP)

T-Tube O.D. (in.)	P-BP Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/4	3/8	21-FX4BP6	38.4	14.2	15.2	4.8	14.3	17.5
3/8	3/8	21-FX6BP6	39.9	14.2	16.8	7.1	17.5	17.5

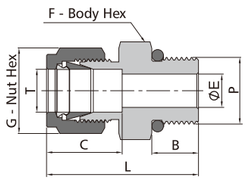


Adapt to straight thread boss of
SAE J1926-1, ISO 11926-1 and MS 16142.

Fractional Tube — SAE/MS Straight Thread

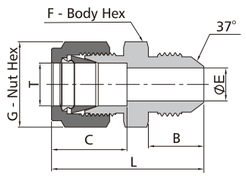
T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/16	5/16-24	21-FX1ST5	23.4	7.6	8.6	1.3	7.9	11.1
1/8	5/16-24	21-FX2ST5	30.0	7.6	12.7	2.3	11.1	11.1
1/8	7/16-20	21-FX2ST7	31.5	9.1	12.7	2.3	11.1	14.3
1/8	9/16-18	21-FX2ST9	33.3	9.9	12.7	2.3	11.1	17.5
3/16	3/8-24	21-FX3ST6	30.5	7.6	13.7	3.0	12.7	12.7
1/4	5/16-24	21-FX4ST5	32.3	7.6	15.2	2.3	14.3	12.7
1/4	7/16-20	21-FX4ST7	34.0	9.1	15.2	4.8	14.3	14.3
1/4	9/16-18	21-FX4ST9	35.6	9.9	15.2	4.8	14.3	17.5
1/4	3/4-16	21-FX4ST12	37.6	11.2	15.2	4.8	14.3	22.2
1/4	7/8-14	21-FX4ST14	40.6	12.7	15.2	4.8	14.3	25.4
5/16	1/2-20	21-FX5ST8	34.8	9.1	16.3	6.4	15.9	15.9
3/8	7/16-20	21-FX6ST7	35.6	9.1	16.8	5.1	17.5	15.9
3/8	9/16-18	21-FX6ST9	37.1	9.9	16.8	7.1	17.5	17.5
3/8	3/4-16	21-FX6ST12	39.1	11.2	16.8	7.1	17.5	22.2
3/8	7/8-14	21-FX6ST14	42.2	12.7	16.8	7.1	17.5	25.4
1/2	9/16-18	21-FX8ST9	39.1	9.9	22.9	7.1	22.2	20.6
1/2	3/4-16	21-FX8ST12	41.9	11.2	22.9	10.4	22.2	22.2
1/2	7/8-14	21-FX8ST14	45.0	12.7	22.9	10.4	22.2	25.4
1/2	1 1/16-12	21-FX8ST17	49.0	15.0	22.9	10.4	22.2	31.8
5/8	3/4-16	21-FX10ST12	41.9	11.2	24.4	10.7	25.4	23.8
5/8	7/8-14	21-FX10ST14	45.2	12.7	24.4	12.7	25.4	25.4
3/4	3/4-16	21-FX12ST12	46.0	11.2	24.4	10.7	28.6	27.0
3/4	1 1/16-12	21-FX12ST17	49.0	15.0	24.4	15.7	28.6	31.8
3/4	1 5/16-12	21-FX12ST21	49.8	15.0	24.4	16.0	28.6	38.1
7/8	1 3/16-12	21-FX14ST19	49.0	15.0	25.9	18.3	31.8	34.9
1	1 1/16-12	21-FX16ST17	53.3	15.0	31.2	16.8	38.1	34.9
1	1 5/16-12	21-FX16ST21	54.4	15.0	31.2	22.4	38.1	38.1
1 1/4	1 5/8-12	21-FX20ST26	68.3	15.0	41.1	27.7	47.6	47.6
1 1/2	1 7/8-12	21-FX24ST30	77.7	15.0	50.0	34.0	57.2	54.0

Male Connectors



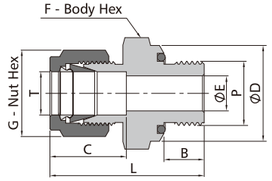
Fractional Tube — SAE/MS Straight Thread

T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/4	7/16-20	21-FX4ST7	57.4	9.1	15.2	4.8	14.3	14.3
1/2	3/4-16	21-FX8ST12	76.5	11.2	22.9	10.4	22.2	22.2



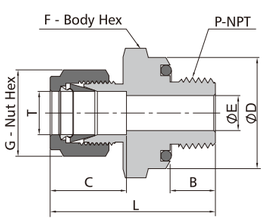
Fractional Tube — 37°FJare (AN)

T-Tube O.D. (in.)	AN Tube Flare Size(in.)	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/16	1/8	21-FX1AN2	27.2	11.4	8.6	1.3	7.9	11.1
1/8	1/8	21-FX2AN2	32.3	11.4	12.7	1.5	11.1	11.1
1/8	1/4	21-FX2AN4	35.1	14.0	12.7	2.3	11.1	12.7
3/16	3/16	21-FX3AN3	33.5	12.2	13.7	2.3	12.7	11.1
1/4	1/4	21-FX4AN4	37.6	14.0	15.2	4.3	14.3	12.7
5/16	5/16	21-FX5AN5	38.4	14.0	16.2	5.8	15.9	14.3
3/8	1/4	21-FX6AN4	39.6	14.0	16.8	4.3	17.5	15.9
3/8	3/8	21-FX6AN6	39.6	14.1	16.8	7.1	17.5	15.9
1/2	1/2	21-FX8AN8	46.0	16.7	22.8	9.9	22.2	20.6
5/8	5/8	21-FX10AN10	49.0	19.3	24.5	12.3	25.4	23.8
3/4	3/4	21-FX12AN12	53.3	21.9	24.4	15.5	28.6	28.6
1	1	21-FX16AN16	61.5	23.1	31.2	21.3	38.1	34.9



Fractional Tube — O-Seal with SAE/MS Straight Thread

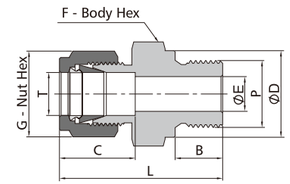
T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm						
			L	B	C	E	G	F	D
1/16	5/16-24	21-FX1ST5	26.7	8.6	8.6	1.3	7.9	14.3	14.0
1/8	5/16-24	21-FX2ST5	32.8	8.6	12.7	2.3	11.1	14.3	14.0
3/16	3/8-24	21-FX3ST6	34.3	9.7	13.7	3.0	12.7	15.9	15.7
1/4	7/16-20	21-FX4ST7	38.4	10.4	15.2	4.8	14.3	19.1	18.8
5/16	1/2-20	21-FX5ST8	40.6	11.2	16.3	6.4	15.9	22.2	21.8
3/8	9/16-18	21-FX6ST9	42.4	11.9	16.8	7.1	17.5	23.8	23.6
1/2	3/4-16	21-FX8ST12	46.0	11.9	22.9	10.4	22.2	28.6	28.4
3/4	1 1/16-12	21-FX12ST17	52.3	14.2	24.4	15.7	28.6	38.1	37.8
1	1 5/16-12	21-FX16ST21	58.2	14.2	31.2	22.4	38.1	44.5	44.2



Fractional Tube — O-Seal with NPT Thread

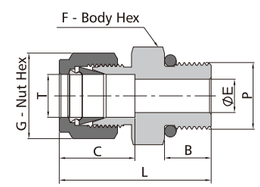
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	B	C	E	G	F	D
1/8	1/8	21-FX2NO2	32.8	7.1	8.6	2.3	11.1	19.1	18.8
1/4	1/8	21-FX4NO2	35.1	7.1	15.2	4.8	14.3	19.1	18.8
1/4	1/4	21-FX4NO4	38.4	9.7	15.2	4.8	14.3	23.8	23.6
3/8	1/4	21-FX6NO4	39.9	9.7	16.8	7.1	17.5	23.8	23.6
3/8	3/8	21-FX6NO6	41.4	10.4	16.8	7.1	17.5	28.6	28.4
3/8	1/2	21-FX6NO8	47.0	13.5	16.8	7.1	17.5	33.3	33.0
1/2	1/2	21-FX8NO8	49.8	13.5	22.9	10.4	22.2	33.3	33.0

Male Connectors



Fractional Tube — Metric Thread (MR)

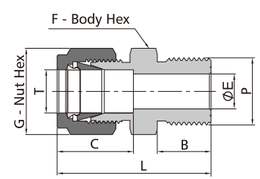
T-Tube O.D. (in.)	P-Metric Thread Size	Basic Ordering Number	Dimension, mm						
			L	B	C	E	G	F	D
1/8	M14 x 1.5	21-FX2MR14	36.7	12	12.7	2.3	11.1	19.1	19
1/8	M16 x 1.5	21-FX2MR16	37.5	12	12.7	2.3	11.1	22.2	21
1/8	M18 x 1.5	21-FX2MR18	38.5	12	12.7	2.3	11.1	23.8	23
1/8	M20 x 1.5	21-FX2MR20	41.1	14	12.7	2.3	11.1	25.4	25
1/4	M14 x 1.5	21-FX4MR14	38.0	12	15.2	4.8	14.3	19.1	19
1/4	M16 x 1.5	21-FX4MR16	39.9	12	15.2	4.8	14.3	22.2	21
1/4	M18 x 1.5	21-FX4MR18	40.8	12	15.2	4.8	14.3	23.8	23
1/4	M20 x 1.5	21-FX4MR20	43.6	14	15.2	4.8	14.3	25.4	25
3/8	M14 x 1.5	21-FX6MR14	41.3	12	16.8	7.1	17.5	19.1	19
3/8	M16 x 1.5	21-FX6MR16	41.3	12	16.8	7.1	17.5	22.2	21
3/8	M18 x 1.5	21-FX6MR18	41.8	12	16.8	7.1	17.5	23.8	23
3/8	M20 x 1.5	21-FX6MR20	45.1	14	16.8	7.1	17.5	25.4	25
1/2	M16 x 1.5	21-FX8MR16	44.0	12	22.9	9	22.2	22.2	21
1/2	M18 x 1.5	21-FX8MR18	44.0	12	22.9	10	22.2	23.8	23
1/2	M20 x 1.5	21-FX8MR20	47.9	14	22.9	10.4	22.2	25.4	25
1/2	M22 x 1.5	21-FX8MR22	48.5	14	22.9	10.4	22.2	27.0	27



Adapt to straight thread boss of ISO 6149-1.

Fractional Tube — Metric Thread (MO)

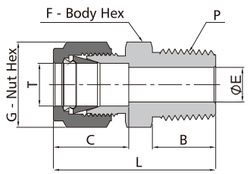
T-Tube O.D. (in.)	P-Metric Thread Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/4	M14X1.5	21-FX4MO14	35.2	11	15.2	4.8	14.3	19.1
3/8	M14X1.5	21-FX6MO14	36.7	11	16.8	7.1	17.5	19.1
3/8	M20X1.5	21-FX6MO20	41.2	14	16.8	7.1	17.5	27.0
1/2	M14X1.5	21-FX8MO14	40.2	11	22.9	7.5	22.2	20.6
1/2	M20X1.5	21-FX8MO20	44.0	14	22.9	10.4	22.2	27.0



Fractional Tube — Metric Thread (MS)

T-Tube O.D. (in.)	P-Metric Thread Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/16	M5 x 0.8	21-FX1MS5	21.8	8	8.6	1.3	7.9	7.9
1/8	M14 x 1.5	21-FX2MS14	34.8	13	12.7	2.3	11.1	15.9
1/8	M16 x 1.5	21-FX2MS16	35.8	14	12.7	2.3	11.1	17.5
1/8	M18 x 1.5	21-FX2MS18	37.2	15	12.7	2.3	11.1	19.1
1/8	M20 x 1.5	21-FX2MS20	38.2	16	12.7	2.3	11.1	22.2
1/4	M14 x 1.5	21-FX4MS14	36.9	13	15.2	4.8	14.3	15.9
1/4	M16 x 1.5	21-FX4MS16	38.1	14	15.2	4.8	14.3	17.5
1/4	M18 x 1.5	21-FX4MS18	39.5	15	15.2	4.8	14.3	19.1
1/4	M20 x 1.5	21-FX4MS20	40.7	16	15.2	4.8	14.3	22.2
3/8	M10 x 1.0	21-FX6MS10	36.4	11	16.8	4.8	17.5	15.9
3/8	M14 x 1.5	21-FX6MS14	39.3	13	16.8	7.1	17.5	15.9
3/8	M16 x 1.5	21-FX6MS16	39.7	14	16.8	7.1	17.5	17.5
3/8	M18 x 1.5	21-FX6MS18	41.5	15	16.8	7.1	17.5	19.1
3/8	M20 x 1.5	21-FX6MS20	42.3	16	16.8	7.1	17.5	22.2
1/2	M16 x 1.5	21-FX8MS16	43.2	14	22.9	8.4	22.2	20.6
1/2	M18 x 1.5	21-FX8MS18	43.7	15	22.9	9.6	22.2	20.6
1/2	M20 x 1.5	21-FX8MS20	44.9	16	22.9	10.4	22.2	22.2
1/2	M22 x 1.5	21-FX8MS22	47.0	17	22.9	10.4	22.2	23.8

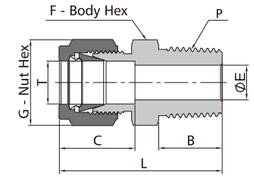
Male Connectors



Metric Tube — NPT Thread

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
2	1/8	21-MX2N2	30.5	9.7	12.9	1.7	12	12
3	1/8	21-MX3N2	30.5	9.7	12.9	2.4	12	12
3	1/4	21-MX3N4	35.6	14.2	12.9	2.4	12	14
4	1/8	21-MX4N2	31.2	9.7	13.7	2.4	12	12
4	1/4	21-MX4N4	36.3	14.2	13.7	2.4	12	14
6	1/8	21-MX6N2	32.8	9.7	15.3	4.8	14	14
6	1/4	21-MX6N4	37.9	14.2	15.3	4.8	14	14
6	3/8	21-MX6N6	38.4	14.2	15.3	4.8	14	18
6	1/2	21-MX6N8	44.7	19.1	15.3	4.8	14	22
8	1/8	21-MX8N2	34.2	9.7	16.2	4.8	16	15
8	1/4	21-MX8N4	38.7	14.2	16.2	6.4	16	15
8	3/8	21-MX8N6	39.3	14.2	16.2	6.4	16	18
8	1/2	21-MX8N8	45.6	19.1	16.2	6.4	16	22
10	1/8	21-MX10N2	36.3	9.7	17.2	4.8	19	18
10	1/4	21-MX10N4	40.9	14.2	17.2	7.1	19	18
10	3/8	21-MX10N6	40.9	14.2	17.2	7.9	19	18
10	1/2	21-MX10N8	46.5	19.1	17.2	7.9	19	22
10	3/4	21-MX10N12	48.0	19.1	17.2	7.9	19	27
10	1	21-MX10N16	54.6	23.9	17.2	7.9	19	35
12	1/8	21-MX12N2	38.8	9.7	22.8	4.8	22	22
12	1/4	21-MX12N4	43.4	14.2	22.8	7.1	22	22
12	3/8	21-MX12N6	43.4	14.2	22.8	9.5	22	22
12	1/2	21-MX12N8	49.0	19.1	22.8	9.5	22	22
12	3/4	21-MX12N12	50.5	19.1	22.8	9.5	22	27
14	1/8	21-MX14N2	38.8	9.7	24.4	4.8	25	24
14	1/4	21-MX14N4	44.1	14.2	24.4	7.1	25	24
14	3/8	21-MX14N6	44.1	14.2	24.4	9.5	25	24
14	1/2	21-MX14N8	49.0	19.1	24.4	11.1	25	24
14	3/4	21-MX14N12	50.5	19.1	24.4	11.1	25	27
15	1/2	21-MX15N8	49.0	19.1	24.4	11.9	25	24
15	3/4	21-MX15N12	50.5	19.1	24.4	11.9	25	27
15	1	21-MX15N16	57.1	23.9	24.4	11.9	25	35
16	1/4	21-MX16N4	44.1	14.2	24.4	7.1	25	24
16	3/8	21-MX16N6	44.1	14.2	24.4	9.5	25	24
16	1/2	21-MX16N8	49.0	19.1	24.4	11.9	25	24
16	3/4	21-MX16N12	50.5	19.1	24.4	12.7	25	27
18	3/8	21-MX18N6	45.6	14.2	24.4	9.5	30	27
18	1/2	21-MX18N8	50.5	19.1	24.4	11.9	30	27
18	3/4	21-MX18N12	50.5	19.1	24.4	15.1	30	27
20	1/2	21-MX20N8	52.3	19.1	26.0	11.9	32	30
20	3/4	21-MX20N12	52.3	19.1	26.0	15.9	32	30
20	1	21-MX20N16	57.1	23.9	26.0	15.9	32	35
22	1/2	21-MX22N8	52.3	19.1	26.0	11.9	32	30
22	3/4	21-MX22N12	52.3	19.1	26.0	15.9	32	30
22	1	21-MX22N16	57.1	23.9	26.0	18.3	32	35
25	1/2	21-MX25N8	57.5	19.1	31.3	11.9	38	35
25	3/4	21-MX25N12	57.5	19.1	31.3	15.9	38	35
25	1	21-MX25N16	62.3	23.9	31.3	21.8	38	35
28	1	21-MX28N16	72.4	23.9	36.6	21.8	46	41
28	1 1/4	21-MX28N20	73.1	23.9	36.6	21.8	46	46
30	1 1/4	21-MX30N20	77.2	23.9	39.6	26.2	50	46
32	1 1/4	21-MX32N20	79.6	23.9	42.0	28.6	50	46
38	1 1/2	21-MX38N24	91.6	26.2	49.4	33.7	60	55

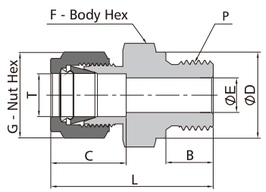
Male Connectors



Metric Tube — ISO Tapered Thread (R)

T-Tube O.D. (mm)	P-R Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
2	1/8	21-MX2R2	30.5	9.7	12.9	1.7	12	12
3	1/8	21-MX3R2	30.5	9.7	12.9	2.4	12	12
3	1/4	21-MX3R4	35.6	14.2	12.9	2.4	12	14
4	1/8	21-MX4R2	31.2	9.7	13.7	2.4	12	12
4	1/4	21-MX4R4	36.3	14.2	13.7	2.4	12	14
6	1/8	21-MX6R2	32.8	9.7	15.3	4.8	14	14
6	1/4	21-MX6R4	37.9	14.2	15.3	4.8	14	14
6	3/8	21-MX6R6	38.4	14.2	15.3	4.8	14	18
6	1/2	21-MX6R8	44.7	19.1	15.3	4.8	14	22
8	1/8	21-MX8R2	34.2	9.7	16.2	4.8	16	15
8	1/4	21-MX8R4	38.7	14.2	16.2	6.4	16	15
8	3/8	21-MX8R6	39.2	14.2	16.2	6.4	16	18
8	1/2	21-MX8R8	45.6	19.1	16.2	6.4	16	22
10	1/8	21-MX10R2	36.3	9.7	17.2	4.8	19	18
10	1/4	21-MX10R4	40.9	14.2	17.2	7.1	19	18
10	3/8	21-MX10R6	40.9	14.2	17.2	7.9	19	18
10	1/2	21-MX10R8	46.5	19.1	17.2	7.9	19	22
10	3/4	21-MX10R12	48.0	19.1	17.2	7.9	19	27
12	1/8	21-MX12R2	38.3	9.7	22.8	4.8	22	22
12	1/4	21-MX12R4	43.4	14.2	22.8	7.1	22	22
12	3/8	21-MX12R6	43.4	14.2	22.8	9.5	22	22
12	1/2	21-MX12R8	49.0	19.1	22.8	9.5	22	22
12	3/4	21-MX12R12	50.5	19.1	22.8	9.5	22	27
14	1/8	21-MX14R2	38.8	9.7	24.4	4.8	25	24
14	1/4	21-MX14R4	44.1	14.2	24.4	7.1	25	24
14	3/8	21-MX14R6	44.1	14.2	24.4	7.9	25	24
14	1/2	21-MX14R8	49.0	19.1	24.4	11.1	25	24
14	3/4	21-MX14R12	50.5	19.1	24.4	11.1	25	27
15	1/2	21-MX15R8	49.0	19.1	24.4	11.9	25	24
16	1/4	21-MX16R4	44.1	14.2	24.4	7.1	25	24
16	3/8	21-MX16R6	44.1	14.2	24.4	9.5	25	24
16	1/2	21-MX16R8	49.0	19.1	24.4	11.9	25	24
16	3/4	21-MX16R12	50.5	19.1	24.4	12.7	25	27
18	1/2	21-MX18R8	50.5	19.1	24.4	11.9	30	27
18	3/4	21-MX18R12	50.5	19.1	24.4	15.1	30	27
20	1/2	21-MX20R8	52.3	19.1	26.0	11.9	32	30
20	3/4	21-MX20R12	52.3	19.1	26.0	15.9	32	30
22	3/4	21-MX22R12	52.3	19.1	26.0	15.9	32	30
22	1	21-MX22R16	57.1	23.9	26.0	18.3	32	35
25	1/2	21-MX25R8	57.5	19.1	31.3	11.9	38	35
25	3/4	21-MX25R12	57.5	19.1	31.3	15.9	38	35
25	1	21-MX25R16	62.3	23.9	31.3	21.8	38	35
28	1	21-MX28R16	72.4	23.9	36.6	21.8	46	41
28	1 1/4	21-MX28R20	73.1	23.9	36.6	21.8	46	46
30	1 1/4	21-MX30R20	77.2	23.9	39.6	26.2	50	46
32	1 1/4	21-MX32R20	79.6	23.9	42.0	28.6	50	46
38	1 1/2	21-MX38R24	91.6	26.2	49.4	33.7	60	55

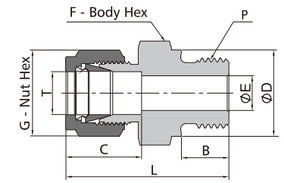
Male Connectors



Metric Tube — ISO Parallel Thread (BS)

T-Tube O.D. (mm)	P-RS Size	Basic Ordering Number	Dimension, mm						
			L	B	C	E	G	F	D
2	1/8	21-MX2BS2	30.0	7.1	12.9	1.7	12	14	13.7
3	1/8	21-MX3BS2	30.0	7.1	12.9	2.4	12	14	13.7
3	1/4	21-MX3BS4	35.3	11.2	12.9	2.4	12	19	18.0
4	1/8	21-MX4BS2	30.7	7.1	13.7	2.4	12	14	13.7
4	1/4	21-MX4BS4	36.0	11.2	13.7	2.4	12	19	18.0
6	1/8	21-MX6BS2	32.3	7.1	15.3	4.0	14	14	13.7
6	1/4	21-MX6BS4	37.6	11.2	15.3	4.8	14	19	18.0
6	3/8	21-MX6BS6	38.9	11.2	15.3	4.8	14	22	21.6
6	1/2	21-MX6BS8	44.7	14.2	15.3	4.8	14	27	25.9
8	1/8	21-MX8BS2	33.2	7.1	16.2	4.0	16	15	14.5
8	1/4	21-MX8BS4	38.5	11.2	16.2	6.4	16	19	18.0
8	3/8	21-MX8BS6	39.8	11.2	16.2	6.4	16	22	21.6
8	1/2	21-MX8BS8	45.6	14.2	16.2	6.4	16	27	25.9
8	3/4	21-MX8BS12	49.5	15.7	16.2	6.4	16	35	32.0
10	1/4	21-MX10BS4	39.4	11.2	17.2	5.9	19	19	18.0
10	3/8	21-MX10BS6	40.6	11.2	17.2	7.9	19	22	21.6
10	1/2	21-MX10BS8	46.5	14.2	17.2	7.9	19	27	25.9
12	1/4	21-MX12BS4	42.6	11.2	22.8	5.9	22	22	21.6
12	3/8	21-MX12BS6	43.1	11.2	22.8	7.9	22	22	21.6
12	1/2	21-MX12BS8	49.0	14.2	22.8	9.5	22	27	25.9
12	3/4	21-MX12BS12	52.8	15.7	22.8	9.5	22	35	32.0
14	1/4	21-MX14BS4	42.9	11.2	24.4	7.1	25	24	18.0
14	3/8	21-MX14BS6	43.9	11.2	24.4	7.9	25	24	21.6
14	1/2	21-MX14BS8	49.0	14.2	24.4	11.1	25	27	25.9
14	3/4	21-MX14BS12	52.8	15.7	24.4	11.1	25	35	32.0
15	3/8	21-MX15BS6	43.9	11.2	24.4	7.9	25	24	21.6
15	1/2	21-MX15BS8	49.0	14.2	24.4	11.9	25	27	25.9
15	3/4	21-MX15BS12	52.8	15.7	24.4	11.9	25	35	32.0
16	3/8	21-MX16BS6	43.9	11.2	24.4	7.9	25	24	21.6
16	1/2	21-MX16BS8	49.0	14.2	24.4	11.9	25	27	25.9
16	3/4	21-MX16BS12	52.8	15.7	24.4	12.7	25	35	32.0
18	1/2	21-MX18BS8	49.0	14.2	24.4	11.9	30	27	25.9
18	3/4	21-MX18BS12	52.8	15.7	24.4	15.1	30	35	32.0
20	1/2	21-MX20BS8	50.5	14.2	26.0	11.9	32	30	25.9
20	3/4	21-MX20BS12	52.8	15.7	26.0	15.9	32	35	32.0
22	3/4	21-MX22BS12	52.8	15.7	26.0	15.9	32	35	32.0
22	1	21-MX22BS16	55.3	18.3	26.0	18.3	32	41	39.1
25	3/4	21-MX25BS12	57.5	15.7	31.3	15.9	38	35	32.0
25	1	21-MX25BS16	60.1	18.3	31.3	19.8	38	41	39.1
28	1	21-MX28BS16	70.1	18.3	36.6	19.8	46	41	39.1
28	1 1/4	21-MX28BS20	73.9	19.8	36.6	21.8	46	50	49.0
30	1 1/4	21-MX30BS20	76.5	19.8	39.6	25.0	50	50	49.0
32	1 1/4	21-MX32BS20	78.9	19.8	42.0	25.0	50	50	49.0
38	1 1/2	21-MX38BS24	90.8	22.1	49.4	31.8	60	55	54.7

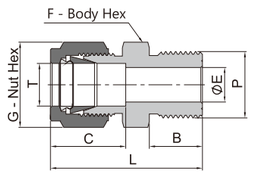
Male Connectors



Metric Tube — ISO Parallel Thread (BR)

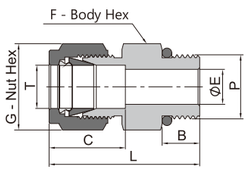
T-Tube O.D. (mm)	P-RP Size	Basic Ordering Number	Dimension, mm						
			L	B	C	E	G	F	D
3	1/8	21-MX3BR2	30.0	7.1	12.9	2.4	12	14	13.8
3	1/4	21-MX3BR4	35.3	11.2	12.9	2.4	12	19	18.0
4	1/8	21-MX4BR2	30.7	7.1	13.7	2.4	12	14	13.8
6	1/8	21-MX6BR2	32.3	7.1	15.3	4.0	14	14	13.8
6	1/4	21-MX6BR4	37.6	11.2	15.3	4.8	14	19	18.0
6	3/8	21-MX6BR6	38.9	11.2	15.3	4.8	14	22	21.8
6	1/2	21-MX6BR8	44.7	14.2	15.3	4.8	14	27	26.0
8	1/8	21-MX8BR2	33.3	7.1	16.2	4.0	16	15	13.8
8	1/4	21-MX8BR4	38.5	11.2	16.2	5.9	16	19	18.0
8	3/8	21-MX8BR6	39.8	11.2	16.2	6.4	16	22	21.8
8	1/2	21-MX8BR8	45.6	14.2	16.2	6.4	16	27	26.0
10	1/4	21-MX10BR4	39.4	11.2	17.2	5.9	19	19	18.0
10	3/8	21-MX10BR6	40.6	11.2	17.2	7.9	19	22	21.8
10	1/2	21-MX10BR8	46.5	14.2	17.2	7.9	19	27	26.0
12	1/4	21-MX12BR4	42.6	11.2	22.8	5.9	22	22	18.0
12	3/8	21-MX12BR6	43.1	11.2	22.8	7.9	22	22	21.8
12	1/2	21-MX12BR8	49.0	14.2	22.8	9.5	22	27	26.0
12	3/4	21-MX12BR12	52.8	15.7	22.8	9.5	22	35	32.0
15	1/2	21-MX15BR8	49.0	14.2	24.4	11.9	25	27	26.0
16	3/8	21-MX16BR6	43.9	11.2	24.4	7.9	25	24	21.8
16	1/2	21-MX16BR8	49.0	14.2	24.4	11.9	25	27	26.0
18	1/2	21-MX18BR8	49.0	14.2	24.4	11.9	30	27	26.0
18	3/4	21-MX18BR12	52.8	15.7	24.4	15.1	30	35	32.0
20	1/2	21-MX20BR8	50.5	14.2	26.0	11.9	32	30	26.0
20	3/4	21-MX20BR12	52.8	15.7	26.0	15.9	32	35	32.0
22	3/4	21-MX22BR12	52.8	15.7	26.0	15.9	32	35	32.0
22	1	21-MX22BR16	55.3	18.3	26.0	18.3	32	41	39.0
25	3/4	21-MX25BR12	57.5	15.7	31.3	15.9	38	35	32.0
25	1	21-MX25BR16	60.1	18.3	31.3	19.8	38	41	39.0
28	1	21-MX28BR16	70.1	18.3	36.6	19.8	46	41	39.0
28	1 1/4	21-MX28BR20	73.9	19.8	36.6	21.8	46	50	49.0
30	1 1/4	21-MX30BR20	76.5	19.8	39.6	26.2	50	50	49.0
32	1 1/4	21-MX32BR20	78.9	19.8	42.0	28.6	50	50	49.0
38	1 1/2	21-MX38BR24	89.3	20.6	49.4	31.8	60	55	54.7

Male Connectors



Metric Tube — ISO Parallel Thread (BP)

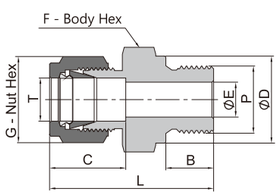
T-Tube O.D. (mm)	P-BP Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
6	1/4	21-MX6BP4	36.9	12.9	15.3	4.8	14	14
6	3/8	21-MX6BP6	39.5	14.2	15.3	4.8	14	18
8	1/8	21-MX8BP2	33.9	9.8	16.2	4.0	16	14
8	1/4	21-MX8BP4	37.0	12.9	16.2	6.4	16	14
8	3/8	21-MX8BP6	39.3	14.2	16.2	6.4	16	18
8	1/2	21-MX8BP8	45.4	18.8	16.2	6.4	16	22
10	1/4	21-MX10BP4	39.5	12.9	17.2	5.9	19	18
10	1/2	21-MX10BP8	46.3	18.8	17.2	7.9	19	22
12	3/8	21-MX12BP6	44.2	14.2	22.8	7.9	22	22
12	1/2	21-MX12BP8	49.0	18.8	22.8	9.5	22	22
14	1/4	21-MX14BP4	42.9	12.9	24.4	5.9	25	24
16	3/8	21-MX16BP6	43.4	14.2	24.4	7.9	25	24
16	1/2	21-MX16BP8	47.9	18.8	24.4	9.5	25	24
18	1/2	21-MX18BP8	49.8	18.8	24.4	9.5	30	27



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

Metric Tube — SAE/MS Straight Thread

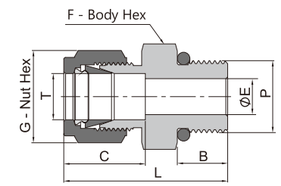
T-Tube O.D. (mm)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
6	9/16-18	21-MX6ST9	35.6	9.9	15.3	4.8	14	18
10	9/16-18	21-MX10ST9	37.3	9.9	17.2	7.1	19	22
10	3/4-16	21-MX10ST12	39.4	11.2	17.2	7.9	19	22
12	7/16-20	21-MX12ST7	40.6	9.1	22.8	5.2	22	22
12	9/16-18	21-MX12ST9	39.9	9.9	22.8	7.1	22	22



Metric Tube — Metric Thread (MR)

T-Tube O.D. (mm)	P-Metric Thread Size	Basic Ordering Number	Dimension, mm						
			L	B	C	E	G	F	D
6	M8 x 1	21-MX6MR8	33.3	8	15.3	3.0	14	14	12
6	M10 x 1	21-MX6MR10	36.3	8	15.3	4.0	14	14	14
6	M12 x 1.5	21-MX6MR12	38.2	12	15.3	4.8	14	18	17
6	M14 x 1.5	21-MX6MR14	39.7	12	15.3	4.8	14	19	19
8	M8 x 1	21-MX8MR8	34.1	8	16.2	3.0	16	14	12
8	M10 x 1	21-MX8MR10	34.1	8	16.2	5.0	16	15	14
8	M12 x 1.5	21-MX8MR12	40.4	12	16.2	6.0	16	18	17
8	M14 x 1.5	21-MX8MR14	40.4	12	16.2	6.4	16	19	19
10	M12 x 1.5	21-MX10MR12	40.7	12	17.2	6.0	19	18	17
10	M14 x 1.5	21-MX10MR14	41.5	12	17.2	7.9	19	19	19
12	M16 x 1.5	21-MX12MR16	45.5	12	22.8	9	22	22	21
12	M20 x 1.5	21-MX12MR20	48.0	14	22.8	9.5	22	25	25
12	M22 x 1.5	21-MX12MR22	49.5	14	22.8	9.5	22	27	27
14	M14 x 1.5	21-MX14MR14	44.9	12	24.4	8	25	24	19
14	M20 x 1.5	21-MX14MR20	48.0	14	24.4	11.1	25	25	25
16	M20 x 1.5	21-MX16MR20	48.0	14	24.4	12	25	25	25
18	M20 x 1.5	21-MX18MR20	48.5	14	24.4	12	30	27	25
20	M20 x 1.5	21-MX20MR20	50.0	14	26.0	12	32	30	25
22	M24 x 1.5	21-MX22MR24	50.5	14	26.0	15	32	30	29
25	M27 x 2	21-MX25MR27	57.5	16	31.3	16.8	38	35	32

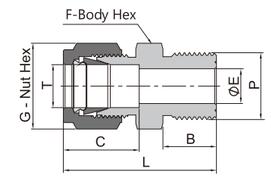
Male Connectors



Adapt to straight thread boss of ISO 6149-1.

Metric Tube — Metric Thread (MO)

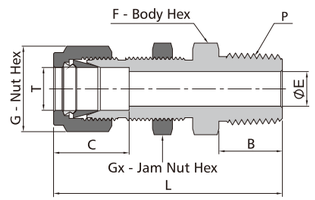
T-Tube O.D. (mm)	P-Metric Thread Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
6	M14 x 1.5	21-MX6MO14	35.2	11	15.3	4.8	14	19
10	M14 x 1.5	21-MX10MO14	36.7	11	17.2	7.5	19	19
10	M20 x 1.5	21-MX10MO20	41.2	14	17.2	7.9	19	27
12	M14 x 1.5	21-MX12MO14	40.2	11	22.8	7.5	22	22
12	M20 x 1.5	21-MX12MO20	44.0	14	22.8	10.4	22	27



Metric Tube — Metric Thread (MS)

T-Tube O.D. (mm)	P-Metric Thread Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
6	M6 x 1	21-MX6MS6	32.4	8	15.3	2.0	14	14
6	M8 x 1	21-MX6MS8	32.4	9	15.3	3.0	14	14
6	M10 x 1	21-MX6MS10	35.2	11	15.3	4.7	14	14
6	M12 x 1.5	21-MX6MS12	36.4	12	15.3	4.8	14	14
6	M14 x 1.5	21-MX6MS14	37.4	13	15.3	4.8	14	16
6	M16 x 1.5	21-MX6MS16	38.4	14	15.3	4.8	14	18
6	M18 x 1.5	21-MX6MS18	40.0	15	15.3	4.8	14	19
6	M20 x 1.5	21-MX6MS20	41.7	16	15.3	4.8	14	22
8	M8 x 1	21-MX8MS8	34.5	9	16.2	3.0	16	14
8	M10 x 1	21-MX8MS10	35.6	11	16.2	4.7	16	14
8	M12 x 1.5	21-MX8MS12	36.6	12	16.2	6.0	16	14
8	M14 x 1.5	21-MX8MS14	37.7	13	16.2	6.4	16	16
8	M20 x 1.5	21-MX8MS20	42.5	16	16.2	6.4	16	22
10	M12 x 1.5	21-MX10MS12	38.7	12	17.2	6.0	19	18
10	M14 x 1.5	21-MX10MS14	39.7	13	17.2	7.2	19	18
10	M20 x 1.5	21-MX10MS20	43.5	16	17.2	7.9	19	22
12	M12 x 1.5	21-MX12MS12	41.2	12	22.8	6.0	22	22
12	M16 x 1.5	21-MX12MS16	43.2	14	22.8	9.5	22	22
12	M18 x 1.5	21-MX12MS18	44.2	15	22.8	9.5	22	22
12	M20 x 1.5	21-MX12MS20	45.2	16	22.8	9.5	22	22
14	M14 x 1.5	21-MX14MS14	42.5	13	24.4	7.2	25	24
14	M16 x 1.5	21-MX14MS16	43.9	14	24.4	8.4	25	24
14	M20 x 1.5	21-MX14MS20	45.1	16	24.4	10.8	25	24
16	M20 x 1.5	21-MX16MS20	46.1	16	24.4	10.8	25	24
18	M20 x 1.5	21-MX18MS20	47.5	16	24.4	10.8	30	27
18	M22 x 1.5	21-MX18MS22	48.5	17	24.4	12	30	27
20	M20 x 1.5	21-MX20MS20	49.5	16	26.0	10.8	32	30
22	M24 x 1.5	21-MX22MS24	50.5	17	26.0	14.4	32	30
25	M27 x 2	21-MX25MS27	57.0	18	31.3	16.1	38	35

Bulkhead Male Connectors



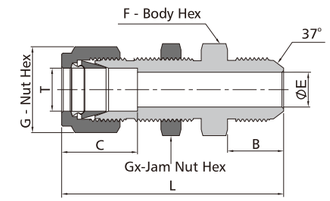
Fractional Tube — NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm							Panel Hole Size (mm)	Max. Panel Thickness (mm)
			L	B	C	E	G	F	Gx		
1/16	1/16	21-BFX1N1	30.2	9.7	8.6	1.3	7.9	7.9	7.9	5.2	6.4
1/16	1/8	21-BFX1N2	32.3	9.7	8.6	1.3	7.9	11.1	7.9	5.2	6.4
1/8	1/8	21-BFX2N2	46.5	9.7	12.7	2.3	11.1	12.7	12.7	8.3	12.7
3/16	1/8	21-BFX3N2	48.0	9.7	13.7	3.0	12.7	14.3	14.3	9.9	12.7
1/4	1/8	21-BFX4N2	49.5	9.7	15.2	4.8	14.3	15.9	15.9	11.5	10.2
1/4	1/4	21-BFX4N4	54.1	14.2	15.2	4.8	14.3	15.9	15.9	11.5	10.2
1/4	3/8	21-BFX4N6	54.9	14.2	15.2	4.8	14.3	17.5	15.9	11.5	10.2
1/4	1/2	21-BFX4N8	60.3	19.1	15.2	4.8	14.3	22.2	15.9	11.5	10.2
5/16	1/8	21-BFX5N2	52.8	9.7	16.3	4.8	15.9	17.5	17.5	13.1	11.2
5/16	1/4	21-BFX5N4	57.7	14.2	16.3	6.4	15.9	17.5	17.5	13.1	11.2
3/8	1/8	21-BFX6N2	52.9	9.7	16.8	4.8	17.5	19.1	19.1	14.7	11.2
3/8	1/4	21-BFX6N4	57.4	14.2	16.8	7.1	17.5	19.1	19.1	14.7	11.2
3/8	3/8	21-BFX6N6	57.4	14.2	16.8	7.1	17.5	19.1	19.1	14.7	11.2
3/8	1/2	21-BFX6N8	63.8	19.1	16.8	7.1	17.5	22.2	19.1	14.7	11.2
1/2	1/8	21-BFX8N2	58.7	9.7	22.9	4.8	22.2	23.8	23.8	19.4	12.7
1/2	1/4	21-BFX8N4	63.2	14.2	22.9	7.1	22.2	23.8	23.8	19.4	12.7
1/2	3/8	21-BFX8N6	63.2	14.2	22.9	9.7	22.2	23.8	23.8	19.4	12.7
1/2	1/2	21-BFX8N8	68.8	19.1	22.9	10.4	22.2	23.8	23.8	19.4	12.7
5/8	3/8	21-BFX10N6	66.7	14.2	24.4	9.7	25.4	27.0	27.0	22.6	15.1
5/8	1/2	21-BFX10N8	71.5	19.1	24.4	11.9	25.4	27.0	27.0	22.6	15.1
3/4	1/2	21-BFX12N8	76.2	19.1	24.4	11.9	28.6	30.2	30.2	25.8	16.8
3/4	3/4	21-BFX12N12	76.2	19.1	24.4	15.7	28.6	30.2	30.2	25.8	16.8
7/8	3/4	21-BFX14N12	84.1	19.1	25.9	15.7	31.8	33.3	33.3	29.0	19.1
1	3/4	21-BFX16N12	88.4	19.1	31.2	15.7	38.1	41.3	41.3	33.7	19.1
1	1	21-BFX16N16	93.2	23.9	31.2	22.4	38.1	41.3	41.3	33.7	19.1

Metric Tube — NPT Thread

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm							Panel Hole Size (mm)	Max. Panel Thickness (mm)
			L	B	C	E	G	F	Gx		
6	1/8	21-BMX6N2	49.6	9.7	15.3	4.8	14	16	16	11.5	10.2
6	1/4	21-BMX6N4	53.6	14.2	15.3	4.8	14	16	16	11.5	10.2
8	1/8	21-BMX8N2	52.3	9.7	16.2	4.8	16	18	18	13.1	11.2
8	1/4	21-BMX8N4	57.5	14.2	16.2	6.4	16	18	18	13.1	11.2
10	1/4	21-BMX10N4	58.4	14.2	17.2	7.9	19	22	22	16.3	11.2
10	3/8	21-BMX10N6	58.4	14.2	17.2	7.9	19	22	22	16.3	11.2
10	1/2	21-BMX10N8	63.1	19.1	17.2	7.9	19	22	22	16.3	11.2
12	1/4	21-BMX12N4	63.9	14.2	22.8	7.9	22	24	24	19.5	12.7
12	3/8	21-BMX12N6	63.9	14.2	22.8	9.5	22	24	24	19.5	12.7
12	1/2	21-BMX12N8	68.8	19.1	22.8	9.5	22	24	24	19.5	12.7

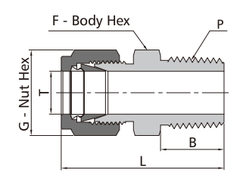
Bulkhead Male Connectors



Fractional Tube — 37°Flare (AN)

T-Tube O.D. (in.)	AN Tube Flare Size	Basic Ordering Number	Dimension, mm							Panel Hole Size (mm)	Max. Panel Thickness (mm)
			L	B	C	E	G	F	Gx		
1/8	1/8	21-BFX2AN2	48.5	11.4	12.7	1.5	11.1	12.7	12.7	8.3	12.7
1/8	1/4	21-BFX2AN4	51.8	14.0	12.7	2.3	11.1	15.9	12.7	8.3	12.7
3/16	3/16	21-BFX3AN3	50.3	12.2	13.7	2.3	12.7	14.3	14.3	9.9	12.7
1/4	1/4	21-BFX4AN4	53.8	14.0	15.2	4.3	14.3	15.9	15.9	11.5	10.2
5/16	5/16	21-BFX5AN5	56.1	14.0	16.2	5.8	15.9	17.5	17.5	13.1	14.3
3/8	1/4	21-BFX6AN4	57.2	14.0	16.8	4.3	17.5	19.1	19.1	14.7	11.2
3/8	3/8	21-BFX6AN6	57.2	14.2	16.8	7.1	17.5	19.1	19.1	14.7	11.2
1/2	1/2	21-BFX8AN8	65.8	16.8	22.8	9.9	22.2	23.8	23.8	19.4	12.7
5/8	5/8	21-BFX10AN10	69.6	19.3	24.4	12.3	25.4	27.0	27.0	22.6	15.1
3/4	3/4	21-BFX12AN12	79.0	21.8	24.4	15.5	28.6	30.2	30.2	25.8	16.8
1	1	21-BFX16AN16	92.5	23.1	31.2	21.3	38.1	41.3	41.3	33.7	19.1

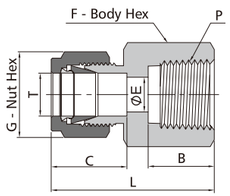
Thermocouple Connectors



Fractional Tube — NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm			
			L	B	G	F
1/16	1/16	21-TFX1N1	23.9	9.7	7.9	7.9
1/16	1/8	21-TFX1N2	26.2	9.7	7.9	11.1
1/16	1/4	21-TFX1N4	31.0	14.2	7.9	14.3
1/8	1/16	21-TFX2N1	29.7	9.7	11.1	11.1
1/8	1/8	21-TFX2N2	30.5	9.7	11.1	11.1
1/8	1/4	21-TFX2N4	35.6	14.2	11.1	14.3
3/16	1/8	21-TFX3N2	31.2	9.7	12.7	11.1
3/16	1/4	21-TFX3N4	36.3	14.2	12.7	14.3
1/4	1/8	21-TFX4N2	32.8	9.7	14.3	12.7
1/4	1/4	21-TFX4N4	37.8	14.2	14.3	14.3
1/4	3/8	21-TFX4N6	38.4	14.2	14.3	17.5
1/4	1/2	21-TFX4N8	44.7	19.1	14.3	22.2
5/16	1/4	21-TFX5N4	38.6	14.2	15.9	14.3
3/8	1/4	21-TFX6N4	39.9	14.2	17.5	15.9
3/8	3/8	21-TFX6N6	39.9	14.2	17.5	17.5
3/8	1/2	21-TFX6N8	46.2	19.1	17.5	22.2
3/8	3/4	21-TFX6N12	47.8	19.1	17.5	27.0
1/2	1/2	21-TFX8N8	49.0	19.1	22.2	22.2
1/2	3/4	21-TFX8N12	50.5	19.1	22.2	27.0
5/8	3/4	21-TFX10N12	50.5	19.1	25.4	27.0
3/4	3/4	21-TFX12N12	50.5	19.1	28.6	27.0
1	1	21-TFX16N16	62.2	23.9	38.1	34.9

Female Connectors



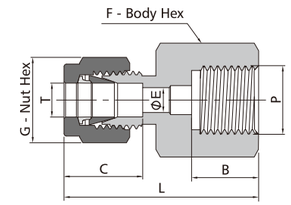
Fractional Tube — FNPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/16	1/16	21-FX1FN1	23.6	9.9	8.6	1.3	7.9	11.1
1/16	1/8	21-FX1FN2	24.4	10.4	8.6	1.3	7.9	14.3
1/8	1/8	21-FX2FN2	28.7	10.4	12.7	2.3	11.1	14.3
1/8	1/4	21-FX2FN4	33.5	15.0	12.7	2.3	11.1	19.1
3/16	1/8	21-FX3FN2	29.7	10.4	13.7	3.0	12.7	14.3
1/4	1/8	21-FX4FN2	31.2	10.4	15.2	4.8	14.3	14.3
1/4	1/4	21-FX4FN4	35.8	15.0	15.2	4.8	14.3	19.1
1/4	3/8	21-FX4FN6	37.6	15.0	15.2	4.8	14.3	22.2
1/4	1/2	21-FX4FN8	42.4	19.8	15.2	4.8	14.3	27.0
5/16	1/8	21-FX5FN2	32.0	10.4	16.3	6.4	15.9	14.3
5/16	1/4	21-FX5FN4	36.8	15.0	16.3	6.4	15.9	19.1
3/8	1/8	21-FX6FN2	32.8	10.4	16.8	7.1	17.5	15.9
3/8	1/4	21-FX6FN4	37.6	15.0	16.8	7.1	17.5	19.1
3/8	3/8	21-FX6FN6	39.1	15.0	16.8	7.1	17.5	22.2
3/8	1/2	21-FX6FN8	43.9	19.8	16.8	7.1	17.5	27.0
3/8	3/4	21-FX6FN12	47.8	20.6	16.8	7.1	17.5	33.3
1/2	1/4	21-FX8FN4	40.4	15.0	22.9	10.4	22.2	20.6
1/2	3/8	21-FX8FN6	41.9	15.0	22.9	10.4	22.2	22.2
1/2	1/2	21-FX8FN8	46.7	19.8	22.9	10.4	22.2	27.0
1/2	3/4	21-FX8FN12	48.3	20.6	22.9	10.4	22.2	33.3
5/8	3/8	21-FX10FN6	41.9	15.0	24.4	12.7	25.4	23.8
5/8	1/2	21-FX10FN8	46.7	19.8	24.4	12.7	25.4	27.0
3/4	1/2	21-FX12FN8	46.7	19.8	24.4	15.7	28.6	27.0
3/4	3/4	21-FX12FN12	48.3	20.6	24.4	15.7	28.6	33.3
7/8	3/4	21-FX14FN12	49.8	20.6	25.9	18.3	31.8	33.3
1	3/4	21-FX16FN12	53.3	20.6	31.2	22.4	38.1	34.9
1	1	21-FX16FN16	62.2	25.4	31.2	22.4	38.1	41.3
1 1/4	1 1/4	21-FX20FN20	74.7	25.4	41.1	27.7	47.6	54.0
1 1/2	1 1/2	21-FX24FN24	83.3	27.7	50.0	36.3	57.2	60.3

Fractional Tube — ISO Tapered Thread (FR)

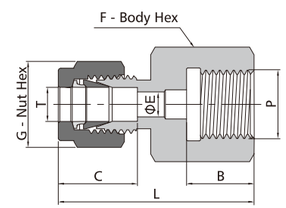
T-Tube O.D. (in.)	P-FR Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/4	1/8	21-FX4FR2	31.2	10.4	15.2	4.8	14.3	14.3
1/4	1/4	21-FX4FR4	35.8	15.0	15.2	4.8	14.3	19.1
1/4	3/8	21-FX4FR6	37.6	15.0	15.2	4.8	14.3	22.2
1/4	1/2	21-FX4FR8	42.4	19.8	15.2	4.8	14.3	27.0
3/8	1/4	21-FX6FR4	37.6	15.0	16.8	7.1	17.5	19.1
3/8	3/8	21-FX6FR6	39.1	15.0	16.8	7.1	17.5	22.2
3/8	1/2	21-FX6FR8	43.9	19.8	16.8	7.1	17.5	27.0
1/2	1/4	21-FX8FR4	40.4	15.0	22.9	10.4	22.2	20.6
1/2	3/8	21-FX8FR6	41.9	15.0	22.9	10.4	22.2	22.2
1/2	1/2	21-FX8FR8	46.7	19.8	22.9	10.4	22.2	27.0

Female Connectors



Fractional Tube — ISO Parallel Thread (FG)

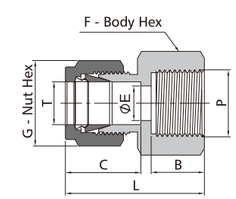
T-Tube O.D. (in.)	P-RG Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/8	1/4	21-FX2FG4	35.3	12.9	12.7	2.3	11.1	19.1
1/8	3/8	21-FX2FG6	38.7	14.2	12.7	2.3	11.1	23.8
1/4	1/4	21-FX4FG4	37.6	12.9	15.2	4.8	14.3	19.1
1/4	3/8	21-FX4FG6	37.6	14.2	15.2	4.8	14.3	23.8
1/4	1/2	21-FX4FG8	43.4	18.8	15.2	4.8	14.3	27.0
5/16	1/4	21-FX5FG4	38.4	12.9	16.3	5.6	15.9	19.1
5/16	3/8	21-FX5FG6	39.2	14.2	16.3	6.4	15.9	23.8
5/16	1/2	21-FX5FG8	40.9	18.8	16.3	7.1	15.9	27.0
3/8	1/4	21-FX6FG4	39.1	12.9	16.8	5.6	17.5	19.1
3/8	3/8	21-FX6FG6	38.6	14.2	16.8	6.4	17.5	23.8
3/8	1/2	21-FX6FG8	41.9	18.8	16.8	7.1	17.5	27.0
1/2	1/4	21-FX8FG4	41.9	12.9	22.9	5.6	22.2	22.2
1/2	3/8	21-FX8FG6	44.5	14.2	22.9	6.4	22.2	23.8
1/2	1/2	21-FX8FG8	48.3	18.8	22.9	7.1	22.2	27.0



Adapt to Japanese gauge stud.

Fractional Tube — ISO Parallel Thread (RJ)

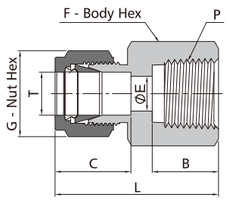
T-Tube O.D. (in.)	P-FJ Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/4	1/4	21-FX4FJ4	37.6	12.9	15.2	4.6	14.3	19.1
1/4	3/8	21-FX4FJ6	37.6	14.2	15.2	4.8	14.3	23.8
1/4	1/2	21-FX4FJ8	43.4	18.8	15.2	4.8	14.3	27.0
5/16	1/4	21-FX5FJ4	38.4	12.9	16.3	5.6	15.9	19.1
5/16	1/2	21-FX5FJ8	40.9	18.8	16.3	7.1	15.9	27.0
3/8	1/4	21-FX6FJ4	39.1	12.9	16.8	5.6	17.5	19.1
3/8	3/8	21-FX6FJ6	38.6	14.2	16.8	6.4	17.5	23.8
3/8	1/2	21-FX6FJ8	41.9	18.8	16.8	7.1	17.5	27.0
1/2	1/4	21-FX8FJ4	41.9	12.9	22.9	5.6	22.2	20.6
1/2	3/8	21-FX8FJ6	44.5	14.2	22.9	6.4	22.2	23.8
1/2	1/2	21-FX8FJ8	48.3	18.8	22.9	7.1	22.2	27.0



Fractional Tube — Metric Thread

T-Tube O.D. (in.)	P-Metric Thread Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/8	M14 x 1.5	21-FX2MS14	32.3	13	12.7	2.3	11.1	19.1
1/8	M16 x 1.5	21-FX2MS16	33.3	14	12.7	2.3	11.1	22.2
1/8	M18 x 1.5	21-FX2MS18	34.3	15	12.7	2.3	11.1	25.4
1/8	M20 x 1.5	21-FX2MS20	35.3	16	12.7	2.3	11.1	27.0
1/4	M16 x 1.5	21-FX4MS16	35.8	14	15.2	4.8	14.3	22.2
1/4	M18 x 1.5	21-FX4MS18	36.8	15	15.2	4.8	14.3	25.4
1/4	M20 x 1.5	21-FX4MS20	37.8	16	15.2	4.8	14.3	27.0
3/8	M14 x 1.5	21-FX6MS14	37.1	13	16.8	7.1	17.5	19.1
3/8	M16 x 1.5	21-FX6MS16	37.5	14	16.8	7.1	17.5	22.2
3/8	M18 x 1.5	21-FX6MS18	38.5	15	16.8	7.1	17.5	25.4
3/8	M20 x 1.5	21-FX6MS20	39.5	16	16.8	7.1	17.5	27.0
1/2	M16 x 1.5	21-FX8MS16	41.4	14	22.9	8.4	22.2	22.2
1/2	M18 x 1.5	21-FX8MS18	42.4	15	22.9	9.6	22.2	25.4
1/2	M20 x 1.5	21-FX8MS20	43.4	16	22.9	10.4	22.2	27.0
1/2	M22 x 1.5	21-FX8MS22	44.4	17	22.9	10.4	22.2	27.0

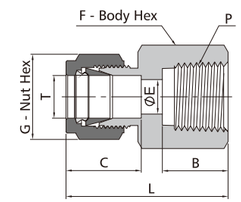
Female Connectors



Metric Tube — NPT Thread

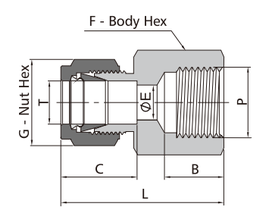
T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
3	1/8	21-MX3FN2	28.7	10.4	12.9	2.4	12	14
3	1/4	21-MX3FN4	33.5	15.0	12.9	2.4	12	19
4	1/8	21-MX4FN2	29.7	10.4	13.7	2.4	12	14
6	1/8	21-MX6FN2	31.3	10.4	15.3	4.8	14	14
6	1/4	21-MX6FN4	35.8	15.0	15.3	4.8	14	19
6	3/8	21-MX6FN6	37.7	15.0	15.3	4.8	14	22
6	1/2	21-MX6FN8	42.5	19.8	15.3	4.8	14	27
8	1/8	21-MX8FN2	32.1	10.4	16.2	4.8	16	15
8	1/4	21-MX8FN4	37.0	15.0	16.2	6.4	16	19
8	3/8	21-MX8FN6	38.5	15.0	16.2	6.4	16	22
8	1/2	21-MX8FN8	43.3	19.8	16.2	6.4	16	27
10	1/8	21-MX10FN2	33.0	10.4	17.2	4.8	19	15
10	1/4	21-MX10FN4	37.8	15.0	17.2	7.9	19	19
10	3/8	21-MX10FN6	39.4	15.0	17.2	7.9	19	22
10	1/2	21-MX10FN8	44.2	19.8	17.2	7.9	19	27
12	1/4	21-MX12FN4	40.3	15.0	22.8	7.9	22	22
12	3/8	21-MX12FN6	41.9	15.0	22.8	9.5	22	22
12	1/2	21-MX12FN8	46.7	19.8	22.8	9.5	22	27
12	3/4	21-MX12FN12	49.7	20.6	22.8	9.5	22	35
14	3/4	21-MX14FN12	49.7	20.6	24.4	11.1	25	35
15	1/2	21-MX15FN8	46.7	19.8	24.4	11.9	25	27
16	3/8	21-MX16FN6	41.9	15.0	24.4	9.5	25	27
16	1/2	21-MX16FN8	46.9	19.8	24.4	11.9	25	27
20	1/2	21-MX20FN8	47.9	19.8	26.0	11.9	32	30
20	3/4	21-MX20FN12	49.7	20.6	26.0	15.9	32	35
22	3/4	21-MX22FN12	49.7	20.6	26.0	15.9	32	35
22	1	21-MX22FN16	57.9	25.4	26.0	18.3	32	41
25	3/4	21-MX25FN12	53.4	20.6	31.3	15.9	38	35
25	1	21-MX25FN16	62.3	25.4	31.3	21.8	38	41

Female Connectors



Metric Tube — ISO Tapered Thread (FR)

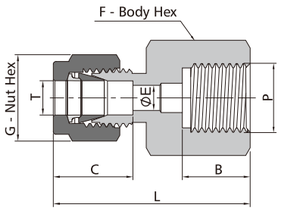
T-Tube O.D. (mm)	P-R Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
3	1/8	21-MX3FR2	28.7	10.4	12.9	2.4	12	14
6	1/8	21-MX6FR2	31.3	10.4	15.3	4.8	14	14
6	1/4	21-MX6FR4	35.8	15.0	15.3	4.8	14	19
6	3/8	21-MX6FR6	36.9	15.0	15.3	4.8	14	22
6	1/2	21-MX6FR8	42.5	19.8	15.3	4.8	14	27
8	1/8	21-MX8FR2	32.1	10.4	16.2	6.4	16	15
8	1/4	21-MX8FR4	37.0	15.0	16.2	6.4	16	19
8	3/8	21-MX8FR6	38.5	15.0	16.2	6.4	16	22
8	1/2	21-MX8FR8	43.3	19.8	16.2	6.4	16	27
10	1/8	21-MX10FR2	33.0	10.4	17.2	7.9	19	18
10	1/4	21-MX10FR4	37.8	15.0	17.2	7.9	19	19
10	3/8	21-MX10FR6	39.4	15.0	17.2	7.9	19	22
10	1/2	21-MX10FR8	44.2	19.8	17.2	7.9	19	27
12	1/8	21-MX12FR2	35.5	10.4	22.8	8.3	22	22
12	1/4	21-MX12FR4	40.3	15.0	22.8	9.5	22	22
12	3/8	21-MX12FR6	41.9	15.0	22.8	9.5	22	22
12	1/2	21-MX12FR8	46.7	19.8	22.8	9.5	22	27
12	3/4	21-MX12FR12	49.0	20.6	22.8	9.5	22	35
15	1/2	21-MX15FR8	46.7	19.8	24.4	11.9	25	27
16	1/2	21-MX16FR8	48.4	19.8	24.4	11.9	25	27
16	3/4	21-MX16FR12	49.7	20.6	24.4	12.7	25	35
20	1/2	21-MX20FR8	47.9	19.8	26.0	11.9	32	30
20	3/4	21-MX20FR12	49.7	20.6	26.0	15.9	32	35
22	3/4	21-MX22FR12	49.7	20.6	26.0	15.9	32	35
22	1	21-MX22FR16	57.9	25.4	26.0	18.3	32	41
25	3/4	21-MX25FR12	53.4	20.6	31.3	15.9	38	35
25	1	21-MX25FR16	62.3	25.4	31.3	21.8	38	41



Metric Tube — ISO Parallel Thread (FP)

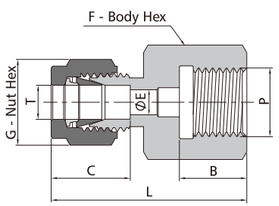
T-Tube O.D. (mm)	P-RP Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
6	1/8	21-MX6FP2	33.5	13.0	15.3	4.8	14	14
6	1/4	21-MX6FP4	39.4	18.5	15.3	4.8	14	19
22	3/4	21-MX22FP12	53.3	25.9	26.0	18.3	32	35
25	1	21-MX25FP16	63.9	28.2	31.3	21.8	38	40

Female Connectors



Metric Tube — ISO Parallel Thread (FG)

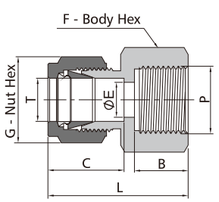
T-Tube O.D. (mm)	P-RG Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
3	1/4	21-MX3FG4	35.3	12.9	12.9	2.4	12	19
6	1/4	21-MX6FG4	37.6	12.9	15.3	4.8	14	19
6	3/8	21-MX6FG6	37.6	14.2	15.3	4.8	14	24
6	1/2	21-MX6FG8	43.5	18.8	15.3	4.8	14	27
8	1/4	21-MX8FG4	38.5	12.9	16.2	6.4	16	19
8	3/8	21-MX8FG6	36.2	14.2	16.2	6.4	16	24
8	1/2	21-MX8FG8	41.0	18.8	16.2	6.4	16	27
10	1/4	21-MX10FG4	39.4	12.9	17.2	5.9	19	19
10	3/8	21-MX10FG6	38.8	14.2	17.2	7.9	19	24
10	1/2	21-MX10FG8	42.1	18.8	17.2	7.9	19	27
12	1/4	21-MX12FG4	41.9	12.9	22.8	5.9	22	22
12	3/8	21-MX12FG6	44.4	14.2	22.8	7.9	22	24
12	1/2	21-MX12FG8	48.2	18.8	22.8	9.5	22	27
20	1/2	21-MX20FG8	54.3	18.8	26.0	11.9	32	30
22	1/2	21-MX22FG8	54.3	18.8	26.0	11.9	32	30



Adapt to Japanese Gauge stud.

Metric Tube — ISO Parallel Thread (RJ)

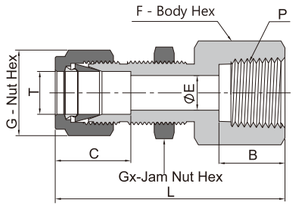
T-Tube O.D. (mm)	P-RJ Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
6	1/4	21-MX6FJ4	37.6	12.9	15.3	4.8	14	19
6	3/8	21-MX6FJ6	37.6	14.2	15.3	4.8	14	24
6	1/2	21-MX6FJ8	43.5	18.8	15.3	4.8	14	27
8	1/4	21-MX8FJ4	38.5	12.9	16.2	5.5	16	19
8	3/8	21-MX8FJ6	36.2	14.2	16.2	6.5	16	24
8	1/2	21-MX8FJ8	41.0	18.8	16.2	7.0	16	27
10	1/4	21-MX10FJ4	39.4	12.9	17.2	5.5	19	19
10	3/8	21-MX10FJ6	38.8	14.2	17.2	6.5	19	24
10	1/2	21-MX10FJ8	42.1	18.8	17.2	7.0	19	27
12	1/4	21-MX12FJ4	41.9	12.9	22.8	5.5	22	22
12	3/8	21-MX12FJ6	44.4	14.2	22.8	6.5	22	24
12	1/2	21-MX12FJ8	48.2	18.8	22.8	7.0	22	27



Metric Tube — Metric Thread

T-Tube O.D. (mm)	P-Metric Thread Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
6	M10 x 1	21-MX6FM10	32.7	11	15.3	4.0	14	16
6	M14 x 1.5	21-MX6FM14	34.7	13	15.3	4.8	14	19
6	M20 x 1.5	21-MX6FM20	37.7	16	15.3	4.8	14	27
8	M8 x 1	21-MX8FM8	31.6	9	16.2	3.2	16	14
8	M10 x 1	21-MX8FM10	33.6	11	16.2	4.0	16	16
8	M14 x 1.5	21-MX8FM14	35.6	13	16.2	6.0	16	19
8	M20 x 1.5	21-MX8FM20	38.6	16	16.2	6.4	16	27
10	M16 x 1.5	21-MX10FM16	38.1	14	17.2	7.9	19	22
12	M20 x 1.5	21-MX12FM20	44.9	16	22.8	9.5	22	27
14	M10 x 1	21-MX14FM10	42.5	11	24.4	4.0	25	24
14	M20 x 1.5	21-MX14FM20	44.9	16	24.4	10.8	25	27
14	M22 x 1.5	21-MX14FM22	45.9	17	24.4	11.1	25	27
16	M20 x 1.5	21-MX16FM20	44.9	16	24.4	10.8	26	27
20	M20 x 1.5	21-MX20FM20	46.5	16	26.0	10.8	32	30
25	M27 x 2	21-MX25FM27	54.4	18	31.3	16.1	38	35

Bulkhead Female Connectors



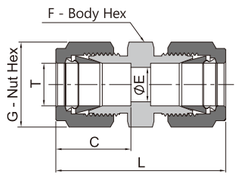
Fractional Tube — NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm							Panel Hole Size (mm)	Max. Panel Thickness (mm)
			L	B	C	E	G	F	Gx		
1/16	1/16	21-BFX1FN1	26.2	9.9	8.6	1.3	7.9	11.1	7.9	5.2	3.2
1/16	1/8	21-BFX1FN2	26.9	10.4	8.6	1.3	7.9	14.3	7.9	5.2	3.2
1/8	1/8	21-BFX2FN2	44.7	10.4	12.7	2.3	11.1	14.3	12.7	8.3	12.7
1/8	1/4	21-BFX2FN4	49.6	15.0	12.7	2.3	11.1	19.1	12.7	8.3	12.7
3/16	1/8	21-BFX3FN2	45.5	10.4	13.7	3.0	12.7	14.3	14.3	9.9	12.7
1/4	1/8	21-BFX4FN2	47.0	10.4	15.2	4.8	14.3	15.9	15.9	11.5	10.2
1/4	1/4	21-BFX4FN4	51.8	15.0	15.2	4.8	14.3	19.1	15.9	11.5	10.2
1/4	3/8	21-BFX4FN6	53.3	15.0	15.2	4.8	14.3	22.2	15.9	11.5	10.2
1/4	1/2	21-BFX4FN8	58.2	19.8	15.2	4.8	14.3	27.0	15.9	11.5	10.2
5/16	1/8	21-BFX5FN2	49.8	10.4	16.3	6.4	15.9	14.3	17.5	13.1	11.2
5/16	1/4	21-BFX5FN4	60.5	15.0	16.3	6.4	15.9	19.1	17.5	13.1	11.2
3/8	1/8	21-BFX6FN2	50.3	10.4	16.8	7.1	17.5	15.9	19.1	14.5	11.2
3/8	1/4	21-BFX6FN4	55.1	15.0	16.8	7.1	17.5	19.1	19.1	14.5	11.2
3/8	3/8	21-BFX6FN6	56.6	15.0	16.8	7.1	17.5	22.2	19.1	14.5	11.2
3/8	1/2	21-BFX6FN8	61.5	19.8	16.8	7.1	17.5	27.0	19.1	14.5	11.2
3/8	3/4	21-BFX6FN12	65.3	20.6	16.8	7.1	17.5	33.3	19.1	14.5	11.2
1/2	1/4	21-BFX8FN4	60.2	15.0	22.9	10.4	22.2	23.8	23.8	19.4	12.7
1/2	3/8	21-BFX8FN6	61.7	15.0	22.9	10.4	22.2	23.8	23.8	19.4	12.7
1/2	1/2	21-BFX8FN8	66.5	19.8	22.9	10.4	22.2	27.0	23.8	19.4	12.7
1/2	3/4	21-BFX8FN12	68.1	20.6	22.9	10.4	22.2	33.3	23.8	19.4	12.7
5/8	3/8	21-BFX10FN6	62.5	15.0	24.4	12.7	25.4	23.8	27.0	22.6	15.1
5/8	1/2	21-BFX10FN8	67.3	19.8	24.4	12.7	25.4	27.0	27.0	22.6	15.1
3/4	1/2	21-BFX12FN8	72.2	19.8	24.4	15.7	28.6	27.0	30.2	25.8	19.8
3/4	3/4	21-BFX12FN12	73.7	20.6	24.4	15.7	28.6	33.3	30.2	25.8	19.8
7/8	3/4	21-BFX14FN12	80.8	20.6	25.9	18.3	31.8	33.3	33.3	29.0	23.8
1	3/4	21-BFX16FN12	84.7	20.6	31.2	22.4	38.1	41.3	41.3	33.7	23.8
1	1	21-BFX16FN16	93.5	25.4	31.2	22.4	38.1	41.3	41.3	33.7	23.8

Metric Tube — NPT Thread

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm							Panel Hole Size (mm)	Max. Panel Thickness (mm)
			L	B	C	E	G	F	Gx		
6	1/8	21-BMX6FN2	47.2	10.4	15.3	4.8	14	16	16	11.5	10.2
6	1/4	21-BMX6FN4	51.8	15.0	15.3	4.8	14	19	16	11.5	10.2
8	1/8	21-BMX8FN2	49.6	10.4	16.2	4.8	16	18	18	13.1	11.2
10	1/4	21-BMX10FN4	55.2	15.0	17.2	7.9	19	22	22	16.3	11.2
12	3/8	21-BMX12FN6	60.9	15.0	22.8	9.5	22	24	24	19.5	12.7
12	1/2	21-BMX12FN8	66.5	19.8	22.8	9.5	22	27	24	19.5	12.7

Unions



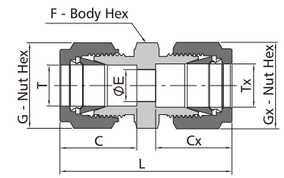
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
1/16	21-FX1	25.1	8.6	7.9	11.1	1.3
1/8	21-FX2	35.6	12.7	11.1	11.1	2.3
3/16	21-FX3	37.3	13.7	12.7	12.7	3.0
1/4	21-FX4	40.9	15.2	14.3	12.7	4.8
5/16	21-FX5	42.9	16.2	15.9	14.3	6.4
3/8	21-FX6	45.0	16.8	17.5	15.9	7.1
1/2	21-FX8	51.3	22.9	22.2	20.6	10.4
5/8	21-FX10	52.1	24.4	25.4	23.9	12.7
3/4	21-FX12	53.6	24.4	28.6	27.0	15.7
7/8	21-FX14	55.1	25.9	31.8	34.9	18.3
1	21-FX16	64.8	31.2	38.1	34.9	22.4
1 1/8	21-FX18	64.8	31.2	44.5	41.3	24.6
1 1/4	21-FX20	92.2	41.1	47.6	44.5	27.7
1 1/2	21-FX24	108	50.0	57.2	54.0	34.0

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
2	21-MX2	35.6	12.9	12	12	1.7
3	21-MX3	35.3	12.9	12	12	2.4
4	21-MX4	37.3	13.7	12	12	2.4
6	21-MX6	41.0	15.3	14	14	4.8
8	21-MX8	43.2	16.2	16	15	6.4
10	21-MX10	46.2	17.2	19	18	7.9
12	21-MX12	51.2	22.8	22	22	9.5
14	21-MX14	52.0	24.4	25	24	11.1
15	21-MX15	52.0	24.4	25	24	11.9
16	21-MX16	52.0	24.4	25	24	12.7
18	21-MX18	53.5	24.4	30	27	15.1
20	21-MX20	55.0	26.0	32	30	15.9
22	21-MX22	55.0	26.0	32	30	18.3
25	21-MX25	65.0	31.3	38	35	21.8
28	21-MX28	85.0	36.6	46	41	21.8
30	21-MX30	92.7	39.6	50	46	26.2
32	21-MX32	97.3	42.0	50	46	28.6
38	21-MX38	113.6	49.4	60	55	33.7

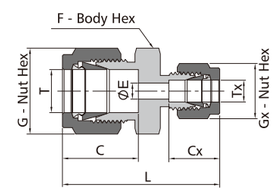
Conversion Unions



Metric Tube — Fractional Tube

T-Tube O.D. (mm)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	Cx	Gx
3	1/8	21-FX2MX3	35.2	12.9	12	12	2.4	12.7	11.1
4	1/8	21-FX2MX4	36.5	13.7	12	12	2.4	12.7	11.1
4	1/4	21-FX4MX4	39.4	13.7	12	14	2.4	15.2	14.3
6	1/8	21-FX2MX6	38.5	15.3	14	14	2.4	12.7	11.1
6	1/4	21-FX4MX6	41.0	15.3	14	14	4.8	15.2	14.3
6	5/16	21-FX5MX6	42.3	15.3	14	14	4.8	16.2	15.9
8	1/4	21-FX4MX8	42.3	16.2	16	15	4.8	15.2	14.3
8	3/8	21-FX6MX8	44.3	16.2	16	16	6.4	16.8	17.5
10	1/8	21-FX2MX10	41.8	17.2	19	18	2.4	12.7	11.1
10	1/4	21-FX4MX10	44.5	17.2	19	18	4.8	15.2	14.3
10	5/16	21-FX5MX10	45.1	17.2	19	18	6.4	16.2	15.9
10	3/8	21-FX6MX10	45.9	17.2	19	18	7.1	16.8	17.5
12	5/16	21-FX5MX12	47.8	22.8	22	22	6.4	16.2	15.9
12	3/8	21-FX6MX12	48.4	22.8	22	22	7.1	16.8	17.5
12	1/2	21-FX8MX12	51.2	22.8	22	22	9.5	22.9	22.2
15	1/2	21-FX8MX15	52.0	24.4	25	24	10.4	22.9	22.2
16	5/8	21-FX10MX16	52.0	24.4	25	24	12.7	24.4	25.4
18	3/4	21-FX12MX18	53.5	24.4	30	27	15.1	24.4	28.6
20	1/2	21-FX8MX20	55.0	26.0	32	30	10.4	22.9	22.2
20	1	21-FX16MX20	62.8	26.0	32	35	15.9	31.2	38.1
25	1	21-FX16MX25	65.0	31.3	38	35	21.8	31.2	38.1

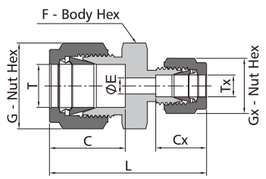
Reducing Unions



Fractional Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	Cx	Gx
1/8	1/16	21-FX2FX1	31.0	12.7	11.1	11.1	1.3	8.6	7.9
3/16	1/16	21-FX3FX1	32.3	13.7	12.7	11.1	1.3	8.6	7.9
3/16	1/8	21-FX3FX2	36.6	13.7	12.7	11.1	2.3	12.7	11.1
1/4	1/16	21-FX4FX1	34.3	15.2	14.3	12.7	1.3	8.6	7.9
1/4	1/8	21-FX4FX2	38.6	15.2	14.3	12.7	2.3	12.7	11.1
1/4	3/16	21-FX4FX3	39.4	15.2	14.3	12.7	3.0	13.7	12.7
5/16	1/8	21-FX5FX2	39.6	16.2	15.9	14.3	2.3	12.7	11.1
5/16	1/4	21-FX5FX4	42.2	16.2	15.9	14.3	4.8	15.2	14.3
3/8	1/16	21-FX6FX1	36.6	16.8	17.5	15.9	1.3	8.6	7.9
3/8	1/8	21-FX6FX2	40.9	16.8	17.5	15.9	2.3	12.7	11.1
3/8	1/4	21-FX6FX4	43.2	16.8	17.5	15.9	4.8	15.2	14.3
3/8	5/16	21-FX6FX5	44.2	16.8	17.5	15.9	6.4	16.2	15.9
1/2	1/8	21-FX8FX2	45.2	22.8	22.2	20.6	2.3	12.7	11.1
1/2	1/4	21-FX8FX4	47.0	22.8	22.2	20.6	4.8	15.2	14.3
1/2	3/8	21-FX8FX6	48.5	22.8	22.2	20.6	7.1	16.8	17.5
5/8	3/8	21-FX10FX6	49.3	24.4	25.4	23.9	7.1	16.8	17.5
5/8	1/2	21-FX10FX8	52.1	24.4	25.4	23.9	10.4	22.8	22.2
3/4	1/4	21-FX12FX4	49.3	24.4	28.6	27.0	4.8	15.2	14.3
3/4	3/8	21-FX12FX6	50.8	24.4	28.6	27.0	7.1	16.8	17.5
3/4	1/2	21-FX12FX8	53.6	24.4	28.6	27.0	10.4	22.8	22.2
3/4	5/8	21-FX12FX10	53.6	24.4	28.6	27.0	12.7	24.4	25.4
1	1/2	21-FX16FX8	60.5	31.2	38.1	34.9	10.4	22.8	22.2
1	3/4	21-FX16FX12	60.5	31.2	38.1	34.9	15.7	24.4	28.6

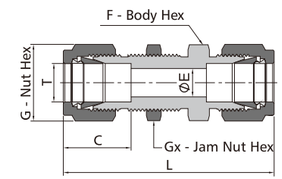
Reducing Unions



Metric Tube

T-Tube O.D. (mm)	Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	Cx	Gx
3	2	21-MX3MX2	35.3	12.9	12	12	1.7	12.9	12
6	2	21-MX6MX2	38.6	15.3	14	14	1.7	12.9	12
6	3	21-MX6MX3	38.6	15.3	14	14	2.4	12.9	12
6	4	21-MX6MX4	39.4	15.3	14	14	2.4	13.7	12
8	6	21-MX8MX6	42.3	16.3	16	15	4.8	15.3	14
10	6	21-MX10MX6	44.5	17.2	19	18	4.8	15.3	14
10	8	21-MX10MX8	45.1	17.2	19	18	6.4	16.3	16
12	6	21-MX12MX6	47.0	22.8	22	22	4.8	15.3	14
12	8	21-MX12MX8	47.8	22.8	22	22	6.4	16.3	16
12	10	21-MX12MX10	48.7	22.8	22	22	7.9	17.2	19
16	10	21-MX16MX10	49.5	24.4	25	24	7.9	17.2	19
16	12	21-MX16MX12	52.0	24.4	25	24	9.5	22.8	22
18	12	21-MX18MX12	53.5	24.4	30	27	9.5	22.8	22
25	18	21-MX25MX18	61.0	31.3	38	35	15.1	24.4	30
25	20	21-MX25MX20	62.3	31.3	38	35	15.9	26.0	32
30	18	21-MX30MX18	75.4	39.6	50	46	15.1	24.4	30
30	20	21-MX30MX20	75.4	39.6	50	46	15.9	26.0	32
30	25	21-MX30MX25	80.1	39.6	50	46	21.8	31.3	38
32	18	21-MX32MX18	77.8	42.0	50	46	15.1	24.4	30
32	20	21-MX32MX20	77.8	42.0	50	46	15.9	26.0	32
32	25	21-MX32MX25	82.3	42.0	50	46	21.8	31.3	38
38	20	21-MX38MX20	87.5	49.4	60	55	15.9	26.0	32
38	25	21-MX38MX25	92.0	49.4	60	55	21.8	31.3	38
38	30	21-MX38MX30	104.6	49.4	60	55	26.2	39.6	50

Bulkhead Unions



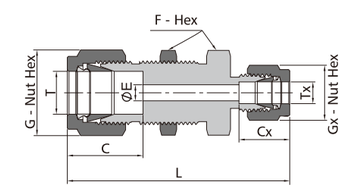
Fractional Tube

Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm						Panel Hole Size (mm)	Max. Panel Thickness (mm)
		L	C	E	G	F	Gx		
1/16	21-BFX1	31.5	8.6	1.3	7.9	7.9	7.9	5.2	3.0
1/8	21-BFX2	51.3	12.7	2.3	11.1	12.7	12.7	8.3	12.7
3/16	21-BFX3	53.6	13.7	3.0	12.7	14.3	14.3	9.9	12.7
1/4	21-BFX4	57.7	15.2	4.8	14.3	15.9	15.9	11.5	10.2
5/16	21-BFX5	60.7	16.3	6.4	15.9	17.5	17.5	13.1	11.2
3/8	21-BFX6	62.2	16.8	7.1	17.5	19.1	19.1	14.7	11.2
1/2	21-BFX8	71.1	22.9	10.4	22.2	23.8	23.8	19.4	12.7
5/8	21-BFX10	72.6	24.4	12.7	25.4	27.0	27.0	22.6	12.7
3/4	21-BFX12	79.0	24.4	15.7	28.6	30.2	30.2	25.8	16.8
7/8	21-BFX14	84.6	25.9	18.3	31.8	34.9	34.9	29.0	19.1
1	21-BFX16	95.8	31.2	22.4	38.1	41.3	41.3	33.7	19.1
1 1/4	21-BFX20	123.2	41.1	27.8	47.6	47.6	47.6	41.7	19.1
1 1/2	21-BFX24	139.2	50.0	34.0	57.2	57.2	57.2	49.6	19.1

Metric Tube

Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm						Panel Hole Size (mm)	Max. Panel Thickness (mm)
		L	C	E	G	F	Gx		
3	21-BMX3	51.3	12.9	2.4	12	14	14	8.3	12.7
4	21-BMX4	53.6	13.7	2.4	12	14	14	9.9	12.7
6	21-BMX6	57.7	15.3	4.8	14	16	16	11.5	10.2
8	21-BMX8	61.0	16.2	6.4	16	18	18	13.1	11.2
10	21-BMX10	63.7	17.2	7.9	19	22	22	16.3	11.2
12	21-BMX12	71.0	22.8	9.5	22	24	24	19.5	12.7
14	21-BMX14	72.5	24.4	11.1	25	27	27	22.5	12.7
15	21-BMX15	72.5	24.4	11.9	25	27	27	22.8	12.7
16	21-BMX16	72.5	24.4	12.7	25	27	27	22.8	12.7
18	21-BMX18	78.9	24.4	15.1	30	30	30	26.0	16.8
20	21-BMX20	84.5	26.0	15.9	32	35	35	29.0	19.0
25	21-BMX25	96.0	31.3	21.8	38	41	41	34.0	19.0
30	21-BMX30	124.0	39.6	26.2	50	50	50	40.5	19.0
32	21-BMX32	128.0	42.0	28.6	50	50	50	42.5	19.0
38	21-BMX38	145.0	49.4	33.7	60	60	60	50.5	19.0

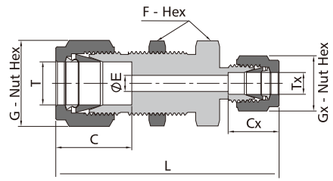
Bulkhead Reducing Unions



Fractional Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm							Panel Hole Size (mm)	Max. Panel Thickness (mm)
			L	C	E	G	F	Cx	Gx		
1/4	1/8	21-BFX4FX2	55.1	15.2	2.3	14.3	15.9	12.7	11.1	11.5	10.2
3/8	1/4	21-BFX6FX4	60.7	16.8	4.8	17.5	19.1	15.2	14.3	14.7	11.2
1/2	1/4	21-BFX8FX4	66.8	22.9	4.8	22.2	23.8	15.2	14.3	19.4	12.7

Bulkhead Reducing Unions



Metric Tube

T-Tube O.D. (mm)	Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm							Panel Hole Size (mm)	Max. Panel Thickness (mm)
			L	C	E	G	F	Cx	Gx		
6	3	21-BMX6MX3	55.1	15.3	2.4	14	16	12.9	12	11.5	10.2
8	6	21-BMX8MX6	60.1	16.2	4.8	16	18	15.3	14	13.1	11.2
12	8	21-BMX12MX8	67.6	22.8	6.4	22	24	16.2	16	19.5	12.7

Bulkhead Conversion Unions

Fractional Tube — Metric Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm							Panel Hole Size (mm)	Max. Panel Thickness (mm)
			L	C	E	G	F	Cx	Gx		
1/4	6	21-BFX4MX6	57.7	16.8	4.8	14.3	15.9	15.3	14	11.5	10.2

Metric Tube — Fractional Tube

T-Tube O.D. (mm)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm							Panel Hole Size (mm)	Max. Panel Thickness (mm)
			L	C	E	G	F	Cx	Gx		
6	1/8	21-BMX6FX2	55.1	15.3	2.3	14	16	15.2	11.1	11.5	10.2
6	1/4	21-BMX6FX4	57.7	15.3	4.8	14	16	16.8	14.3	11.5	10.2

Bulkhead Locknuts

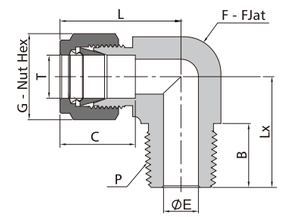
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number
1/16	BN-FX1
1/8	BN-FX2
3/16	BN-FX3
1/4	BN-FX4
5/16	BN-FX5
3/8	BN-FX6
1/2	BN-FX8
5/8	BN-FX10
3/4	BN-FX12
7/8	BN-FX14
1	BN-FX16
1 1/4	BN-FX20
1 1/2	BN-FX24

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number
3	BN-MX3
4	BN-MX4
6	BN-MX6
8	BN-BMX8
10	BN-MX10
12	BN-MX12
14	BN-MX14
18	BN-MX18
20	BN-MX20
22	BN-MX22
25	BN-MX25
28	BN-MX28
30	BN-MX30
32	BN-MX32
38	BN-MX38

Male Elbows



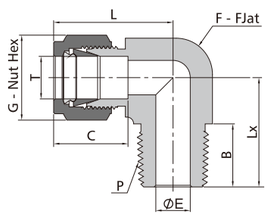
Fractional Tube — NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
1/16	1/16	22-FX1N1	19.1	8.6	7.9	11.1	1.3	9.7	17.8
1/16	1/8	22-FX1N2	19.1	8.6	7.9	11.1	1.3	9.7	17.8
1/8	1/16	22-FX2N1	23.6	12.7	11.1	11.1	2.4	9.7	17.8
1/8	1/8	22-FX2N2	23.6	12.7	11.1	11.1	2.4	9.7	17.8
1/8	1/4	22-FX2N4	24.6	12.7	11.1	12.7	2.4	14.2	23.4
3/16	1/8	22-FX3N2	25.4	13.7	12.7	12.7	3.0	9.7	18.8
3/16	1/4	22-FX3N4	25.4	13.7	12.7	12.7	3.0	14.2	23.4
1/4	1/16	22-FX4N1	26.9	15.2	14.3	12.7	3.0	9.7	18.8
1/4	1/8	22-FX4N2	26.9	15.2	14.3	12.7	4.8	9.7	18.8
1/4	1/4	22-FX4N4	26.9	15.2	14.3	12.7	4.8	14.2	23.4
1/4	3/8	22-FX4N6	29.7	15.2	14.3	17.5	4.8	14.2	26.2
1/4	1/2	22-FX4N8	31.8	15.2	14.3	20.6	4.8	19.1	33.0
5/16	1/8	22-FX5N2	28.7	16.3	15.9	14.3	4.8	9.7	19.8
5/16	1/4	22-FX5N4	28.7	16.3	15.9	14.3	6.4	14.2	24.4
5/16	3/8	22-FX5N6	30.5	16.3	15.9	17.5	6.4	14.2	26.2
3/8	1/8	22-FX6N2	30.5	16.8	17.5	15.9	4.8	9.7	20.8
3/8	1/4	22-FX6N4	30.5	16.8	17.5	15.9	7.1	14.2	25.4
3/8	3/8	22-FX6N6	31.2	16.8	17.5	17.5	7.1	14.2	26.2
3/8	1/2	22-FX6N8	33.3	16.8	17.5	20.6	7.1	19.1	33.0
3/8	3/4	22-FX6N12	37.1	16.8	17.5	27.0	7.1	19.1	36.8
1/2	1/4	22-FX8N4	36.1	22.9	22.2	20.6	7.1	14.2	28.2
1/2	3/8	22-FX8N6	36.1	22.9	22.2	20.6	9.7	14.2	28.2
1/2	1/2	22-FX8N8	36.1	22.9	22.2	20.6	10.4	19.1	33.0
1/2	3/4	22-FX8N12	39.9	22.9	22.2	27.0	10.4	19.1	36.8
5/8	3/8	22-FX10N6	38.1	24.4	25.4	23.8	9.7	14.2	30.2
5/8	1/2	22-FX10N8	38.1	24.4	25.4	23.8	11.9	19.1	35.1
5/8	3/4	22-FX10N12	39.9	24.4	25.4	27.0	12.7	19.1	36.8
3/4	1/2	22-FX12N8	39.9	24.4	28.6	27.0	11.9	19.1	36.8
3/4	3/4	22-FX12N12	39.9	24.4	28.6	27.0	15.7	19.1	36.8
7/8	3/4	22-FX14N12	44.7	25.9	31.8	34.9	15.7	19.1	41.7
1	3/4	22-FX16N12	49.0	31.2	38.1	34.9	15.7	19.1	41.7
1	1	22-FX16N16	49.0	31.2	38.1	34.9	22.4	23.9	46.5
1 1/4	1 1/4	22-FX20N20	66.5	41.1	47.6	42.9	27.7	23.9	47.8
1 1/2	1 1/2	22-FX24N24	78.0	50.0	57.2	50.8	34.0	26.2	60.5

Fractional Tube — ISO Tapered Thread (R)

T-Tube O.D. (in.)	P-R Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
1/8	1/8	22-FX2R2	23.6	12.7	11.1	11.1	2.4	9.7	17.8
1/8	1/4	22-FX2R4	24.6	12.7	11.1	12.7	2.4	14.2	23.4
1/4	1/8	22-FX4R2	26.9	15.2	14.3	12.7	4.8	9.7	18.8
1/4	1/4	22-FX4R4	26.9	15.2	14.3	12.7	4.8	14.2	23.4
1/4	3/8	22-FX4R6	29.7	15.2	14.3	17.5	4.8	14.2	26.2
1/4	1/2	22-FX4R8	31.8	15.2	14.3	20.6	4.8	19.1	33.0
5/16	1/4	22-FX5R4	28.7	16.3	15.9	14.3	6.4	14.2	24.4
3/8	1/8	22-FX6R2	30.5	16.8	17.5	15.9	4.8	9.7	20.8
3/8	1/4	22-FX6R4	30.5	16.8	17.5	15.9	7.1	14.2	25.4
3/8	3/8	22-FX6R6	31.2	16.8	17.5	17.5	7.1	14.2	26.2
1/2	3/8	22-FX8R6	36.1	22.9	22.2	20.6	9.7	14.2	27.9
1/2	1/2	22-FX8R8	36.1	22.9	22.2	20.6	10.4	19.1	33.0
3/4	1/2	22-FX12R8	39.9	24.4	28.6	27.0	11.9	19.1	36.8
1	1	22-FX16R16	49.0	31.2	38.1	34.9	22.4	23.9	46.5

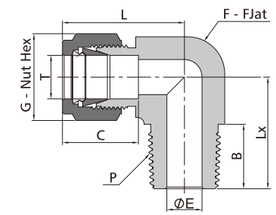
Male Elbows



Metric Tube — NPT Thread

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
3	1/8	22-MX3N2	23.6	12.9	12	11.1	2.4	9.7	17.8
3	1/4	22-MX3N4	24.6	12.9	12	12.7	2.4	14.2	23.4
4	1/8	22-MX4N2	25.4	13.7	12	12.7	2.4	9.7	18.8
4	1/4	22-MX4N4	25.4	13.7	12	12.7	2.4	14.2	23.4
6	1/8	22-MX6N2	27.0	15.3	14	12.7	4.8	9.7	18.8
6	1/4	22-MX6N4	27.0	15.3	14	12.7	4.8	14.2	23.4
6	3/8	22-MX6N6	29.8	15.3	14	17.5	4.8	14.2	26.2
6	1/2	22-MX6N8	31.8	15.3	14	20.6	4.8	19.0	33.0
8	1/8	22-MX8N2	28.8	16.2	16	14.3	4.8	9.7	19.8
8	1/4	22-MX8N4	28.8	16.2	16	14.3	6.4	14.2	24.4
8	3/8	22-MX8N6	30.6	16.2	16	17.5	6.4	14.2	26.2
8	1/2	22-MX8N8	32.6	16.2	16	20.6	6.4	19.1	33.0
10	1/8	22-MX10N2	31.5	17.2	19	17.5	4.8	9.7	21.6
10	1/4	22-MX10N4	31.5	17.2	19	17.5	7.1	14.2	26.2
10	3/8	22-MX10N6	31.5	17.2	19	17.5	7.9	14.2	26.2
10	1/2	22-MX10N8	33.5	17.2	19	20.6	7.9	19.1	33.0
12	1/8	22-MX12N2	36.0	22.8	22	20.6	4.8	9.7	23.6
12	1/4	22-MX12N4	36.0	22.8	22	20.6	7.1	14.2	28.2
12	3/8	22-MX12N6	36.0	22.8	22	20.6	9.5	14.2	28.2
12	1/2	22-MX12N8	36.0	22.8	22	20.6	9.5	19.1	33.0
12	3/4	22-MX12N12	39.8	22.8	22	27.0	9.5	19.1	36.8
15	1/2	22-MX15N8	38.0	24.4	25	23.8	11.9	19.1	35.1
16	1/4	22-MX16N4	38.0	24.4	25	23.8	7.1	14.2	30.2
16	3/8	22-MX16N6	38.0	24.4	25	23.8	9.5	14.2	30.2
16	1/2	22-MX16N8	38.0	24.4	25	23.8	11.9	19.1	35.1
16	3/4	22-MX16N12	39.8	24.4	25	27.0	12.7	19.1	36.8
18	1/2	22-MX18N8	39.8	24.4	30	27.0	11.9	19.1	36.8
18	3/4	22-MX18N12	39.8	24.4	30	27.0	15.1	19.1	36.8
20	1/2	22-MX20N8	44.6	26.0	32	34.9	11.9	19.1	41.7
20	3/4	22-MX20N12	44.6	26.0	32	34.9	15.9	19.1	41.7
22	3/4	22-MX22N12	44.6	26.0	32	34.9	15.9	19.1	41.7
22	1	22-MX22N16	44.6	26.0	32	34.9	18.3	23.9	46.5
25	3/4	22-MX25N12	49.1	31.3	38	34.9	15.9	19.0	41.7
25	1	22-MX25N16	49.1	31.3	38	34.9	21.8	23.9	46.5
30	1 1/4	22-MX30N20	69.9	39.6	50	42.9	26.2	23.9	53.1
32	1 1/4	22-MX32N20	72.3	42.0	50	42.9	27.8	23.9	53.1
38	1 1/2	22-MX38N24	84.0	49.4	60	50.8	33.7	26.2	60.4

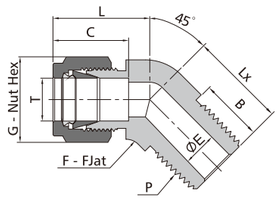
Male Elbows



Metric Tube — ISO Tapered Thread (R)

T-Tube O.D. (mm)	P-R Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
3	1/8	22-MX3R2	23.6	12.9	12	11.1	2.4	9.7	17.8
3	1/4	22-MX3R4	24.6	12.9	12	12.7	2.4	14.2	23.4
4	1/8	22-MX4R2	25.4	13.7	12	12.7	2.4	9.7	18.8
4	1/4	22-MX4R4	25.4	13.7	12	12.7	2.4	14.2	23.4
6	1/8	22-MX6R2	27.0	15.3	14	12.7	4.8	9.7	18.8
6	1/4	22-MX6R4	27.0	15.3	14	12.7	4.8	14.2	23.4
6	3/8	22-MX6R6	29.8	15.3	14	17.5	4.8	14.2	26.2
6	1/2	22-MX6R8	31.8	15.3	14	20.6	4.8	19.0	33.0
8	1/8	22-MX8R2	28.8	16.2	16	14.3	4.8	9.7	19.8
8	1/4	22-MX8R4	28.8	16.2	16	14.3	6.4	14.2	24.4
8	3/8	22-MX8R6	30.6	16.2	16	17.5	6.4	14.2	26.2
8	1/2	22-MX8R8	32.6	16.2	16	20.6	6.4	19.1	33.0
10	1/8	22-MX10R2	31.5	17.2	19	17.5	4.8	9.7	21.6
10	1/4	22-MX10R4	31.5	17.2	19	17.5	7.1	14.2	26.2
10	3/8	22-MX10R6	31.5	17.2	19	17.5	7.9	14.2	26.2
10	1/2	22-MX10R8	33.5	17.2	19	20.6	7.9	19.1	33.0
12	1/8	22-MX12R2	36.0	22.8	22	20.6	4.8	9.7	23.6
12	1/4	22-MX12R4	36.0	22.8	22	20.6	7.1	14.2	28.2
12	3/8	22-MX12R6	36.0	22.8	22	20.6	9.5	14.2	28.2
12	1/2	22-MX12R8	36.0	22.8	22	20.6	9.5	19.1	33.0
12	3/4	22-MX12R12	39.8	22.8	22	27.0	9.5	19.1	36.8
14	1/2	22-MX14R8	38.1	24.4	25	23.8	11.1	19.1	35.1
15	1/2	22-MX15R8	38.1	24.4	25	23.8	11.9	19.1	35.1
16	1/4	22-MX16R4	38.0	24.4	25	23.8	7.1	14.2	30.2
16	3/8	22-MX16R6	38.0	24.4	25	23.8	9.5	14.2	30.2
16	1/2	22-MX16R8	38.0	24.4	25	23.8	11.9	19.1	35.1
16	3/4	22-MX16R12	39.8	24.4	25	27.0	12.7	19.1	36.8
18	1/2	22-MX18R8	39.8	24.4	30	27.0	11.9	19.1	36.8
18	3/4	22-MX18R12	39.8	24.4	30	27.0	15.1	19.1	36.8
20	1/2	22-MX20R8	44.6	26.0	32	34.9	11.9	19.1	41.7
20	3/4	22-MX20R12	44.6	26.0	32	34.9	15.9	19.1	41.7
22	3/4	22-MX22R12	44.6	26.0	32	34.9	15.9	19.1	41.7
22	1	22-MX22R16	44.6	26.0	32	34.9	18.3	23.9	46.5
25	3/4	22-MX25R12	49.1	31.3	38	34.9	15.9	19.1	41.7
25	1	22-MX25R16	49.1	31.3	38	34.9	21.8	23.9	46.5
28	1	22-MX28R16	64.0	36.6	46	42.9	21.8	23.9	53.1

45°Male Elbows



Fractional Tube — NPT Thread

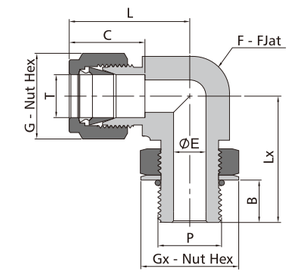
T-Tube O.D (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
1/16	1/16	25-FX1N1	15.7	8.6	7.9	9.5	1.3	9.7	14.5
1/8	1/8	25-FX2N2	20.8	12.7	11.1	11.1	2.3	9.7	16.8
3/16	1/8	25-FX3N2	21.6	13.7	12.7	11.1	3.0	9.7	14.7
1/4	1/8	25-FX4N2	24.6	15.2	14.3	12.7	4.8	9.7	16.5
1/4	1/4	25-FX4N4	24.6	15.2	14.3	12.7	4.8	14.3	21.1
5/16	1/8	25-FX5N2	24.1	16.3	15.9	14.3	4.8	9.7	16.8
3/8	1/8	25-FX6N2	27.9	16.8	17.5	15.9	4.8	9.7	18.3
3/8	1/4	25-FX6N4	27.9	16.8	17.5	15.9	7.1	14.3	22.9
3/8	3/8	25-FX6N6	29.2	16.8	17.5	20.6	7.1	19.1	24.1
1/2	3/8	25-FX8N6	32.0	22.9	22.2	20.6	9.7	19.1	24.1
5/8	1/2	25-FX10N8	30.7	24.4	25.4	23.8	11.9	19.1	29.7
3/4	3/4	25-FX12N12	34.0	24.4	28.6	27.0	15.7	19.1	31.0
7/8	3/4	25-FX14N12	40.4	25.9	31.8	31.8	15.7	19.1	32.3
1	1	25-FX16N16	40.4	31.2	38.1	34.9	22.4	23.9	37.8

Metric Tube — NPT Thread

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
6	1/8	25-MX6N2	23.4	15.3	14	12.7	4.8	9.7	16.8
6	1/4	25-MX6N4	23.4	15.3	14	12.7	4.8	14.3	21.8
8	1/8	25-MX8N2	24.3	16.2	16	15.9	4.8	9.7	16.8
10	1/4	25-MX10N4	26.6	17.2	19	17.5	7.9	14.3	24.1
12	3/8	25-MX12N6	29.1	22.8	22	20.6	9.5	19.1	24.1
12	1/2	25-MX12N8	30.7	22.8	22	20.6	9.5	19.1	29.7
16	1/2	25-MX16N8	30.7	24.4	25	23.8	11.9	19.1	29.7

Adjustable Male Elbows SAE/MS Straight Thread

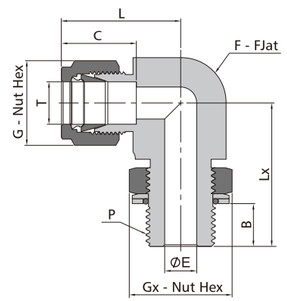
Adapt to straight thread boss of SAE J1926-1, ISO 11926-1 and MS 16142.



SAE/MS Straight Thread

T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm							
			L	B	C	G	E	F	Lx	Gx
1/4	7/16-20	22-FX4SOT7	28.4	9.9	15.2	14.3	4.8	12.7	28.4	14.3
1/4	9/16-18	22-FX4SOT9	30.5	11.2	15.2	14.3	4.8	15.9	32.3	17.5
5/16	1/2-20	22-FX5SOT8	30.2	9.9	16.3	15.9	5.8	14.3	29.5	15.9
3/8	7/16-20	22-FX6SOT7	33.3	9.9	16.8	17.5	5.1	15.9	31.5	14.3
3/8	9/16-18	22-FX6SOT9	32.0	11.2	16.8	17.5	7.1	15.9	32.3	17.5
3/8	3/4-16	22-FX6SOT12	34.8	12.7	16.8	17.5	7.1	20.6	37.8	22.2
1/2	9/16-18	22-FX8SOT9	37.6	11.2	22.9	22.2	7.1	20.6	37.5	17.5
1/2	3/4-16	22-FX8SOT12	37.6	12.7	22.9	22.2	10.4	20.6	37.8	22.2
5/8	7/8-14	22-FX10SOT14	39.6	14.2	24.4	25.4	12.7	23.8	43.4	25.4
3/4	1 1/16-12	22-FX12SOT17	41.4	16.8	24.4	28.6	15.7	27.0	48.8	31.8
7/8	1 3/16-12	22-FX14SOT19	43.2	16.8	25.9	31.8	18.3	30.2	50.5	34.9
1	1 5/16-12	22-FX16SOT21	50.5	16.8	31.2	38.1	22.4	34.9	53.6	38.1
1 1/4	1 5/8-12	22-FX20SOT26	67.8	16.8	41.1	47.6	27.7	42.9	58.2	47.6
1 1/2	1 7/8-12	22-FX24SOT30	78.0	16.8	50.0	57.2	34.0	50.8	60.5	54.0

Adjustable Male Elbows
ISO Parallel Thread



Fractional Tube — ISO Parallel Thread (PP)

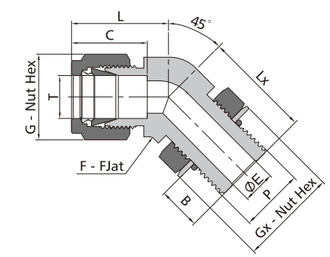
T-Tube O.D. (in.)	P-ISO Parallel Thread Size	Basic Ordering Number	Dimension, mm							
			L	B	C	G	E	F	Lx	Gx
1/4	1/8	22-FX4SBP2	26.9	8.1	15.2	14.3	4.1	12.7	26.4	14.3
1/4	1/4	22-FX4SBP4	29.0	9.1	15.2	14.3	4.8	15.9	32.3	19.1
3/8	1/4	22-FX6SBP4	30.5	9.1	16.8	17.5	5.8	15.9	32.3	19.1
3/8	3/8	22-FX6SBP6	33.3	9.4	16.8	17.5	7.1	20.6	37.1	22.2
1/2	1/4	22-FX8SBP4	36.1	9.1	22.9	22.2	5.8	20.6	35.1	19.1
1/2	3/8	22-FX8SBP6	36.1	9.4	22.9	22.2	7.9	20.6	37.1	22.2
1/2	1/2	22-FX8SBP8	38.1	13.0	22.9	22.2	10.4	23.8	43.4	27.0
5/8	1/2	22-FX10SBP8	38.1	13.0	24.4	25.4	11.9	23.8	43.4	27.0
3/4	1/2	22-FX12SBP8	39.9	13.0	24.4	28.6	11.9	27.0	45.2	27.0
3/4	3/4	22-FX12SBP12	39.9	13.0	24.4	28.6	15.7	27.0	48.8	34.9
1	3/4	22-FX16SBP12	49.0	13.0	31.2	38.1	15.7	34.9	53.3	34.9
1	1	22-FX16SBP16	49.0	14.0	31.2	38.1	19.8	34.9	53.6	41.3

Metric Tube — ISO Parallel Thread (PP)

T-Tube O.D. (mm)	P-ISO Parallel Thread Size	Basic Ordering Number	Dimension, mm							
			L	B	C	G	E	F	Lx	Gx
6	1/8	22-MX6SBP2	27.0	8.1	15.3	14	4.0	12.7	26.4	14.3
6	1/4	22-MX6SBP4	29.0	9.1	15.3	14	4.8	15.9	32.3	19.1
8	1/8	22-MX8SBP2	28.8	8.1	16.2	16	4.0	14.3	27.4	14.3
8	1/4	22-MX8SBP4	29.9	9.1	16.2	16	5.9	15.9	32.2	19.1
10	1/4	22-MX10SBP4	33.5	9.1	17.2	19	5.9	20.6	35.0	19.1
10	3/8	22-MX10SBP6	33.5	9.4	17.2	19	7.9	20.6	37.1	22.2
12	1/4	22-MX12SBP4	36.0	9.1	22.8	22	5.9	20.6	35.0	19.1
12	3/8	22-MX12SBP6	36.0	9.4	22.8	22	7.9	20.6	37.1	22.2
12	1/2	22-MX12SBP8	38.0	13.0	22.8	22	9.5	23.8	43.4	27.0
12	3/4	22-MX12SBP12	39.8	13.0	22.8	22	9.5	27.0	48.8	34.9

45°Adjustable Male Elbows
SAE/MS Straight Thread

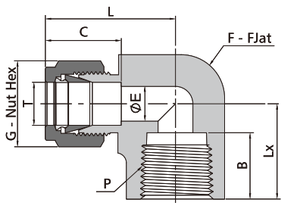
Adapt to straight thread boss of SAE J1926-1, ISO 11926-1 and MS 16142.



Fractional Tube — SAE/MS Straight Thread

T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm							
			L	B	C	G	E	F	Lx	Gx
1/4	7/16-20	25-FX4SOT7	25.7	9.9	15.2	14.3	4.8	12.7	25.7	14.3
3/8	9/16-18	25-FX6SOT9	27.9	11.2	16.8	17.5	7.1	15.9	28.2	17.5
1/2	3/4-16	25-FX8SOT12	32.0	12.7	22.9	22.2	10.4	20.6	32.3	22.2
3/4	1 1/16-12	25-FX12SOT17	39.9	16.8	24.4	28.6	15.7	27.0	47.2	31.8
1	1 5/16-12	25-FX16SOT21	47.5	16.8	31.2	38.1	22.4	33.3	50.5	38.1

Female Elbows



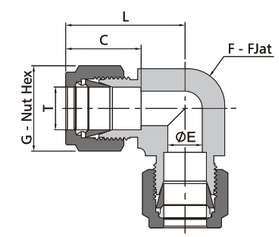
Fractional Tube — NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	B	C	G	E	F	Lx
1/16	1/16	22-FX1FN1	18.0	9.9	8.6	7.9	1.3	11.1	14.2
1/16	1/8	22-FX1FN2	20.6	10.4	8.6	7.9	1.3	14.3	19.1
1/8	1/8	22-FX2FN2	24.6	10.4	12.7	11.1	2.3	14.3	19.1
1/8	1/4	22-FX2FN4	27.4	15.0	12.7	11.1	2.3	17.5	22.4
3/16	1/8	22-FX3FN2	25.4	10.4	13.7	12.7	3.0	12.7	19.1
1/4	1/8	22-FX4FN2	26.9	10.4	15.2	14.3	4.8	14.3	19.1
1/4	1/4	22-FX4FN4	29.7	15.0	15.2	14.3	4.8	17.5	22.4
1/4	3/8	22-FX4FN6	31.8	15.0	15.2	14.3	4.8	20.6	22.4
1/4	1/2	22-FX4FN8	34.5	19.8	15.2	14.3	4.8	25.4	28.4
5/16	1/8	22-FX5FN2	28.7	10.4	16.3	15.9	6.4	14.3	19.1
5/16	1/4	22-FX5FN4	30.5	15.0	16.3	15.9	6.4	17.5	22.4
3/8	1/8	22-FX6FN2	30.5	10.4	16.8	17.5	7.1	15.9	19.1
3/8	1/4	22-FX6FN4	31.2	15.0	16.8	17.5	7.1	17.5	22.4
3/8	3/8	22-FX6FN6	33.3	15.0	16.8	17.5	7.1	20.6	22.4
3/8	1/2	22-FX6FN8	36.1	19.8	16.8	17.5	7.1	25.4	28.4
1/2	1/4	22-FX8FN4	36.1	15.0	22.9	22.2	10.4	20.6	22.4
1/2	3/8	22-FX8FN6	36.1	15.0	22.9	22.2	10.4	20.6	22.4
1/2	1/2	22-FX8FN8	38.9	19.8	22.9	22.2	10.4	25.4	28.4
5/8	3/8	22-FX10FN6	38.1	15.0	24.4	25.4	12.7	23.8	22.4
5/8	1/2	22-FX10FN8	39.9	19.8	24.4	25.4	12.7	27.0	28.4
3/4	1/2	22-FX12FN8	39.9	19.8	24.4	28.6	15.7	27.0	28.4
3/4	3/4	22-FX12FN12	44.7	20.6	24.4	28.6	15.7	34.9	31.8
7/8	3/4	22-FX14FN12	44.7	20.6	25.9	31.8	18.3	34.9	31.8
1	3/4	22-FX16FN12	49.0	20.6	31.2	38.1	22.4	34.9	31.8
1	1	22-FX16FN16	53.6	25.4	31.2	38.1	22.4	42.9	38.1

Metric Tube — NPT Thread

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	B	C	G	E	F	Lx
6	1/8	22-MX6FN2	27.0	10.4	15.3	14	4.8	12.7	19.0
6	1/4	22-MX6FN4	29.8	15.0	15.3	14	4.8	17.5	22.4
8	1/8	22-MX8FN2	28.8	10.4	16.2	16	4.8	14.3	19.1
8	1/4	22-MX8FN4	30.6	15.0	16.2	16	6.4	17.5	22.4
10	1/4	22-MX10FN4	33.5	15.0	17.2	19	7.9	20.6	22.4
10	3/8	22-MX10FN6	33.5	15.0	17.2	19	7.9	20.6	22.4
10	1/2	22-MX10FN8	36.6	19.8	17.2	19	7.9	25.4	28.5
12	1/4	22-MX12FN4	36.0	15.0	22.8	22	7.9	20.6	22.4
12	3/8	22-MX12FN6	36.0	15.0	22.8	22	9.5	20.6	22.4
12	1/2	22-MX12FN8	38.8	19.8	22.8	22	9.5	25.4	28.4
16	3/8	22-MX16FN6	39.5	15.0	24.4	25	9.5	27.0	23.6
16	1/2	22-MX16FN8	39.5	19.8	24.4	25	12.7	27.0	28.5

Union Elbows



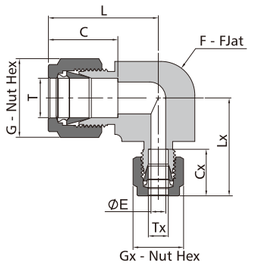
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
1/16	22-FX1	17.8	8.6	7.9	9.5	1.3
1/8	22-FX2	22.4	12.7	11.1	9.5	2.3
3/16	22-FX3	25.4	13.7	12.7	12.7	3.0
1/4	22-FX4	26.9	15.2	14.3	12.7	4.8
5/16	22-FX5	28.7	16.3	15.9	14.3	6.4
3/8	22-FX6	30.5	16.8	17.5	15.9	7.1
1/2	22-FX8	36.1	22.9	22.2	20.6	10.4
5/8	22-FX10	38.1	24.4	25.4	23.8	12.7
3/4	22-FX12	39.9	24.4	28.6	27.0	15.7
7/8	22-FX14	44.7	25.9	31.8	34.9	18.3
1	22-FX16	49.0	31.2	38.1	34.9	22.4
1 1/8	22-FX18	55.1	31.2	41.3	42.9	24.6
1 1/8	22-FX20	66.5	41.1	47.6	42.9	27.7
1 1/2	22-FX24	78.0	50.0	57.2	50.8	34.0

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
3	22-MX3	22.3	12.9	12	9.5	2.4
4	22-MX4	25.4	13.7	12	12.7	2.4
6	22-MX6	27.0	15.3	14	12.7	4.8
8	22-MX8	28.8	16.2	16	14.3	6.4
10	22-MX10	31.5	17.2	19	17.5	7.9
12	22-MX12	36.0	22.8	22	20.6	9.5
14	22-MX14	38.0	24.4	25	23.8	11.0
15	22-MX15	38.8	24.4	25	23.8	11.9
16	22-MX16	38.0	24.4	25	23.8	12.7
18	22-MX18	39.8	24.4	30	27.0	15.1
20	22-MX20	44.6	26.0	32	34.9	15.9
22	22-MX22	44.6	26.0	32	34.9	18.3
25	22-MX25	49.1	31.3	38	34.9	21.8
28	22-MX28	64.0	36.6	46	42.9	21.8
30	22-MX30	69.9	39.6	50	42.9	26.2
32	22-MX32	72.3	42.0	50	42.9	28.6
38	22-MX38	84.0	49.4	60	50.8	33.7

Union Reducing Elbows



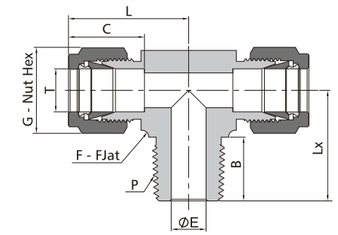
Fractional Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm							
			L	C	G	F	E	Cx	Gx	Lx
3/16	1/8	22-FX3FX2	25.4	13.7	12.7	12.7	2.3	12.7	11.1	24.7
1/4	1/8	22-FX4FX2	26.9	15.2	14.3	12.7	2.3	12.7	11.1	25.4
5/16	1/8	22-FX5FX2	29.7	16.3	15.9	14.3	2.3	12.7	11.1	26.4
5/16	1/4	22-FX5FX4	29.7	16.3	15.9	14.3	4.8	15.2	14.3	29.0
3/8	1/8	22-FX6FX2	30.5	16.8	17.5	15.9	2.3	12.7	11.1	26.4
3/8	1/4	22-FX6FX4	30.5	16.8	17.5	15.9	4.8	15.2	14.3	29.0
3/8	5/16	22-FX6FX5	30.5	16.8	17.5	15.9	6.4	16.3	15.9	29.7
1/2	1/4	22-FX8FX4	36.1	22.9	22.2	20.6	4.8	15.2	14.3	32.2
1/2	5/16	22-FX8FX5	36.1	22.9	22.2	20.6	6.4	16.3	15.9	32.5
1/2	3/8	22-FX8FX6	36.1	22.9	22.2	20.6	7.1	16.8	17.5	33.6
5/8	3/8	22-FX10FX6	38.1	24.4	25.4	23.8	7.1	16.8	17.5	35.6
5/8	1/2	22-FX10FX8	38.1	24.4	25.4	23.8	10.4	22.9	22.2	38.1
3/4	1/4	22-FX12FX4	39.9	24.4	28.6	27.0	4.8	15.2	14.3	35.9
3/4	3/8	22-FX12FX6	39.9	24.4	28.6	27.0	7.1	16.8	17.5	37.4
3/4	1/2	22-FX12FX8	39.9	24.4	28.6	27.0	10.4	22.9	22.2	39.9
7/8	1/4	22-FX14FX4	44.7	25.9	31.8	34.9	4.8	15.2	14.3	40.7
1	1/2	22-FX16FX8	49.0	31.2	38.1	34.9	10.4	22.9	22.2	44.4
1	3/4	22-FX16FX12	49.0	31.2	38.1	34.9	15.7	24.4	28.6	44.4

Metric Tube

T-Tube O.D. (mm)	Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm							
			L	C	G	F	E	Cx	Gx	Lx
8	6	22-MX8MX6	28.8	16.2	16	14.3	4.8	15.3	14	27.9
10	8	22-MX10MX8	31.5	17.2	19	17.5	6.4	16.2	16	30.5
12	8	22-MX12MX8	36.0	22.8	22	20.6	6.4	16.2	16	32.6
14	8	22-MX14MX8	38.8	24.4	25	23.8	6.4	16.2	16	35.4
14	10	22-MX14MX10	38.8	24.4	25	23.8	7.9	17.2	19	36.4

Male Branch Tees



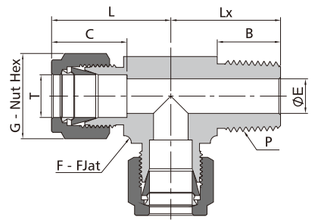
Fractional Tube — NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
1/8	1/8	23-FX2FX2N2	23.6	12.7	11.1	11.1	2.3	9.7	17.8
1/8	1/4	23-FX2FX2N4	24.6	12.7	11.1	12.7	2.3	14.2	23.4
3/16	1/8	23-FX3FX3N2	24.4	13.7	12.7	11.1	3.0	9.7	17.8
1/4	1/8	23-FX4FX4N2	26.9	15.2	14.3	12.7	4.8	9.7	18.8
1/4	1/4	23-FX4FX4N4	26.9	15.2	14.3	12.7	4.8	14.2	23.4
5/16	1/8	23-FX5FX5N2	29.7	16.3	15.9	15.9	4.8	9.7	20.8
5/16	1/4	23-FX5FX5N4	29.7	16.3	15.9	15.9	6.4	14.2	25.7
3/8	1/4	23-FX6FX6N4	30.5	16.8	17.5	15.9	7.1	14.2	25.4
3/8	3/8	23-FX6FX6N6	33.3	16.8	17.5	20.6	7.1	14.2	28.2
1/2	3/8	23-FX8FX8N6	36.1	22.9	22.2	20.6	9.7	14.2	28.2
1/2	1/2	23-FX8FX8N8	36.1	22.9	22.2	20.6	10.4	19.1	33.0
5/8	1/2	23-FX10FX10N8	38.9	24.4	25.4	25.4	11.9	19.1	35.8
3/4	3/4	23-FX12FX12N12	39.9	24.4	28.6	27.0	15.7	19.1	36.8
7/8	3/4	23-FX14FX14N12	44.7	25.9	31.8	33.3	15.7	19.1	38.1
1	3/4	23-FX16FX16N12	49.3	31.2	38.1	33.3	15.7	19.1	42.2
1	1	23-FX16FX16N16	49.3	31.2	38.1	34.9	22.4	23.9	46.7

Metric Tube — NPT Thread

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
6	1/8	23-MX6MX6N2	27.0	15.3	14	12.7	4.8	9.7	18.8
6	1/4	23-MX6MX6N4	27.0	15.3	14	12.7	4.8	14.2	23.4
8	1/8	23-MX8MX8N2	29.9	16.2	16	15.9	4.8	9.7	20.8
8	1/4	23-MX8MX8N4	29.9	16.2	16	15.9	6.4	14.2	25.4
10	1/4	23-MX10MX10N4	33.5	17.2	19	20.6	7.9	14.2	28.2
10	3/8	23-MX10MX10N6	33.5	17.2	19	20.6	7.9	14.2	28.2
12	1/4	23-MX12MX12N4	36.0	22.8	22	20.6	7.9	14.2	28.2
12	3/8	23-MX12MX12N6	36.0	22.8	22	20.6	9.5	14.2	28.2
12	1/2	23-MX12MX12N8	36.0	22.8	22	20.6	9.5	19.1	33.0
16	1/2	23-MX16MX16N8	38.8	24.4	25	25.4	11.9	19.1	35.8

Male Run Tees



Fractional Tube — NPT Thread

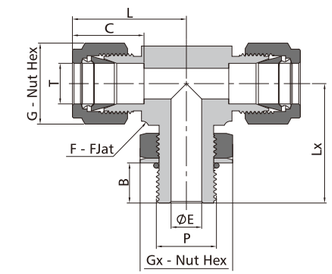
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
1/8	1/8	23-FX2N2FX2	23.6	12.7	11.1	11.1	2.3	9.7	17.8
1/8	1/4	23-FX2N4FX2	24.6	12.7	11.1	12.7	2.3	14.2	23.4
3/16	1/8	23-FX3N2FX3	24.4	13.7	12.7	11.1	3.0	9.7	17.8
1/4	1/8	23-FX4N2FX4	26.9	15.2	14.3	12.7	4.8	9.7	18.8
1/4	1/4	23-FX4N4FX4	26.9	15.2	14.3	12.7	4.8	14.2	23.4
5/16	1/8	23-FX5N2FX5	29.7	16.3	15.9	15.9	4.8	9.7	20.8
5/16	1/4	23-FX5N4FX5	29.7	16.3	15.9	15.9	6.4	14.2	25.7
3/8	1/4	23-FX6N4FX6	30.5	16.8	17.5	15.9	7.1	14.2	25.4
3/8	3/8	23-FX6N6FX6	33.3	16.8	17.5	20.6	7.1	14.2	28.2
1/2	3/8	23-FX8N6FX8	36.1	22.9	22.2	20.6	9.7	14.2	28.2
1/2	1/2	23-FX8N8FX8	36.1	22.9	22.2	20.6	10.4	19.1	33.0
5/8	1/2	23-FX10N8FX10	38.1	24.4	25.4	23.8	11.9	19.1	35.8
3/4	3/4	23-FX12N12FX12	39.9	24.4	28.6	27.0	15.7	19.1	36.8
7/8	3/4	23-FX14N12FX14	44.7	25.9	31.8	33.3	15.7	19.1	38.1
1	3/4	23-FX16N12FX16	49.3	31.2	38.1	33.3	15.7	19.1	42.2
1	1	23-FX16N16FX16	49.3	31.2	38.1	34.9	22.4	23.9	46.7

Metric Tube — NPT Thread

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
6	1/8	23-MX6N2MX6	27.0	15.3	14	12.7	4.8	9.7	18.0
6	1/4	23-MX6N4MX6	27.0	15.3	14	12.7	4.8	14.2	23.4
8	1/8	23-MX8N2MX8	29.9	16.2	16	15.9	4.8	9.7	20.8
8	1/4	23-MX8N4MX8	29.9	16.2	16	15.9	6.4	14.2	25.4
10	1/4	23-MX10N4MX10	33.5	17.2	19	20.6	7.9	14.2	28.2
10	1/2	23-MX10N8MX10	33.5	17.2	19	20.6	7.9	14.2	28.2
12	1/4	23-MX12N4MX12	36.0	22.8	22	20.6	7.9	14.2	28.2
12	3/8	23-MX12N6MX12	36.0	22.8	22	20.6	9.5	14.2	28.2
12	1/2	23-MX12N8MX12	36.0	22.8	22	20.6	9.5	19.1	33.0
16	1/2	23-MX16N8MX16	38.0	24.4	25	23.8	11.9	19.1	35.0

Adjustable Male Branch Tees SAE/MS Straight Thread

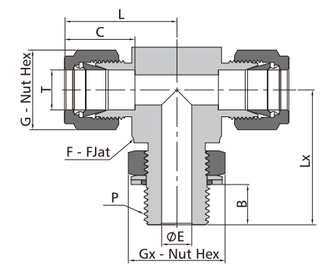
Adapt to straight thread boss of SAE J1926-1, ISO 11926-1 and MS 16142.



Fractional Tube — SAE/MS Straight Thread

T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm							
			L	B	C	E	G	F	Lx	Gx
1/4	7/16-20	23-FX4FX4SOT7	28.5	9.9	15.2	4.8	14.3	12.7	28.5	14.3
3/8	9/16-18	23-FX6FX6SOT9	32.0	11.2	16.8	7.1	17.5	15.9	32.3	17.5
1/2	3/4-16	23-FX8FX8SOT12	37.6	12.7	22.9	10.4	22.2	20.6	37.8	22.2
3/4	1 1/16-12	23-FX12FX12SOT17	41.4	16.8	24.4	15.7	28.6	27.0	48.8	28.6
1	1 5/16-12	23-FX16FX16SOT21	50.5	16.8	31.2	22.4	38.1	34.9	53.6	38.1
1 1/4	1 5/8-12	23-FX20FX20SOT26	67.8	16.8	41.1	27.7	47.6	42.9	58.2	47.6
1 1/4	1 7/8-12	23-FX24FX24SOT30	78.0	16.8	50.0	34.0	57.2	50.8	60.5	54.0

Adjustable Male Branch Tees ISO Parallel Thread



Fractional Tube — ISO Parallel Thread (PP)

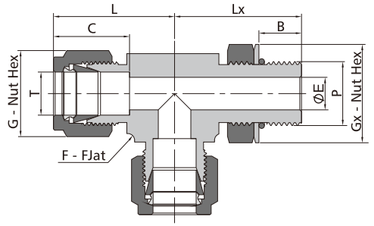
T-Tube O.D. (in.)	P-ISO Parallel Thread Size	Basic Ordering Number	Dimension, mm							
			L	B	C	E	G	F	Lx	Gx
1/4	1/8	23-FX4FX4SBP2	26.9	8.1	15.2	4.1	14.3	12.7	26.4	14.3
1/4	1/4	23-FX4FX4SBP4	29.0	9.1	15.2	4.8	14.3	15.9	32.3	19.1
3/8	1/4	23-FX6FX6SBP4	30.5	9.1	16.8	5.8	17.5	15.9	32.3	19.1
1/2	3/8	23-FX8FX8SBP6	36.1	9.4	22.9	7.9	22.2	20.6	37.1	22.2
1/2	1/2	23-FX8FX8SBP8	38.1	13.0	22.9	10.4	22.2	23.8	43.4	27.0
5/8	1/2	23-FX10FX10SBP8	38.1	13.0	24.4	11.9	25.4	23.8	43.4	27.0
3/4	1/2	23-FX12FX12SBP8	39.9	13.0	24.4	11.9	28.6	27.0	45.2	27.0
3/4	3/4	23-FX12FX12SBP12	39.9	13.0	24.4	15.7	28.6	27.0	48.8	34.9
1	1	23-FX16FX16SBP16	49.0	14.0	31.2	19.8	38.1	34.9	53.6	41.3

Metric Tube — ISO Parallel Thread (PP)

T-Tube O.D. (mm)	P-ISO Parallel Thread Size	Basic Ordering Number	Dimension, mm							
			L	B	C	E	G	F	Lx	Gx
6	1/8	23-MX6MX6SBP2	27.0	8.1	15.3	4.0	14	12.7	26.4	14.3
6	1/4	23-MX6MX6SBP4	29.0	9.1	15.3	4.8	14	15.9	32.2	19.1
8	1/8	23-MX8MX8SBP2	28.8	8.1	16.2	4.0	16	14.3	27.5	14.3
8	1/4	23-MX8MX8SBP4	29.9	9.1	16.2	5.9	16	15.9	32.2	19.1
10	1/4	23-MX10MX10SBP4	33.5	9.1	17.2	5.9	19	20.6	35.1	19.1
12	3/8	23-MX12MX12SBP6	36.0	9.4	22.8	7.9	22	20.6	37.1	22.2
12	1/2	23-MX12MX12SBP8	38.0	13.0	22.8	9.5	22	23.8	43.5	27.0

Adjustable Male Run Tees
SAE/MS Straight Thread

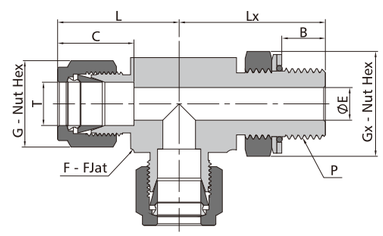
Adapt to straight thread boss of
SAE J1926-1, ISO 11926-1 and MS 16142.



Fractional Tube — SAE/MS Straight Thread

T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm							
			L	B	C	E	G	F	Lx	Gx
1/4	7/16-20	23-FX4SOT7FX4	28.5	9.9	15.2	4.8	14.3	12.7	28.5	14.3
3/8	9/16-18	23-FX6SOT9FX6	32.0	11.2	16.8	7.1	17.5	15.9	32.3	17.5
1/2	3/4-16	23-FX8SOT12FX8	37.6	12.7	22.9	10.4	22.2	20.6	37.8	22.2
3/4	1 1/16-12	23-FX12SOT17FX12	41.4	16.8	24.4	15.7	28.6	27.0	48.8	28.6
1	1 5/16-12	23-FX16SOT21FX16	50.5	16.8	31.2	22.4	38.1	34.9	53.6	38.1
1 1/4	1 5/8-12	23-FX20SOT26FX20	67.8	16.8	41.1	27.7	47.6	42.9	58.2	47.6
1 1/2	1 7/8-12	23-FX24SOT30FX24	78.0	16.8	50.0	34.0	57.2	50.8	60.5	54.0

Adjustable Male Run Tees
ISO Parallel Thread



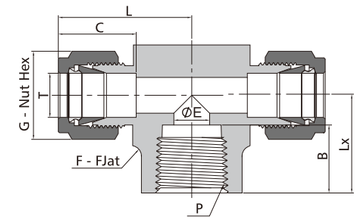
Fractional Tube — ISO Parallel Thread (PP)

T-Tube O.D. (in.)	P-ISO Parallel Thread Size	Basic Ordering Number	Dimension, mm							
			L	B	C	E	G	F	Lx	Gx
1/4	1/8	23-FX4SBP2FX4	26.9	8.1	15.2	4.1	14.3	12.7	26.4	14.3
1/4	1/4	23-FX4SBP4FX4	29.0	9.1	15.2	4.8	14.3	15.9	32.3	19.1
3/8	1/4	23-FX6SBP4FX6	30.5	9.1	16.8	5.8	17.5	15.9	32.3	19.1
1/2	3/8	23-FX8SBP6FX8	36.1	9.4	22.9	7.9	22.2	20.6	37.1	22.2
1/2	1/2	23-FX8SBP8FX8	38.1	13.0	22.9	10.4	22.2	23.8	43.4	27.0
5/8	1/2	23-FX10SBP8FX10	38.1	13.0	24.4	11.9	25.4	23.8	43.4	27.0
3/4	1/2	23-FX12SBP8FX12	39.9	13.0	24.4	11.9	28.6	27.0	45.2	27.0
3/4	3/4	23-FX12SBP12FX12	39.9	13.0	24.4	15.7	28.6	27.0	48.8	34.9
1	1	23-FX16SBP16FX16	49.0	14.0	31.2	19.8	38.1	34.9	53.6	41.3

Metric Tube — ISO Parallel Thread (PP)

T-Tube O.D. (mm)	P-ISO Parallel Thread Size	Basic Ordering Number	Dimension, mm							
			L	B	C	E	G	F	Lx	Gx
6	1/8	23-MX6SBP2MX6	27.0	8.1	15.3	4.0	14	12.7	26.4	14.3
6	1/4	23-MX6SBP4MX6	29.0	9.1	15.3	4.8	14	15.9	32.2	19.1
8	1/8	23-MX8SBP2MX8	28.8	8.1	16.2	4.0	16	14.3	27.5	14.3
8	1/4	23-MX8SBP4MX8	29.9	9.1	16.2	5.9	16	15.9	32.2	19.1
10	1/4	23-MX10SBP4MX10	33.5	9.1	17.2	5.9	19	20.6	35.1	19.1
12	3/8	23-MX12SBP6MX12	36.0	9.4	22.8	7.9	22	20.6	37.1	22.2
12	1/2	23-MX12SBP8MX12	38.0	13.0	22.8	9.5	22	23.8	43.5	27.0

Female Branch Tees



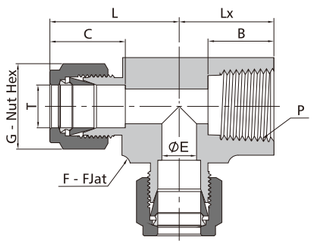
Fractional Tube — NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
1/8	1/8	23-FX2FX2FN2	24.6	12.7	11.1	12.7	2.3	10.4	19.1
3/16	1/8	23-FX3FX3FN2	25.7	13.7	12.7	12.7	3.0	10.4	19.1
1/4	1/8	23-FX4FX4FN2	26.9	15.2	14.3	12.7	4.8	10.4	19.1
1/4	1/4	23-FX4FX4FN4	29.7	15.2	14.3	17.5	4.8	15.0	22.4
5/16	1/8	23-FX5FX5FN2	29.7	16.2	15.9	15.9	6.4	10.4	19.1
3/8	1/4	23-FX6FX6FN4	31.2	16.8	17.5	17.5	7.1	15.0	22.4
3/8	3/8	23-FX6FX6FN6	33.3	16.8	17.5	20.6	7.1	15.0	22.4
3/8	1/2	23-FX6FX6FN8	36.1	16.8	17.5	25.4	7.1	19.8	28.4
1/2	1/4	23-FX8FX8FN4	36.1	22.9	22.2	20.6	10.4	15.0	22.4
1/2	3/8	23-FX8FX8FN6	36.1	22.9	22.2	20.6	10.4	15.0	22.4
1/2	1/2	23-FX8FX8FN8	38.9	22.9	22.2	25.4	10.4	19.8	28.4
5/8	1/2	23-FX10FX10FN8	38.9	24.4	25.4	25.4	12.7	19.8	28.4
3/4	3/4	23-FX12FX12FN12	44.7	24.4	28.6	34.9	15.7	20.6	31.8
7/8	3/4	23-FX14FX14FN12	44.7	25.9	31.8	34.9	18.3	20.6	31.8
1	3/4	23-FX16FX16FN12	49.0	31.2	38.1	34.9	22.4	20.6	31.8
1	1	23-FX16FX16FN16	53.6	31.2	38.1	42.9	22.4	25.4	38.1

Metric Tube — NPT Thread

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
6	1/8	23-MX6MX6FN2	27.0	15.3	14	12.7	4.8	10.4	19.0
6	1/4	23-MX6MX6FN4	29.8	15.3	14	17.5	4.8	15.0	22.4
8	1/8	23-MX8MX8FN2	29.9	16.2	16	15.9	6.4	10.4	19.0
8	1/4	23-MX8MX8FN4	30.6	16.2	16	17.5	6.4	15.0	22.4
10	1/4	23-MX10MX10FN4	33.5	17.2	19	20.6	7.9	15.0	22.4
12	1/8	23-MX12MX12FN2	36.0	22.8	22	20.6	6.4	10.4	22.3
12	1/4	23-MX12MX12FN4	36.0	22.8	22	20.6	9.5	15.0	22.4
12	3/8	23-MX12MX12FN6	36.0	22.8	22	20.6	9.5	15.0	22.4
12	1/2	23-MX12MX12FN8	38.8	22.8	22	25.4	9.5	19.8	28.5
16	1/2	23-MX16MX16FN8	38.8	24.4	25	25.4	12.7	19.8	28.4

Female Run Tees



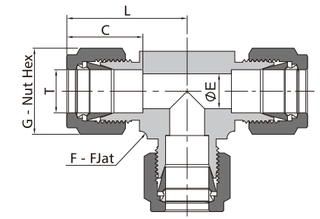
Fractional Tube — NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
1/8	1/8	23-FX2FN2FX2	24.6	12.7	11.1	12.7	2.3	10.4	19.1
3/16	1/8	23-FX3FN2FX3	25.7	13.7	12.7	12.7	3.0	10.4	19.1
1/4	1/8	23-FX4FN2FX4	26.9	15.2	14.3	12.7	4.8	10.4	19.1
1/4	1/4	23-FX4FN4FX4	29.7	15.2	14.3	17.5	4.8	15.0	22.4
5/16	1/8	23-FX5FN2FX5	29.7	16.2	15.9	15.9	6.4	10.4	19.1
3/8	1/4	23-FX6FN4FX6	31.2	16.8	17.5	17.5	7.1	15.0	22.4
1/2	1/4	23-FX8FN4FX8	36.1	22.9	22.2	20.6	10.4	15.0	22.4
1/2	3/8	23-FX8FN6FX8	36.1	22.9	22.2	20.6	10.4	15.0	22.4
1/2	1/2	23-FX8FN8FX8	39.9	22.9	22.2	27.0	10.4	19.8	28.4
5/8	1/2	23-FX10FN8FX10	39.9	24.4	25.4	27.0	12.7	19.8	28.4
3/4	3/4	23-FX12FN12FX12	44.7	24.4	28.6	34.9	15.7	20.6	31.8
7/8	1/2	23-FX14FN8FX14	44.7	25.9	31.8	34.9	15.7	19.8	28.4
7/8	3/4	23-FX14FN12FX14	44.7	25.9	31.8	34.9	18.3	20.6	31.8
1	3/4	23-FX16FN12FX16	49.0	31.2	38.1	34.9	22.4	20.6	31.8
1	1	23-FX16FN16FX16	53.6	31.2	38.1	42.9	22.4	25.4	38.1

Metric Tube — NPT Thread

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
6	1/8	23-MX6FN2MX6	27.0	15.3	14	12.7	4.8	10.4	19.0
6	1/4	23-MX6FN4MX6	29.8	15.3	14	17.5	4.8	15.0	22.4
8	1/8	23-MX8FN2MX8	29.9	16.2	16	15.9	4.8	10.4	19.0
8	1/4	23-MX8FN4MX8	30.6	16.2	16	17.5	6.4	15.0	22.4
10	1/4	23-MX10FN4MX10	33.5	17.2	19	20.6	7.9	15.0	22.4
12	1/4	23-MX12FN4MX12	36.0	22.8	22	20.6	9.5	15.0	22.4
12	3/8	23-MX12FN6MX12	36.0	22.8	22	20.6	9.5	15.0	23.1
12	1/2	23-MX12FN8MX12	38.8	22.8	22	25.4	9.5	19.8	28.5
16	1/2	23-MX16FN8MX16	39.8	24.4	25	27.0	11.9	19.8	28.4

Union Tees



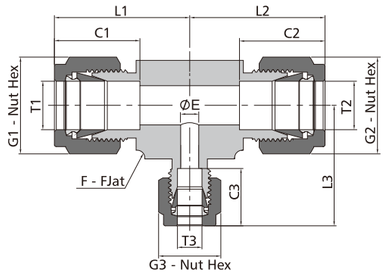
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
1/16	23-FX1	17.8	8.6	7.9	9.5	1.3
1/8	23-FX2	22.4	12.7	11.1	9.5	2.3
3/16	23-FX3	24.4	13.7	12.7	11.1	3.0
1/4	23-FX4	26.9	15.2	14.3	12.7	4.8
5/16	23-FX5	29.7	16.2	15.9	15.9	6.4
3/8	23-FX6	30.5	16.8	17.5	15.9	7.1
1/2	23-FX8	36.1	22.9	22.2	20.6	10.4
5/8	23-FX10	38.9	24.4	25.4	25.4	12.7
3/4	23-FX12	39.9	24.4	28.6	27.0	15.7
7/8	23-FX14	44.7	25.9	31.8	34.9	18.3
1	23-FX16	49.0	31.2	38.1	34.9	22.4
1 1/8	23-FX18	55.1	31.2	46.0	42.9	24.6
1 1/4	23-FX20	66.5	41.1	47.6	42.9	27.7
1 1/2	23-FX24	78.0	50.0	57.2	50.8	34.0

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
2	23-MX2	22.3	12.9	12	9.5	1.7
3	23-MX3	22.3	12.9	12	9.5	2.4
4	23-MX4	25.4	13.7	12	12.7	2.4
6	23-MX6	27.0	15.3	14	12.7	4.8
8	23-MX8	29.9	16.2	16	15.9	6.4
10	23-MX10	31.5	17.2	19	17.5	7.9
12	23-MX12	36.0	22.8	22	20.6	9.5
14	23-MX14	38.8	24.4	25	25.4	11.1
15	23-MX15	38.8	24.4	25	25.4	11.9
16	23-MX16	38.8	24.4	25	25.4	12.7
18	23-MX18	38.8	24.4	30	27.0	15.1
20	23-MX20	44.6	26.0	32	34.9	15.9
22	23-MX22	44.6	26.0	32	34.9	18.3
25	23-MX25	49.1	31.3	38	34.9	21.8
28	23-MX28	64.0	36.6	46	42.9	21.8
30	23-MX30	69.9	39.6	50	42.9	26.2
32	23-MX32	72.3	42.0	50	42.9	28.6
38	23-MX38	84.0	49.4	60	50.8	33.7

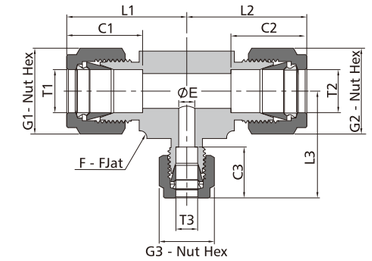
Reducing Union Tees



Fractional Tube

T1-Tube O.D. (in.)	T2-Tube O.D. (in.)	T3-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm										
				L1	L2	L3	C1	C2	C3	G1	G2	G3	F	E
1/4	1/4	1/8	23-FX4FX4FX2	26.7	26.7	24.4	15.2	15.2	12.7	14.3	14.3	11.1	12.7	2.3
3/8	1/4	1/4	23-FX6FX4FX4	30.5	29.0	29.0	16.8	15.2	15.2	17.5	14.3	14.3	15.9	4.8
3/8	1/4	3/8	23-FX6FX4FX6	30.5	29.0	30.5	16.8	15.2	16.8	17.5	14.3	17.5	15.9	4.8
3/8	3/8	1/4	23-FX6FX6FX4	30.5	30.5	29.0	16.8	16.8	15.2	17.5	17.5	14.3	15.9	4.8
1/2	1/4	1/4	23-FX8FX4FX4	36.1	31.8	31.8	22.9	15.2	15.2	22.2	14.3	14.3	20.6	4.8
1/2	1/4	1/2	23-FX8FX4FX8	36.1	31.8	36.1	22.9	15.2	22.9	22.2	14.3	22.2	20.6	4.8
1/2	3/8	3/8	23-FX8FX6FX6	36.1	33.3	33.3	22.9	16.8	16.8	22.2	17.5	17.5	20.6	7.1
1/2	3/8	1/2	23-FX8FX6FX8	36.1	33.3	36.1	22.9	16.8	22.9	22.2	17.5	22.2	20.6	7.1
1/2	1/2	1/4	23-FX8FX8FX4	36.1	36.1	31.8	22.9	22.9	15.2	22.2	22.2	14.3	20.6	4.8
1/2	1/2	3/8	23-FX8FX8FX6	36.1	36.1	33.3	22.9	22.9	16.8	22.2	22.2	17.5	20.6	7.1
5/8	3/8	3/8	23-FX10FX6FX6	38.9	36.1	36.1	24.4	16.8	16.8	25.4	17.5	17.5	25.4	7.1
5/8	3/8	1/2	23-FX10FX6FX8	38.9	36.1	38.9	24.4	16.8	22.9	25.4	17.5	22.2	25.4	7.1
5/8	1/2	3/8	23-FX10FX8FX6	38.9	38.9	36.1	24.4	22.9	16.8	25.4	22.2	17.5	25.4	7.1
5/8	1/2	1/2	23-FX10FX8FX8	38.9	38.9	38.9	24.4	22.9	22.9	25.4	22.2	22.2	25.4	10.4
5/8	5/8	3/8	23-FX10FX10FX6	38.9	38.9	36.1	24.4	24.4	16.8	25.4	25.4	17.5	25.4	7.1
5/8	5/8	1/2	23-FX10FX10FX8	38.9	38.9	38.9	24.4	24.4	22.9	25.4	25.4	22.2	25.4	10.4
3/4	3/8	3/8	23-FX12FX6FX6	39.6	36.9	36.9	24.4	16.8	16.8	28.6	17.5	17.5	27.0	7.1
3/4	1/2	3/8	23-FX12FX8FX6	39.6	39.6	36.9	24.4	22.9	16.8	28.6	22.2	17.5	27.0	7.1
3/4	1/2	1/2	23-FX12FX8FX8	39.6	39.6	39.6	24.4	22.9	22.9	28.6	22.2	22.2	27.0	10.4
3/4	5/8	3/8	23-FX12FX10FX6	39.6	39.6	36.9	24.4	24.4	16.8	28.6	25.4	17.5	27.0	7.1
3/4	5/8	1/2	23-FX12FX10FX8	39.6	39.6	39.6	24.4	24.4	22.9	28.6	25.4	22.2	27.0	10.4
3/4	5/8	5/8	23-FX12FX10FX10	39.6	39.6	39.6	24.4	24.4	24.4	28.6	25.4	25.4	27.0	12.7
3/4	3/4	1/4	23-FX12FX12FX4	39.6	39.6	35.1	24.4	24.4	15.2	28.6	28.6	14.3	27.0	4.8
3/4	3/4	3/8	23-FX12FX12FX6	39.6	39.6	36.9	24.4	24.4	16.8	28.6	28.6	17.5	27.0	7.1
3/4	3/4	1/2	23-FX12FX12FX8	39.6	39.6	39.6	24.4	24.4	22.9	28.6	28.6	22.2	27.0	10.4
3/4	3/4	5/8	23-FX12FX12FX10	39.6	39.6	39.6	24.4	24.4	24.4	28.6	28.6	25.4	27.0	12.7
7/8	1/2	3/4	23-FX14FX8FX12	44.7	44.7	44.7	25.9	22.9	24.4	31.8	22.2	28.6	34.9	10.4
7/8	5/8	3/8	23-FX14FX10FX6	44.7	44.7	41.9	25.9	24.4	16.8	31.8	25.4	17.5	34.9	7.1
7/8	3/4	3/8	23-FX14FX12FX6	44.7	44.7	41.9	25.9	24.4	16.8	31.8	28.6	17.5	34.9	7.1
7/8	3/4	1/2	23-FX14FX12FX8	44.7	44.7	44.7	25.9	24.4	22.9	31.8	28.6	22.2	34.9	10.4
7/8	3/4	3/4	23-FX14FX12FX12	44.7	44.7	44.7	25.9	24.4	24.4	31.8	28.6	28.6	34.9	15.7
7/8	7/8	1/4	23-FX14FX14FX4	44.7	44.7	40.4	25.9	25.9	15.2	31.8	31.8	14.3	34.9	4.8
7/8	7/8	3/8	23-FX14FX14FX6	44.7	44.7	41.9	25.9	25.9	16.8	31.8	31.8	17.5	34.9	7.1
1	3/8	3/8	23-FX16FX6FX6	49.3	41.9	41.9	31.2	16.8	16.8	38.1	17.5	17.5	34.9	7.1
1	1/2	1/4	23-FX16FX8FX4	49.3	44.7	40.4	31.2	22.9	15.2	38.1	22.2	14.3	34.9	4.8
1	1/2	3/8	23-FX16FX8FX6	49.3	44.7	41.9	31.2	22.9	16.8	38.1	22.2	17.5	34.9	7.1
1	1/2	1/2	23-FX16FX8FX8	49.3	44.7	44.7	31.2	22.9	22.9	38.1	22.2	22.2	34.9	10.4
1	1/2	1	23-FX16FX8FX16	49.3	44.7	49.3	31.2	22.9	31.2	38.1	22.2	38.1	34.9	10.4
1	5/8	3/8	23-FX16FX10FX6	49.3	44.7	41.9	31.2	24.4	16.8	38.1	25.4	17.5	34.9	7.1
1	3/4	3/8	23-FX16FX12FX6	49.3	44.7	41.9	31.2	24.4	16.8	38.1	28.6	17.5	34.9	7.1
1	3/4	1/2	23-FX16FX12FX8	49.3	44.7	44.7	31.2	24.4	22.9	38.1	28.6	22.2	34.9	10.4
1	3/4	5/8	23-FX16FX12FX10	49.3	44.7	44.7	31.2	24.4	24.4	38.1	28.6	25.4	34.9	12.7
1	3/4	1	23-FX16FX12FX16	49.3	44.7	49.3	31.2	24.4	31.2	38.1	28.6	38.1	34.9	15.7
1	7/8	1/4	23-FX16FX14FX4	49.3	44.7	40.4	31.2	25.9	15.2	38.1	31.8	14.3	34.9	4.8
1	7/8	3/8	23-FX16FX14FX6	49.3	44.7	41.9	31.2	25.9	16.8	38.1	31.8	17.5	34.9	7.1
1	7/8	1/2	23-FX16FX14FX8	49.3	44.7	44.7	31.2	25.9	22.9	38.1	31.8	22.2	34.9	10.4
1	7/8	3/4	23-FX16FX14FX12	49.3	44.7	44.7	31.2	25.9	24.4	38.1	31.8	28.6	34.9	12.7
1	7/8	7/8	23-FX16FX14FX14	49.3	44.7	44.7	31.2	25.9	25.9	38.1	31.8	31.8	34.9	18.3
1	1	1/4	23-FX16FX16FX4	49.3	49.3	40.4	31.2	31.2	15.2	38.1	38.1	14.3	34.9	4.8
1	1	3/8	23-FX16FX16FX6	49.3	49.3	41.9	31.2	31.2	16.8	38.1	38.1	17.5	34.9	7.1
1	1	1/2	23-FX16FX16FX8	49.3	49.3	44.7	31.2	31.2	22.9	38.1	38.1	22.2	34.9	10.4
1	1	5/8	23-FX16FX16FX10	49.3	49.3	44.7	31.2	31.2	24.4	38.1	38.1	25.4	34.9	12.7
1	1	3/4	23-FX16FX16FX12	49.3	49.3	44.7	31.2	31.2	24.4	38.1	38.1	28.6	34.9	15.7
1	1	7/8	23-FX16FX16FX14	49.3	49.3	44.7	31.2	31.2	25.9	38.1	38.1	31.8	34.9	18.3
1 1/4	1 1/4	1	23-FX20FX20FX16	67.8	67.8	55.1	41.2	41.2	31.3	47.6	47.6	38.1	42.9	22.4
1 1/2	1 1/2	1	23-FX24FX24FX16	78.7	78.7	60.0	50.0	50.0	31.3	57.2	57.2	38.1	50.8	22.4

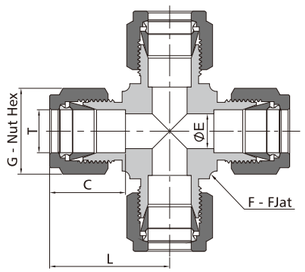
Reducing Union Tees



Metric Tube

T1-Tube O.D. (mm)	T2-Tube O.D. (mm)	T3-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm										
				L1	L2	L3	C1	C2	C3	G1	G2	G3	F	E
3	3	6	23-MX3MX3MX6	24.7	24.7	27.0	12.9	12.9	15.3	12	12	14	12.7	2.4
6	6	3	23-MX6MX6MX3	27.0	27.0	25.4	15.3	15.3	12.9	14	14	12	12.7	2.4
6	6	8	23-MX6MX6MX8	28.0	28.0	28.8	15.3	15.3	16.2	14	14	16	14.3	4.8
8	8	6	23-MX8MX8MX6	30.0	30.0	29.0	16.2	16.2	15.3	16	16	14	15.9	4.8
8	8	12	23-MX8MX8MX12	35.2	35.2	36.0	16.2	16.2	22.8	16	16	22	20.6	6.4
10	10	6	23-MX10MX10MX6	31.5	31.5	29.9	17.2	17.2	15.3	19	19	14	17.5	4.8
10	10	8	23-MX10MX10MX8	31.5	31.5	30.7	17.2	17.2	16.2	19	19	16	17.5	6.4
12	12	6	23-MX12MX12MX6	36.0	36.0	31.8	22.8	22.8	15.3	22	22	14	20.6	4.8
12	12	8	23-MX12MX12MX8	36.0	36.0	35.2	22.8	22.8	16.2	22	22	16	20.6	6.4
12	12	14	23-MX12MX12MX14	38.0	38.0	38.0	22.8	22.8	24.4	22	22	25	25.4	9.5
12	12	18	23-MX12MX12MX18	39.8	39.8	39.8	22.8	22.8	24.4	22	22	30	27.0	9.5
14	14	8	23-MX14MX14MX8	38.0	38.0	37.2	24.4	24.4	16.2	25	25	16	25.4	6.4
14	14	10	23-MX14MX14MX10	38.0	38.0	38.0	24.4	24.4	17.2	25	25	19	25.4	7.9
15	15	12	23-MX15MX15MX12	38.8	38.8	38.8	24.4	24.4	22.8	25	25	22	25.4	9.5
16	8	16	23-MX16MX8MX16	38.8	37.2	38.8	24.4	16.2	24.4	25	16	25	25.4	6.4
16	16	12	23-MX16MX16MX12	38.8	38.8	38.9	24.4	24.4	22.8	25	25	22	25.4	9.5
18	18	8	23-MX18MX18MX8	39.8	39.8	39.0	24.4	24.4	16.2	30	30	16	27.0	6.4
18	18	10	23-MX18MX18MX10	39.8	39.8	39.8	24.4	24.4	17.2	30	30	19	27.0	7.9
18	18	12	23-MX18MX18MX12	39.8	39.8	39.8	24.4	24.4	22.8	30	30	22	27.0	9.5
18	18	14	23-MX18MX18MX14	39.8	39.8	39.8	24.4	24.4	24.4	30	30	25	27.0	11.1
20	20	14	23-MX20MX20MX14	44.6	44.6	44.6	26.0	26.0	24.4	32	32	25	34.9	11.1
22	22	12	23-MX22MX22MX12	44.6	44.6	44.6	26.0	26.0	22.8	32	32	22	34.9	9.5
25	25	12	23-MX25MX25MX12	49.1	49.1	44.7	31.3	31.3	22.8	38	38	22	34.9	9.5

Union Crosses



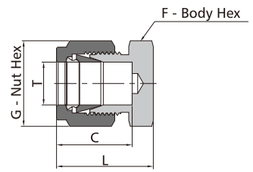
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
1/8	24-FX2	22.4	12.7	11.1	9.5	2.3
3/16	24-FX3	24.4	13.7	12.7	11.1	3.0
1/4	24-FX4	26.9	15.2	14.3	12.7	4.8
5/16	24-FX5	29.7	16.2	15.9	15.9	6.4
3/8	24-FX6	30.5	16.8	17.5	15.9	7.1
1/2	24-FX8	36.1	22.9	22.2	20.6	10.4
5/8	24-FX10	36.3	24.4	25.4	27.0	12.7
3/4	24-FX12	39.9	24.4	28.6	27.0	15.7
7/8	24-FX14	44.7	25.9	31.8	34.9	18.3
1	24-FX16	49.0	31.2	38.1	34.9	22.4

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
3	24-MX3	22.3	12.9	12	9.5	2.4
4	24-MX4	25.4	13.7	12	12.7	2.4
6	24-MX6	27.0	15.3	14	12.7	4.8
8	24-MX8	29.9	16.2	16	15.9	6.4
10	24-MX10	33.5	17.2	19	20.6	7.9
12	24-MX12	36.0	22.8	22	20.6	9.5
16	24-MX16	37.0	24.4	25	23.8	12.7
18	24-MX18	38.3	24.4	30	27.0	15.1
20	24-MX20	44.6	26.0	32	34.9	15.9
22	24-MX22	44.7	26.0	32	34.9	18.3
25	24-MX25	49.2	31.3	38	34.9	21.8

Caps



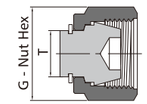
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm			
		L	C	G	F
1/16	263-FX1	15.0	8.6	7.9	7.9
1/8	263-FX2	20.1	12.7	11.1	11.1
3/16	263-FX3	21.3	13.7	12.7	11.1
1/4	263-FX4	23.4	15.2	14.3	12.7
5/16	263-FX5	24.4	16.3	15.9	14.3
3/8	263-FX6	25.7	16.8	17.5	15.9
1/2	263-FX8	29.2	22.9	22.2	20.6
5/8	263-FX10	30.0	24.4	25.4	23.8
3/4	263-FX12	31.5	24.4	28.6	27.0
7/8	263-FX14	34.0	25.9	31.8	30.2
1	263-FX16	38.4	31.2	38.1	34.9
1 1/8	263-FX18	38.4	31.2	46.0	41.3
1 1/4	263-FX20	53.3	41.1	47.6	44.5
1 1/2	263-FX24	64.5	50.0	57.2	54.0

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm			
		L	C	G	F
2	263-MX2	20.1	12.9	12	12
3	263-MX3	20.1	12.9	12	12
4	263-MX4	21.3	13.7	12	12
6	263-MX6	23.1	15.3	14	14
8	263-MX8	24.5	16.2	16	15
10	263-MX10	26.6	17.2	19	18
12	263-MX12	29.1	22.8	22	22
14	263-MX14	29.9	24.4	25	24
15	263-MX15	29.9	24.4	25	24
16	263-MX16	29.9	24.4	25	24
18	263-MX18	31.4	24.4	30	27
20	263-MX20	34.0	26.0	32	30
22	263-MX22	34.0	26.0	32	30
25	263-MX25	38.5	31.3	38	35
28	263-MX28	48.5	36.6	46	41
30	263-MX30	53.4	39.6	50	46
32	263-MX32	55.8	42.0	50	46
38	263-MX38	65.4	49.4	60	55

Plugs



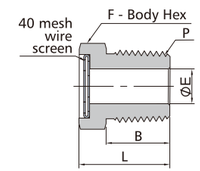
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm
		G
1/16	262-FX1	7.9
1/8	262-FX2	11.1
3/16	262-FX3	12.7
1/4	262-FX4	14.3
5/16	262-FX5	15.9
3/8	262-FX6	17.5
1/2	262-FX8	22.2
5/8	262-FX10	25.4
3/4	262-FX12	28.6
7/8	262-FX14	31.8
1	262-FX16	38.1
1 1/4	262-FX20	47.6
1 1/2	262-FX24	57.2

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm
		G
2	262-MX2	12
3	262-MX3	12
4	262-MX4	12
6	262-MX6	14
8	262-MX8	16
10	262-MX10	19
12	262-MX12	22
14	262-MX14	25
15	262-MX15	25
16	262-MX16	25
18	262-MX18	30
20	262-MX20	32
22	262-MX22	32
25	262-MX25	38
28	262-MX28	46
30	262-MX30	50
32	262-MX32	50
38	262-MX38	60

Vent Protectors



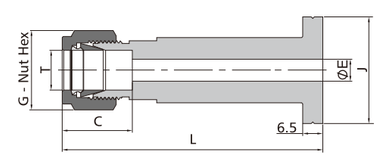
40 mesh 300 series stainless steel wire screen assembly

NPT Thread

P-NPT Size	Ordering Number	Dimension, mm			
		L	F	B	E
1/8	264-N2	14.2	12.7	9.7	4.8
1/4	264-N4	19.8	14.3	14.2	7.1
3/8	264-N6	20.6	17.5	14.2	10.4
1/2	264-N8	26.2	22.2	19.1	12.7
3/4	264-N12	26.9	27.0	19.2	18.3
1	264-N16	34.8	34.9	23.9	22.4

To order brass, replace SS in the ordering number with B
Example: B264-N2

Lapped FJange Connectors



- Standard material is 316 or Monel.
- The FJange ends are used with NPS 1/2 lap joint pipe FJanges.
- The FJange ends are dimensioned to meet "ANSI B16.5 Class 2500" FJange specifications.
- The FJange Seal A means surface finish Ra 3.2-6.3 μ m, the FJange Seal B means Ra 6.3-12.5 μ m.

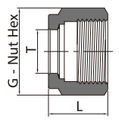
Fractional Tube

T-Tube O.D. (in.)	Flange Seal	Basic Ordering Number	Dimension, mm				
			L	G	C	E	J
1/4	A	LFC-FX4A	80.8	14.3	15.2	4.8	34.5
1/4	B	LFC-FX4B	80.8	14.3	15.2	4.8	34.5
3/8	A	LFC-FX6A	82.9	17.5	16.8	7.1	34.5
3/8	B	LFC-FX6B	82.9	17.5	16.8	7.1	34.5
1/2	A	LFC-FX8A	85.1	22.2	22.9	7.9	34.5
1/2	B	LFC-FX8B	85.1	22.2	22.9	7.9	34.5

Metric Tube

T-Tube O.D. (mm)	Flange Seal	Basic Ordering Number	Dimension, mm				
			L	G	C	E	J
10	A	LFC-MX10A	82.6	19	17.2	7.9	34.5
10	B	LFC-MX10B	82.6	19	17.2	7.9	34.5

Nuts



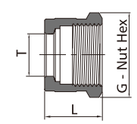
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm	
		L	G
1/16	N-FX1	7.9	7.9
1/8	N-FX2	11.9	11.1
3/16	N-FX3	11.9	12.7
1/4	N-FX4	12.7	14.3
5/16	N-FX5	13.5	15.9
3/8	N-FX6	14.2	17.5
1/2	N-FX8	17.5	22.2
5/8	N-FX10	17.5	25.4
3/4	N-FX12	17.5	28.6
7/8	N-FX14	17.5	31.8
1	N-FX16	20.6	38.1
1 1/8	N-FX18	30.8	46.0
1 1/4	N-FX20	31.8	47.6
1 1/2	N-FX24	38.1	57.2

Metric Tube

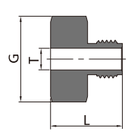
T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm	
		L	G
2	N-MX2	11.9	12
3	N-MX3	11.9	12
4	N-MX4	11.9	12
6	N-MX6	12.7	14
8	N-MX8	13.5	16
10	N-MX10	15.1	19
12	N-MX12	17.4	22
14	N-MX14	17.4	25
15	N-MX15	17.4	25
16	N-MX16	17.4	25
18	N-MX18	17.4	30
20	N-MX20	17.4	32
22	N-MX22	17.4	32
25	N-MX25	20.6	38
28	N-MX28	30.6	46
30	N-MX30	32.7	50
32	N-MX32	34.4	50
38	N-MX38	40.6	60

Knurled Nuts



To order a knurled nut add K to the nut ordering number.
Exemple: BKN-FX4

Male Nuts



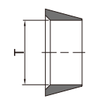
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm	
		L	G
1/16	MN-FX1	9.7	6.4
1/8	MN-FX2	13.5	9.5
1/4	MN-FX4	15.7	12.7
1/2	MN-FX8	22.1	23.8

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm	
		L	G
3	MN-MX3	13.5	10
6	MN-MX6	15.7	14
10	MN-MX10	22.1	22
12	MN-MX12	22.1	24

Front Ferrules



Fractional Tube

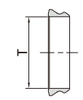
T-Tube O.D. (in.)	Basic Ordering Number
1/16	FF-FX1
1/8	FF-FX2
3/16	FF-FX3
1/4	FF-FX4
5/16	FF-FX5
3/8	FF-FX6
1/2	FF-FX8
5/8	FF-FX10
3/4	FF-FX12
7/8	FF-FX14
1	FF-FX16
1 1/8	FF-FX18*
1 1/4	FF-FX20*
1 1/2	FF-FX24*

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number
2	FF-MX2
3	FF-MX3
4	FF-MX4
6	FF-MX6
8	FF-MX8
10	FF-MX10
12	FF-MX12
14	FF-MX14
15	FF-MX15
16	FF-MX16
18	FF-MX18
20	FF-MX20
22	FF-MX22
25	FF-MX25
28	FF-MX28*
30	FF-MX30*
32	FF-MX32*
38	FF-MX38*

* Stainless steel front ferrules over 1 in. or 25 mm are PFA coated.

Rear Ferrules



Fractional Tube

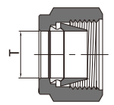
T-Tube O.D. (in.)	Basic Ordering Number
1/16	RF-FX1
1/8	RF-FX2
3/16	RF-FX3
1/4	RF-FX4
5/16	RF-FX5
3/8	RF-FX6
1/2	RF-FX8
5/8	RF-FX10
3/4	RF-FX12
7/8	RF-FX14
1	RF-FX16
1 1/8	RF-FX18*
1 1/4	RF-FX20*
1 1/2	RF-FX24*

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number
2	RF-MX2
3	RF-MX3
4	RF-MX4
6	RF-MX6
8	RF-MX8
10	RF-MX10
12	RF-MX12
14	RF-MX14
15	RF-MX15
16	RF-MX16
18	RF-MX18
20	RF-MX20
22	RF-MX22
25	RF-MX25
28	RF-MX28*
30	RF-MX30*
32	RF-MX32*
38	RF-MX38*

* Stainless steel rear ferrules over 1 in. or 25 mm are PFA coated.

Nuts+Ferrules



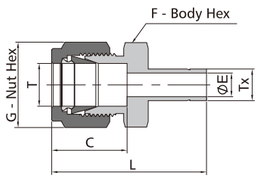
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number
1/16	NF25-FX1
1/8	NF25-FX2
3/16	NF25-FX3
1/4	NF25-FX4
5/16	NF25-FX5
3/8	NF25-FX6
1/2	NF25-FX8
5/8	NF25-FX10
3/4	NF25-FX12
7/8	NF25-FX14
1	NF25-FX16
1 1/8	NF25-FX18
1 1/4	NF25-FX20
1 1/2	NF25-FX24

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number
2	NF25-MX2
3	NF25-MX3
4	NF25-MX4
6	NF25-MX6
8	NF25-MX8
10	NF25-MX10
12	NF25-MX12
14	NF25-MX14
15	NF25-MX15
16	NF25-MX16
18	NF25-MX18
20	NF25-MX20
22	NF25-MX22
25	NF25-MX25
28	NF25-MX28
30	NF25-MX30
32	NF25-MX32
38	NF25-MX38

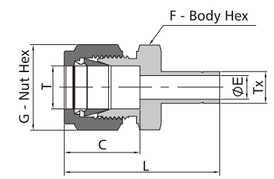
Reducers



Fractional Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
			L	C	G	F	E
1/16	1/8	21-FX1FT2	29.2	8.6	7.9	7.9	1.3
1/16	3/16	21-FX1FT3	28.7	8.6	7.9	7.9	1.3
1/16	1/4	21-FX1FT4	31.5	8.6	7.9	7.9	1.3
1/8	1/16	21-FX2FT1	29.0	12.7	11.1	11.1	0.8
1/8	1/8	21-FX2FT2	33.5	12.7	11.1	11.1	2.0
1/8	3/16	21-FX2FT3	34.3	12.7	11.1	11.1	2.3
1/8	1/4	21-FX2FT4	36.1	12.7	11.1	11.1	2.3
1/8	3/8	21-FX2FT6	37.6	12.7	11.1	11.1	2.3
1/8	1/2	21-FX2FT8	44.2	12.7	11.1	14.3	2.3
3/16	1/8	21-FX3FT2	34.8	13.7	12.7	11.1	2.0
3/16	1/4	21-FX3FT4	37.1	13.7	12.7	11.1	3.0
1/4	1/8	21-FX4FT2	36.8	15.2	14.3	12.7	2.0
1/4	3/16	21-FX4FT3	37.6	15.2	14.3	12.7	3.0
1/4	1/4	21-FX4FT4	39.1	15.2	14.3	12.7	4.3
1/4	5/16	21-FX4FT5	39.9	15.2	14.3	12.7	4.8
1/4	3/8	21-FX4FT6	40.6	15.2	14.3	12.7	4.8
1/4	1/2	21-FX4FT8	46.2	15.2	14.3	14.3	4.8
1/4	5/8	21-FX4FT10	48.0	15.2	14.3	17.5	4.8
1/4	3/4	21-FX4FT12	47.8	15.2	14.3	20.6	4.8
5/16	3/8	21-FX5FT6	41.9	16.3	15.9	14.3	6.4
5/16	1/2	21-FX5FT8	47.5	16.3	15.9	14.3	6.4
3/8	1/4	21-FX6FT4	41.4	16.8	17.5	15.9	4.3
3/8	3/8	21-FX6FT6	43.2	16.8	17.5	15.9	6.9
3/8	1/2	21-FX6FT8	48.5	16.8	17.5	15.9	7.1
3/8	5/8	21-FX6FT10	50.3	16.8	17.5	17.5	7.1
3/8	3/4	21-FX6FT12	50.3	16.8	17.5	20.6	7.1
1/2	1/4	21-FX8FT4	45.0	22.9	22.2	20.6	4.3
1/2	3/8	21-FX8FT6	46.7	22.9	22.2	20.6	6.9
1/2	1/2	21-FX8FT8	52.3	22.9	22.2	20.6	9.4
1/2	5/8	21-FX8FT10	53.8	22.9	22.2	20.6	10.4
1/2	3/4	21-FX8FT12	53.8	22.9	22.2	20.6	10.4
1/2	1	21-FX8FT16	60.2	22.9	22.2	27.0	10.4
5/8	3/4	21-FX10FT12	54.6	24.4	25.4	23.8	12.7
5/8	7/8	21-FX10FT14	56.1	24.4	25.4	23.8	12.7
5/8	1	21-FX10FT16	61.0	24.4	25.4	27.0	12.7
3/4	3/4	21-FX12FT12	54.6	24.4	28.6	27.0	9.9
3/4	1	21-FX12FT16	62.5	24.4	28.6	27.0	15.7
1	1 1/4	21-FX16FT20	80.5	31.2	38.1	34.9	22.4
1	1 1/2	21-FX16FT24	89.2	31.2	38.1	41.3	22.4
1	2	21-FX16FT32	112.5	31.2	38.1	54.0	22.4
1 1/4	1 1/2	21-FX20FT24	104.1	41.1	57.2	47.6	27.7

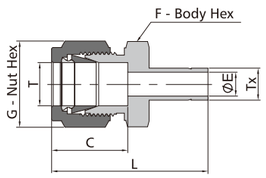
Reducers



Metric Tube

T-Tube O.D. (mm)	Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm				
			L	C	G	F	E
2	3	22-MX2MT3	33.5	12.9	12	12	1.7
3	4	22-MX3MT4	35.0	12.9	12	12	2.4
3	6	22-MX3MT6	36.1	12.9	12	12	2.4
3	10	22-MX3MT10	38.4	12.9	12	14	2.4
4	6	22-MX4MT6	37.1	13.7	12	12	2.4
6	3	22-MX6MT3	36.9	15.3	14	14	1.9
6	8	22-MX6MT8	39.9	15.3	14	14	4.8
6	10	22-MX6MT10	40.7	15.3	14	14	4.8
6	12	22-MX6MT12	46.3	15.3	14	14	4.8
6	18	22-MX6MT18	49.6	15.3	14	22	4.8
8	6	22-MX8MT6	40.3	16.2	16	15	4.1
8	10	22-MX8MT10	42.0	16.2	16	15	6.4
8	12	22-MX8MT12	47.6	16.2	16	15	6.4
10	6	22-MX10MT6	42.4	17.2	19	18	4.1
10	8	22-MX10MT8	43.4	17.2	19	18	5.6
10	12	22-MX10MT12	49.8	17.2	19	18	7.9
10	15	22-MX10MT15	51.3	17.2	19	18	7.9
10	18	22-MX10MT18	51.3	17.2	19	22	7.9
12	6	22-MX12MT6	44.9	22.8	22	22	4.1
12	8	22-MX12MT8	45.9	22.8	22	22	5.6
12	10	22-MX12MT10	46.7	22.8	22	22	7.1
12	16	22-MX12MT16	53.8	22.8	22	22	9.5
12	18	22-MX12MT18	53.8	22.8	22	22	9.5
12	20	22-MX12MT20	56.1	22.8	22	22	9.5
12	22	22-MX12MT22	56.1	22.8	22	24	9.5
12	25	22-MX12MT25	62.4	22.8	22	27	9.5
16	12	22-MX16MT12	53.0	24.4	25	24	8.8
18	12	22-MX18MT12	54.6	24.4	30	27	8.8
18	16	22-MX18MT16	56.1	24.4	30	27	12.0
18	20	22-MX18MT20	57.6	24.4	30	27	15.1
18	22	22-MX18MT22	57.6	24.4	30	27	15.1
18	25	22-MX18MT25	62.4	24.4	30	27	15.1
20	16	22-MX20MT16	57.9	26.0	32	30	12.0
20	18	22-MX20MT18	57.9	26.0	32	30	13.9
20	22	22-MX20MT22	59.4	26.0	32	30	15.9
20	25	22-MX20MT25	64.2	26.0	32	30	15.8
22	18	22-MX22MT18	57.9	26.0	32	30	13.9
22	20	22-MX22MT20	59.4	26.0	32	30	15.5
22	25	22-MX22MT25	64.2	26.0	32	30	18.3
25	18	22-MX25MT18	63.1	31.3	38	35	13.9
25	20	22-MX25MT20	64.6	31.3	38	35	15.5

Reducers



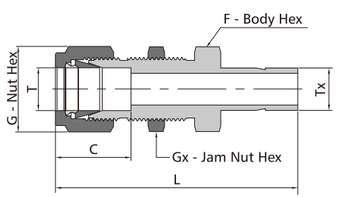
Metric Tube — Fractional Tube

T-Tube O.D. (mm)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
			L	C	G	F	E
2	1/8	21-MX2FT2	33.5	12.9	12	12	1.7
3	1/8	21-MX3FT2	33.5	12.9	12	12	2.0
3	1/4	21-MX3FT4	36.1	12.9	12	12	2.4
4	1/4	21-MX4FT4	37.1	13.7	12	12	2.4
6	1/8	21-MX6FT2	36.9	15.3	14	14	2.0
6	1/4	21-MX6FT4	39.2	15.3	14	14	4.4
6	5/16	21-MX6FT5	39.9	15.3	14	14	4.8
6	3/8	21-MX6FT6	40.7	15.3	14	14	4.8
6	1/2	21-MX6FT8	46.3	15.3	14	14	4.8
8	1/4	21-MX8FT4	40.3	16.2	16	15	4.4
8	3/8	21-MX8FT6	42.0	16.2	16	15	6.4
8	1/2	21-MX8FT8	47.6	16.2	16	15	6.4
10	3/8	21-MX10FT6	44.2	17.2	19	18	6.8
10	1/2	21-MX10FT8	49.8	17.2	19	18	7.9
12	1/2	21-MX12FT8	52.3	22.8	22	22	9.3
12	3/4	21-MX12FT12	53.8	22.8	22	22	9.5
18	3/4	21-MX18FT12	56.1	24.4	30	27	14.7
18	1	21-MX18FT16	62.4	24.4	30	27	15.1
25	1	21-MX25FT16	69.5	31.3	38	35	20.2

Fractional Tube — Metric Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm				
			L	C	G	F	E
1/8	6	21-FX2MT6	36.1	12.7	11.1	11.1	2.3

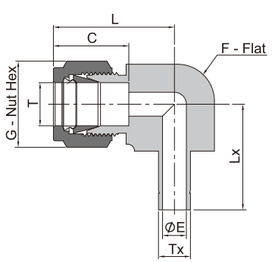
Bulkhead Reducers



Fractional Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm					
			L	C	G	F	Gx	E
1/8	1/8	21-BFX2FT2	49.5	12.7	11.1	12.7	12.7	2.0
1/4	1/4	21-BFX4FT4	55.9	15.2	14.3	15.9	15.9	4.3
3/8	3/8	21-BFX6FT6	61.2	16.8	17.5	19.1	19.1	6.9
1/2	1/2	21-BFX8FT8	72.9	22.9	22.2	23.8	23.8	9.4
5/8	5/8	21-BFX10FT10	75.2	24.4	25.4	27.0	27.0	11.9
3/4	3/4	21-BFX12FT12	81.5	24.4	28.6	30.2	30.2	14.7
1	1	21-BFX16FT16	100.3	31.2	38.1	41.3	41.3	20.3

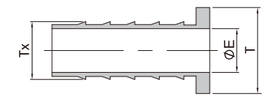
Reducer Elbows



Metric Tube

T-Tube O.D. (mm)	Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm					
			L	C	G	F	E	Lx
6	6	22-MX6MT6	27.0	15.3	14	12.7	4.6	18.8
12	12	22-MX12MT12	38.1	22.8	22	23.8	8.8	23.4

Insert for Soft Plastic Tubings



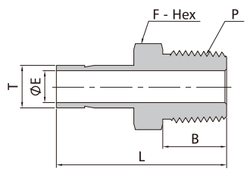
Fractional Tube

T-Tube O.D. (in.)	Tx-Tube I.D. (in.)	Basic Ordering Number	E (mm)
3/16	1/8	IN-F3AT2	2.3
1/4	1/8	IN-F4AT2	2.3
1/4	0.17	IN-F4AT017	2.8
1/4	3/16	IN-F4AT3	3.5
5/16	1/8	IN-F5AT2	2.3
5/16	3/16	IN-F5AT3	3.0
5/16	1/4	IN-F5AT4	4.8
3/8	3/16	IN-F6AT3	3.0
3/8	1/4	IN-F6AT4	4.8
1/2	1/4	IN-F8AT4	4.8
1/2	3/8	IN-F8AT6	7.9
5/8	3/8	IN-F10AT6	7.9
5/8	1/2	IN-F10AT8	11.1
3/4	1/2	IN-F12AT8	11.1
3/4	5/8	IN-F12AT10	14.2
1	3/4	IN-F16AT12	17.5

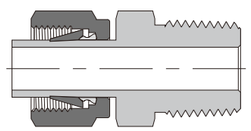
Metric Tube

T-Tube O.D. (mm)	Tx-Tube I.D. (mm)	Basic Ordering Number	E (mm)
6	4	IN-M6NT4	2.8
8	6	IN-M8NT6	4.4
10	8	IN-M10NT8	6.4
12	8	IN-M12NT8	6.4
12	10	IN-M12NT10	8.3

Male Adapters



1" and below



1 1/4" and above

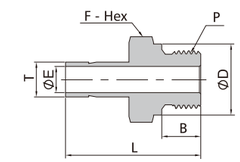
Fractional Tube — NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm			
			L	B	E	F
1/16	1/8	21-FT1N2	25.4	9.7	0.8	11.1
1/8	1/8	21-FT2N2	29.5	9.7	2.0	11.1
1/8	1/4	21-FT2N4	34.8	14.2	2.0	14.3
3/16	1/8	21-FT3N2	30.2	9.7	3.0	11.1
3/16	1/4	21-FT3N4	35.6	14.2	3.0	14.3
1/4	1/8	21-FT4N2	31.8	9.7	4.3	11.1
1/4	1/4	21-FT4N4	37.1	14.2	4.3	14.3
1/4	3/8	21-FT4N6	37.8	14.2	4.3	17.5
1/4	1/2	21-FT4N8	43.4	19.1	4.3	22.2
5/16	1/8	21-FT5N2	32.8	9.7	4.8	11.1
5/16	1/4	21-FT5N4	38.1	14.2	5.6	14.3
5/16	3/8	21-FT5N6	38.9	14.2	5.6	17.5
5/16	1/2	21-FT5N8	44.2	19.1	5.6	22.2
3/8	1/8	21-FT6N2	33.5	9.7	4.8	11.1
3/8	1/4	21-FT6N4	38.9	14.2	6.9	14.3
3/8	3/8	21-FT6N6	39.6	14.2	6.9	17.5
3/8	1/2	21-FT6N8	45.2	19.1	6.9	22.2
1/2	1/4	21-FT8N4	44.5	14.2	7.1	14.3
1/2	3/8	21-FT8N6	45.2	14.2	9.4	17.5
1/2	1/2	21-FT8N8	50.8	19.1	9.4	22.2
5/8	1/2	21-FT10N8	52.3	19.1	11.9	22.2
3/4	1/2	21-FT12N8	52.3	19.1	11.9	22.2
3/4	3/4	21-FT12N12	52.3	19.1	14.7	27.0
3/4	1	21-FT12N16	61.2	23.9	20.7	34.9
1	3/4	21-FT16N12	58.7	19.1	15.7	27.0
1	1	21-SFX16N16	66.0	23.9	20.3	34.9
1 1/4	1 1/4	21-SFX20N20	80.3	23.9	25.9	44.5
1 1/2	1 1/2	21-SFX24N24	94.5	26.2	31.8	54.0

Fractional Tube — ISO Tapered Thread (R)

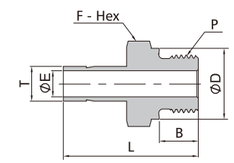
T-Tube O.D. (in.)	P-R Size	Basic Ordering Number	Dimension, mm			
			L	B	E	F
1/8	1/8	21-FT2R2	29.5	9.7	2.0	11.1
1/8	1/4	21-FT2R4	34.8	14.2	2.0	14.3
1/4	1/8	21-FT4R2	31.8	9.7	4.3	11.1
1/4	1/4	21-FT4R4	37.1	14.2	4.3	14.3
1/4	3/8	21-FT4R6	37.8	14.2	4.0	17.5
1/4	1/2	21-FT4R8	43.4	19.1	4.0	22.2
5/16	1/8	21-FT5R2	32.8	9.7	5.6	11.1
5/16	1/4	21-FT5R4	38.1	14.2	5.6	14.3
3/8	1/4	21-FT6R4	38.9	14.2	6.9	14.3
3/8	3/8	21-FT6R6	39.6	14.2	6.9	17.5
3/8	1/2	21-FT6R8	45.2	19.1	6.9	22.2
1/2	1/4	21-FT8R4	44.5	14.2	7.1	14.3
1/2	3/8	21-FT8R6	45.2	14.2	9.4	17.5
1/2	1/2	21-FT8R8	50.8	19.1	9.4	22.2
5/8	3/8	21-FT10R6	48.5	14.2	9.5	17.5
5/8	1/2	21-FT10R8	52.3	19.1	11.9	22.2
3/4	3/4	21-FT12R12	52.3	19.1	14.7	27.0
1	1	21-SFX16R16	66.0	23.9	20.3	34.9

Male Adapters



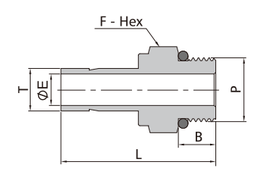
Fractional Tube — ISO Parallel Thread (RS)

T-Tube O.D. (in.)	P-RS Size	Basic Ordering Number	Dimension, mm				
			L	B	E	F	D
1/8	1/8	21-FT2BS2	31.0	7.1	2.0	14.3	13.7
1/8	1/4	21-FT2BS4	35.8	11.2	2.0	19.1	17.8
1/4	1/8	21-FT4BS2	33.3	7.1	4.1	14.3	13.7
1/4	1/4	21-FT4BS4	38.1	11.2	4.3	19.1	17.8
3/8	1/8	21-FT6BS2	34.0	7.1	1.3	19.1	13.7
3/8	1/4	21-FT6BS4	39.9	11.2	5.8	19.1	17.8
3/8	3/8	21-FT6BS6	40.6	11.2	6.9	22.2	21.6
3/8	1/2	21-FT6BS8	42.9	14.2	7.1	27.0	25.9
1/2	1/4	21-FT8BS4	45.5	11.2	5.8	19.1	17.8
1/2	3/8	21-FT8BS6	46.2	11.2	7.9	22.2	21.6
1/2	1/2	21-FT8BS8	49.2	14.2	9.4	27.0	25.9
5/8	1/2	21-FT10BS8	50.0	14.2	11.9	27.0	25.9
3/4	3/4	21-FT12BS12	54.9	16.0	14.7	33.3	32.0
1	1	21-FT16BS16	64.5	18.3	20.3	41.3	38.9

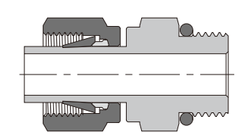


Fractional Tube — ISO Parallel Thread (RP)

T-Tube O.D. (in.)	P-RP Size	Basic Ordering Number	Dimension, mm				
			L	B	E	F	D
1/8	1/8	21-FT2BS2	27.7	7.1	1.3	14.3	13.7
1/8	1/4	21-FT2BS4	33.3	11.2	1.3	19.1	17.8
1/4	1/8	21-FT4BS2	30.2	7.1	4.1	14.3	13.7
1/4	1/4	21-FT4BS4	38.1	11.2	4.6	19.1	17.8
3/8	1/8	21-FT6BS2	34.0	7.1	1.3	19.1	13.7
3/8	1/4	21-FT6BS4	37.3	11.2	6.4	19.1	17.8
3/8	3/8	21-FT6BS6	38.1	11.2	7.1	22.2	21.6
3/8	1/2	21-FT6BS8	42.9	14.2	7.1	27.0	25.9
1/2	1/4	21-FT8BS4	42.9	11.2	6.4	19.1	17.8
1/2	3/8	21-FT8BS6	43.7	11.2	7.9	22.2	21.6
1/2	1/2	21-FT8BS8	49.3	14.2	9.9	27.0	25.9
5/8	1/2	21-FT10BS8	50.0	14.2	11.9	27.0	25.9
3/4	3/4	21-FT12BS12	53.1	16.0	14.7	33.5	32.0
1	1	21-FT16BS16	63.3	18.3	20.3	41.3	38.9



1" and below



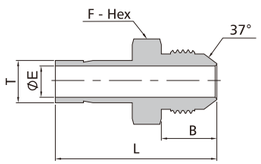
1 1/4" and above

Fractional Tube — SAE/MS Straight Thread

T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm			
			L	B	E	F
1/8	5/16-24	21-FT2ST5	30.5	7.6	2.0	11.1
1/4	7/16-20	21-FT4ST7	35.3	9.1	4.3	14.3
3/8	7/16-20	21-FT6ST7	37.1	9.1	5.1	14.3
3/8	9/16-18	21-FT6ST9	38.6	9.9	6.9	17.5
3/8	3/4-16	21-FT6ST12	40.6	11.2	6.9	22.2
1/2	9/16-18	21-FT8ST9	44.2	9.9	7.1	17.5
1/2	3/4-16	21-FT8ST12	46.2	11.2	9.4	22.2
5/8	7/8-14	21-FT10ST14	49.3	12.7	11.9	25.4
3/4	1 1/16-12	21-FT12ST17	53.3	15.0	14.7	31.8
1	1 5/16-12	21-FT16ST21	61.2	15.0	20.3	38.1
1 1/4	1 5/8-12	21-FT20ST26	71.4	15.0	25.9	47.6
	1 7/8-12	21-FT24ST30	83.3	15.0	31.8	54.0

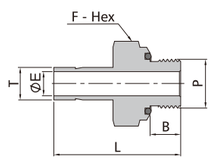
Adapt to straight thread boss of SAE J1926-1,1 ½ ISO 11926-1 and MS 16142.

Male Adapters



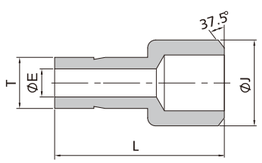
Fractional Tube — 37°Flare (AN)

T-Tube O.D. (in.)	AN Tube Flare Size (in.)	Basic Ordering Number	Dimension, mm			
			L	B	E	F
1/4	1/4	21-FT4AN4	37.1	14.0	4.3	12.7
3/8	1/4	21-FT6AN4	38.9	14.0	4.3	12.7
3/8	3/8	21-FT6AN6	39.6	14.2	6.9	15.9
1/2	1/2	21-FT8AN8	48.5	16.8	9.4	20.6
3/4	3/4	21-FT12AN12	56.1	21.8	14.7	28.6
1	1	21-FT16AN16	65.5	23.1	20.3	34.9



Fractional Tube — O-Seal with SAE/MS Straight Thread

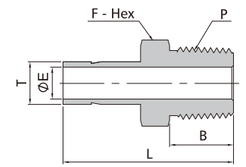
T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm			
			L	B	E	F
1/8	5/16-24	21-FT2STO5	32.5	8.6	2.0	14.3
3/16	3/8-24	21-FT3STO6	35.1	9.7	3.0	15.9
1/4	7/16-20	21-FT4STO7	39.1	10.4	4.3	19.1
5/16	1/2-20	21-FT5STO8	41.7	11.2	5.6	22.2
3/8	9/16-18	21-FT6STO9	43.2	11.9	6.9	23.8
1/2	3/4-16	21-FT8STO12	49.5	11.9	9.4	28.6



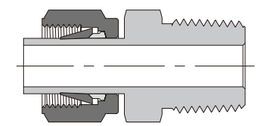
Fractional Tube — Pipe Weld

T-Tube O.D. (in.)	Pipe Weld Size	Basic Ordering Number	Dimension, mm		
			L	J	E
1/4	1/4	21-FT4PB4	29.0	13.7	4.3
3/8	1/2	21-FT6PB8	37.1	21.3	6.9
1/2	1/2	21-FT8PB8	42.2	21.3	9.4
1/2	3/4	21-FT8PB12	42.7	26.7	9.4
3/4	3/4	21-FT12PB12	47.5	26.7	14.7

Male Adapters



25 mm and below



28 mm and above

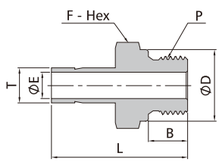
Metric Tube — NPT Thread

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm			
			L	B	E	F
3	1/8	21-MT3N2	29.4	9.7	1.8	12
4	1/8	21-MT4N2	29.4	9.7	2.0	12
6	1/8	21-MT6N2	32.8	9.7	4.1	12
6	1/4	21-MT6N4	38.1	14.2	4.1	14
6	3/8	21-MT6N6	36.5	14.2	3.0	18
6	1/2	21-MT6N8	42.1	19.1	3.0	22
8	1/4	21-MT8N4	39.1	14.2	5.6	14
8	3/8	21-MT8N6	39.9	14.2	5.6	19
10	1/4	21-MT10N4	39.9	14.2	7.1	14
10	3/8	21-MT10N6	40.6	14.2	7.1	18
10	1/2	21-MT10N8	46.2	19.1	7.1	22
12	1/4	21-MT12N4	46.5	14.2	7.1	14
12	3/8	21-MT12N6	44.5	14.2	9.1	18
12	1/2	21-MT12N8	52.0	19.1	8.8	22
16	1/2	21-MT16N8	50.8	19.1	12.7	22
16	3/4	21-MT16N12	51.6	19.1	12.7	27
18	1/2	21-MT18N8	50.8	19.1	12.7	27
18	3/4	21-MT18N12	51.6	19.1	14.0	27
20	1/2	21-MT20N8	51.8	19.1	15.0	22
20	3/4	21-MT20N12	52.4	19.1	15.1	27
25	1	21-MT25N16	65.9	23.9	19.8	35
28	1	21-SMX28N16	74.4	23.9	22.2	35
28	1 1/4	21-SMX28N20	76.2	23.9	22.5	46
30	1	21-SMX30N16	79.2	23.9	22.5	41
30	1 1/4	21-SMX30N20	80.0	23.9	24.3	46
32	1 1/4	21-SMX32N20	81.0	23.9	26.5	46
38	1 1/2	21-SMX38N24	92.2	26.2	31.6	55

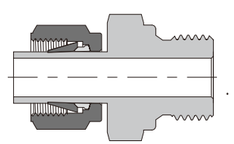
Metric Tube — ISO Tapered Thread (R)

T-Tube O.D. (mm)	P-R Size	Basic Ordering Number	Dimension, mm			
			L	B	E	F
3	1/8	21-MT3R2	29.4	9.7	1.8	12
4	1/8	21-MT4R2	29.4	9.7	2.0	12
6	1/8	21-MT6R2	32.8	9.7	4.1	12
6	1/4	21-MT6R4	38.1	14.2	4.1	14
8	1/4	21-MT8R4	39.1	14.2	5.6	14
8	3/8	21-MT8R6	38.3	14.2	5.0	18
10	1/4	21-MT10R4	39.9	14.2	7.1	14
10	3/8	21-MT10R6	40.6	14.2	7.1	18
10	1/2	21-MT10R8	44.5	19.1	7.5	22
12	1/4	21-MT12R4	46.5	14.2	7.1	16
12	3/8	21-MT12R6	46.2	14.2	8.8	18
12	1/2	21-MT12R8	51.8	19.1	8.8	22
16	1/2	21-MT16R8	50.8	19.1	12.7	22
18	3/4	21-MT18R12	51.6	19.1	14.0	27
20	3/4	21-MT20R12	52.4	19.1	15.1	27
25	1	21-MT25R16	65.9	23.9	19.8	35
28	1	21-SMX28R16	74.7	23.9	22.2	35
28	1 1/4	21-SMX28R20	76.2	23.9	22.5	46
30	1 1/4	21-SMX30R20	80.0	23.9	24.3	46
32	1 1/4	21-SMX32R20	81.0	23.9	26.5	46
38	1 1/2	21-SMX38R24	92.2	26.2	31.6	55

Male Adapters



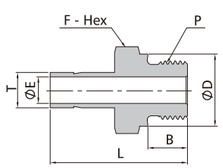
25 mm and below



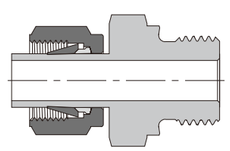
28 mm and above

Metric Tube — ISO Parallel Thread (RS)

T-Tube O.D. (mm)	P-RS Size	Basic Ordering Number	Dimension, mm				
			L	B	E	F	D
3	1/8	21-MT3BS2	31.0	7.1	1.8	14	13.7
4	1/8	21-MT4BS2	31.8	7.1	2.0	14	13.7
6	1/8	21-MT6BS2	34.3	7.1	4.0	14	13.7
6	1/4	21-MT6BS4	39.1	11.2	4.1	19	17.8
8	1/4	21-MT8BS4	40.1	11.2	5.6	19	17.8
10	1/4	21-MT10BS4	40.9	11.2	5.9	19	17.8
10	3/8	21-MT10BS6	41.7	11.2	7.1	22	21.6
10	1/2	21-MT10BS8	44.7	14.2	7.1	27	25.9
12	1/4	21-MT12BS4	46.7	11.2	5.9	19	17.8
12	3/8	21-MT12BS6	47.2	11.2	7.9	22	21.6
12	1/2	21-MT12BS8	50.5	14.2	8.8	27	25.9
16	1/2	21-MT16BS8	50.8	14.2	11.9	27	25.9
18	3/4	21-MT18BS12	56.1	16.0	13.9	35	32.0
20	3/4	21-MT20BS12	54.0	16.0	15.1	33	32.0
25	1	21-MT25BS16	65.1	18.3	19.8	41	38.9
28	1	21-SMX28BS16	72.9	18.3	19.8	41	38.9
28	1 1/4	21-SMX28BS20	77.0	19.8	22.5	50	49.0
30	1 1/4	21-SMX30BS20	80.8	19.8	24.3	50	49.0
32	1 1/4	21-SMX32BS20	81.8	19.8	26.5	50	49.0
38	1 1/2	21-SMX38BS24	94.5	22.1	31.6	55	54.7



25 mm and below

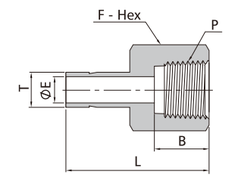


28 mm and above

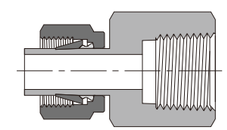
Metric Tube — ISO Parallel Thread (RP)

T-Tube O.D. (mm)	P-RP Size	Basic Ordering Number	Dimension, mm				
			L	B	E	F	D
3	1/8	S-MT3BR2	31.0	7.1	1.8	14	13.7
4	1/8	S-MT4BR2	31.8	7.1	2.0	14	13.7
6	1/8	S-MT6BR2	33.3	7.1	4.0	14	13.7
6	1/4	S-MT6BR4	38.1	11.2	4.0	19	17.8
8	1/4	S-MT8BR4	38.9	11.2	6.4	19	17.8
10	1/4	S-MT10BR4	38.9	11.2	6.4	19	17.8
10	3/8	S-MT10BR6	39.7	11.2	7.5	22	21.6
10	1/2	S-MT10BR8	42.9	14.2	7.5	27	25.9
12	1/4	S-MT12BR4	43.7	11.2	6.4	19	17.8
12	3/8	S-MT12BR6	44.5	11.2	7.9	22	21.6
12	1/2	S-MT12BR8	49.2	14.2	9.1	27	25.9
16	1/2	S-MT16BR8	50.8	14.2	11.9	27	25.9
18	3/4	S-MT18BR12	53.2	16.0	14.0	33	32.0
20	3/4	S-MT20BR12	54.0	16.0	15.1	33	32.0
25	1	S-MT25BR16	65.1	18.3	19.8	41	38.9
28	1	S-SMJ28BR16	72.7	18.3	19.8	41	38.9
28	1 1/4	S-SMJ28BR20	77.3	19.8	22.5	50	49.0
30	1 1/4	S-SMJ30BR20	80.8	19.8	24.3	50	49.0
32	1 1/4	S-SMJ32BR20	82.1	19.8	26.5	50	49.0
38	1 1/2	S-SMJ38BR24	94.5	22.1	31.6	55	54.7

Female Adapters



1" and below



1 1/4" and above

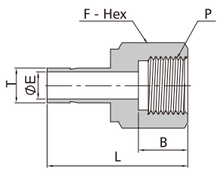
Fractional Tube — NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm			
			L	B	E	F
1/16	1/8	21-FT1FN2	27.2	10.4	0.8	14.3
1/8	1/8	21-FT2FN2	31.5	10.4	2.0	14.3
1/8	1/4	21-FT2FN4	35.3	15.0	2.0	19.1
3/16	1/8	21-FT3FN2	31.8	10.4	2.9	14.3
3/16	1/4	21-FT3FN4	35.8	15.0	3.0	19.1
1/4	1/8	21-FT4FN2	33.0	10.4	4.3	14.3
1/4	1/4	21-FT4FN4	37.1	15.0	4.3	19.1
1/4	3/8	21-FT4FN6	39.4	15.0	4.3	22.2
1/4	1/2	21-FT4FN8	45.5	19.8	4.3	27.0
5/16	1/8	21-FT5FN2	34.0	10.4	5.6	14.3
5/16	1/4	21-FT5FN4	37.6	15.0	5.6	19.1
5/16	3/8	21-FT5FN6	40.4	15.0	5.6	22.2
3/8	1/8	21-FT6FN2	34.3	10.4	6.9	14.3
3/8	1/4	21-FT6FN4	38.1	15.0	6.9	19.1
3/8	3/8	21-FT6FN6	40.4	15.0	6.9	22.2
3/8	1/2	21-FT6FN8	46.7	19.8	6.9	27.0
1/2	1/4	21-FT8FN4	43.4	15.0	9.4	19.1
1/2	3/8	21-FT8FN6	45.5	15.0	9.4	22.2
1/2	1/2	21-FT8FN8	51.8	19.8	9.4	27.0
5/8	3/8	21-FT10FN6	47.2	15.0	11.9	22.2
5/8	1/2	21-FT10FN8	53.1	19.8	11.9	27.0
3/4	1/2	21-FT12FN8	52.8	19.8	14.7	27.0
3/4	3/4	21-FT12FN12	54.9	20.6	14.7	33.3
3/4	1	21-FT12FN16	58.4	25.4	14.7	41.3
7/8	3/4	21-FT14FN12	56.4	20.6	14.7	33.3
1	3/4	21-FT16FN12	60.7	20.6	20.3	33.3
1	1	21-FT16FN16	64.3	25.4	20.3	41.3
1 1/4	1 1/4	S-SFJ20FN20	77.7	25.4	25.9	54.0
1 1/2	1 1/2	S-SFJ24FN24	88.9	27.7	31.8	60.3

Fractional Tube — ISO Tapered Thread (R)

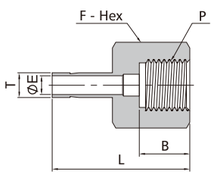
T-Tube O.D. (in.)	P-R Size	Basic Ordering Number	Dimension, mm			
			L	B	E	F
1/4	1/8	21-FT4FR2	33.0	10.4	4.3	14.3
1/4	1/4	21-FT4FR4	36.8	15.0	4.3	19.1
3/8	1/4	21-FT6FR4	38.1	15.0	6.9	19.1
3/8	3/8	21-FT6FR6	40.4	15.0	6.9	22.2
1/2	1/4	21-FT8FR4	43.4	15.0	9.4	19.1
1/2	3/8	21-FT8FR6	45.7	15.0	9.4	22.2
1/2	1/2	21-FT8FR8	52.1	19.8	9.4	27.0

Female Adapters



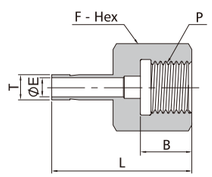
Fractional Tube — ISO Parallel Thread (RP)

T-Tube O.D. (in.)	P-RP Size	Basic Ordering Number	Dimension, mm			
			L	B	E	F
1/8	1/8	21-FT2FP2	29.7	10.2	2.0	14.3
1/4	1/8	21-FT4FP2	31.8	10.2	4.3	14.3
1/4	1/4	21-FT4FP4	38.1	15.2	4.3	19.1
3/8	1/4	21-FT6FP4	39.4	15.2	6.9	19.1
3/8	3/8	21-FT6FP6	39.9	15.2	6.9	23.8
1/2	3/8	21-FT8FP6	45.2	15.2	9.7	23.8
1/2	1/2	21-FT8FP8	49.5	18.2	9.7	27.0



Fractional Tube — ISO Parallel Thread (RG)

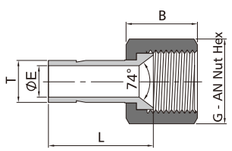
T-Tube O.D. (in.)	P-RG Size	Basic Ordering Number	Dimension, mm			
			L	B	E	F
1/4	1/4	21-FT4FG4	35.3	12.9	4.3	19.1
3/8	3/8	21-FT6FG6	39.4	14.2	6.6	23.8
1/2	1/2	21-FT8FG8	45.7	18.8	7.1	27.0



Adapt to Japanese gauge stud.

Fractional Tube — ISO Parallel Thread (RJ)

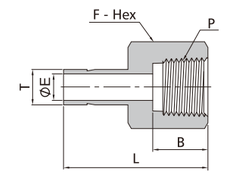
T-Tube O.D. (in.)	P-RJ Size	Basic Ordering Number	Dimension, mm			
			L	B	E	F
1/4	1/4	21-FT4FJ4	35.3	12.9	4.3	19.1
3/8	3/8	21-FT6FJ6	39.4	14.2	6.6	23.8
1/2	1/2	21-FT8FJ8	49.3	18.8	7.1	27.0



Fractional Tube — AN Thread

T-Tube O.D. (in.)	AN Tube Flare Size(in.)	Basic Ordering Number	Dimension, mm			
			L	B	E	F
1/8	1/8	21-FT2SAN2	22.4	14.0	2.4	9.5
1/8	1/4	21-FT2SAN4	22.4	15.8	2.4	14.3
1/4	1/4	21-FT4SAN4	24.4	15.8	4.6	14.3
3/8	3/8	21-FT6SAN6	28.1	18.5	7.1	17.5
1/2	1/2	21-FT8SAN8	36.1	21.6	9.9	22.2
3/4	3/4	21-FT12SAN12	37.8	26.2	14.7	31.8

Female Adapters

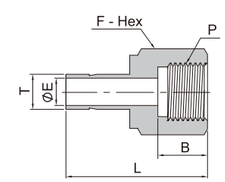


Metric Tube — NPT Thread

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm			
			L	B	E	F
3	1/8	21-MT3FN2	28.8	10.4	1.3	14
4	1/8	21-MT4FN2	33.3	10.4	2.0	14
6	1/8	21-MT6FN2	32.5	10.4	4.1	14
6	1/4	21-MT6FN4	37.1	15.0	4.1	19
8	1/8	21-MT8FN2	35.1	10.4	6.4	14
8	1/4	21-MT8FN4	37.6	15.0	5.6	19
8	3/8	21-MT8FN6	36.5	15.0	6.4	22
10	1/4	21-MT10FN4	38.1	15.0	7.1	19
10	3/8	21-MT10FN6	40.1	15.0	7.1	22
10	1/2	21-MT10FN8	46.5	19.8	7.1	27
12	1/4	21-MT12FN4	43.7	15.0	8.8	19
12	3/8	21-MT12FN6	42.9	15.0	9.1	22
12	1/2	21-MT12FN8	52.3	19.8	8.8	27
16	1/2	21-MT16FN8	49.2	19.8	12.7	27
18	3/4	21-MT18FN12	52.4	20.6	14.0	32
20	1/2	21-MT20FN8	50.0	19.8	15.0	27
20	3/4	21-MT20FN12	53.2	20.6	15.1	32
25	1	21-MT25FN16	66.7	25.4	19.8	41

Metric Tube — ISO Tapered Thread (R)

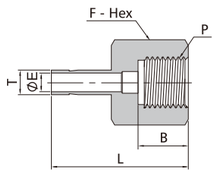
T-Tube O.D. (mm)	PR Size	Basic Ordering Number	Dimension, mm			
			L	B	E	F
3	1/8	21-MT3FR2	27.8	10.4	1.8	14
4	1/8	21-MT4FR2	28.6	10.4	2.0	14
6	1/8	21-MT6FR2	33.0	10.4	4.1	14
8	1/4	21-MT8FR4	37.6	15.0	5.6	19
10	1/4	21-MT10FR4	38.1	15.0	7.1	19
10	3/8	21-MT10FR6	36.5	15.0	7.5	22
10	1/2	21-MT10FR8	41.3	19.8	7.5	27
12	1/4	21-MT12FR4	40.5	15.0	9.1	19
12	3/8	21-MT12FR6	43.7	15.0	9.1	22
12	1/2	21-MT12FR8	46.8	19.8	9.1	27
16	1/2	21-MT16FR8	48.4	19.8	12.7	27
18	3/4	21-MT18FR12	61.6	20.6	14.0	32
20	3/4	21-MT20FR12	52.4	20.6	15.1	32
25	1	21-MT25FR16	66.7	25.4	19.8	41



Metric Tube — ISO Parallel Thread (RP)

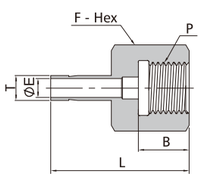
T-Tube O.D. (mm)	P-RP Size	Basic Ordering Number	Dimension, mm			
			L	B	E	F
6	1/8	21-MT6FP2	32.0	10.2	4.1	14
6	1/4	21-MT6FP4	37.8	15.2	4.1	19
12	1/2	21-MT12FP8	49.8	18.8	8.8	27

Female Adapters



Metric Tube — ISO Parallel Thread (RG)

T-Tube O.D. (mm)	P-RG Size	Basic Ordering Number	Dimension, mm			
			L	B	E	F
3	1/8	21-MT3FG2	28.6	6.5	1.6	14
3	1/4	21-MT3FG4	33.5	10.2	1.9	19
4	1/8	21-MT4FG2	29.4	6.5	2.0	14
6	1/8	21-MT6FG2	31.0	6.5	4.1	14
6	1/4	21-MT6FG4	35.3	10.2	4.1	19
6	3/8	21-MT6FG6	38.4	14.2	4.1	24
6	1/2	21-MT6FG8	42.9	18.0	4.1	27
8	1/4	21-MT8FG4	33.0	10.2	5.5	19
8	3/8	21-MT8FG6	38.9	14.2	5.6	24
8	1/2	21-MT8FG8	43.7	18.0	5.6	27
10	1/4	21-MT10FG4	34.5	10.2	5.5	19
10	3/8	21-MT10FG6	36.1	14.2	6.5	24
10	1/2	21-MT10FG8	41.1	18.0	7.1	27
12	1/4	21-MT12FG4	40.1	10.2	5.5	19
12	3/8	21-MT12FG6	44.7	14.2	6.5	24
12	1/2	21-MT12FG8	48.8	18.0	7.0	27
16	1/2	21-MT16FG8	49.0	18.0	7.0	27
18	1/2	21-MT18FG8	49.3	18.0	7.0	27

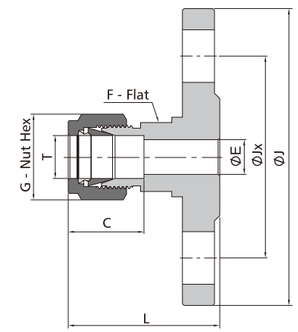


Adapt to Japanese gauge stud.

Metric Tube — ISO Parallel Thread (RJ)

T-Tube O.D. (mm)	P-RJ Size	Basic Ordering Number	Dimension, mm			
			L	B	E	F
6	1/4	21-MT6FJ4	35.3	10.2	4.1	19
6	3/8	21-MT6FJ6	38.6	14.2	4.1	24
6	1/2	21-MT6FJ8	42.9	18.0	4.1	27
8	1/4	21-MT8FJ4	33.0	10.2	5.5	19
8	3/8	21-MT8FJ6	39.4	14.2	5.6	24
8	1/2	21-MT8FJ8	43.7	18.0	5.6	27
10	1/4	21-MT10FJ4	34.5	10.2	5.5	19
10	3/8	21-MT10FJ6	36.1	14.2	6.5	24
10	1/2	21-MT10FJ8	41.1	18.0	7.1	27
12	1/4	21-MT12FJ4	40.1	10.2	5.5	19
12	3/8	21-MT12FJ6	44.7	14.2	6.5	24
12	1/2	21-MT12FJ8	48.8	18.0	7.0	27

Flange Adapters



- Integrally forged body.
- ANSI flanges comply with ANSI B16.5.
- DIN flanges comply with DIN 2501/2526.
- GB flanges comply with GB/T 9123.1.
- EN flanges comply with EN 1092-1.
- JIS flanges comply with JIS B 2220.

ANSI Flanges

T-Tube O.D. (in.)	ANSI Flange NPS	Class	Basic Ordering Number Raised Face Flange	Dimension, mm						
				L	J	Jx	E	C	G	F
1/4	1/2	150	FL-FX4F8150	40.9	88.9	60.5	4.8	15.2	14.3	20.6
3/8	1/2	300	FL-FX6F8300	45.5	95.3	66.5	7.1	16.8	17.5	20.6
1/2	1/2	150	FL-FX8F8150	45.2	88.9	60.5	10.4	22.9	22.2	20.6
1/2	1	150	FL-FX8F16150	48.3	108.0	79.2	10.4	22.9	22.2	20.6
1/2	2	150	FL-FX8F32150	53.1	152.4	121	10.4	22.9	22.2	20.6
3/4	1	150	FL-FX12F16150	50.3	108.0	79.2	15.7	24.4	28.6	31.8
1	1	150	FL-FX16F16150	60.5	108.0	79.2	22.4	31.2	38.1	34.9

DIN/GB Flanges, Pressure Class PN 40

T-Tube O.D. (mm)	DIN Flange Size DN	Basic Ordering Number Raised Face Flange	Dimension, mm						
			L	J	Jx	E	C	G	F
6	25	FL-MX6F25-40C	47.5	115.0	85.0	4.8	15.3	14	20
12	15	FL-MX12F15-40C	48.5	95.0	65.0	9.5	22.8	22	20
12	25	FL-MX12F25-40C	50.5	115.0	85.0	9.5	22.8	22	20
12	50	FL-MX12F50-40C	55.3	165.0	125.0	9.5	22.8	22	20
18	15	FL-MX18F15-40C	51.8	95.0	65.0	15.1	24.4	30	32
18	25	FL-MX18F25-40C	53.8	115.0	85.0	15.1	24.4	30	32
25	25	FL-MX25F25-40C	64.0	115.0	85.0	21.8	31.3	38	35

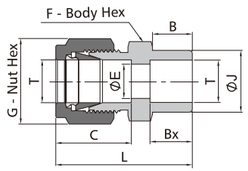
EN Flanges, Pressure Class PN 40

T-Tube O.D. (mm)	EN Flange Size DN	Basic Ordering Number Raised Face Flange	Dimension, mm						
			L	J	Jx	E	C	G	F
6	25	FL-MX6F25E-40B1	47.5	115.0	85.0	4.8	15.3	14	20
12	15	FL-MX12F15E-40B1	48.5	95.0	65.0	9.5	22.8	22	20
12	25	FL-MX12F25E-40B1	50.5	115.0	85.0	9.5	22.8	22	20
12	50	FL-MX12F50E-40B1	55.3	165.0	125.0	9.5	22.8	22	20
18	15	FL-MX18F15E-40B1	51.8	95.0	65.0	15.1	24.4	30	32
18	25	FL-MX18F25E-40B1	53.8	115.0	85.0	15.1	24.4	30	32
25	25	FL-MX25F25E-40B1	64.0	115.0	85.0	21.8	31.3	38	35

JIS Flanges, Pressure Class 10K

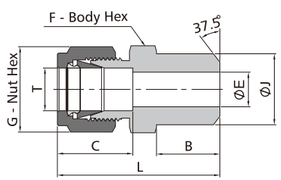
T-Tube O.D.	JIS Flange Size DN	Basic Ordering Number Raised Face Flange	Dimension, mm						
			L	J	Jx	E	C	G	F
1/4"	15	FL-FX4F15-10KRF	42.2	95.0	70.1	4.8	15.2	14.3	20.6
3/8"	15	FL-FX6F15-10KRF	43.7	95.0	70.1	7.1	16.8	17.5	20.6
1/2"	15	FL-FX8F15-10KRF	46.5	95.0	70.1	10.4	22.9	22.2	20.6
3/4"	15	FL-FX12F15-10KRF	48.5	95.0	70.1	15.7	24.4	28.6	31.8
1"	25	FL-FX16F25-10KRF	61.0	125.0	89.9	22.4	31.2	38.1	34.9
12mm	15	FL-MX12F15-10KRF	46.5	95.0	70.0	9.5	22.8	22	20
18mm	15	FL-MX18F15-10KRF	48.5	95.0	70.0	15.1	24.4	30	32
25mm	25	FL-MX25F25-10KRF	61.0	125.0	90.0	21.8	31.3	38	35

Weld Connectors



Fractional Tube — Tube Socket Weld

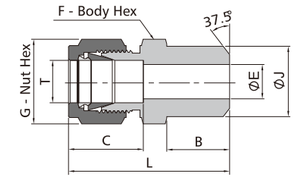
T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm							
		L	C	G	F	B	E	Bx	J
1/8	21-FX2TS2	29.0	12.7	11.1	11.1	8.6	2.3	2.5	7.9
3/16	21-FX3TS3	29.7	13.7	12.7	11.1	9.5	3.3	4.8	10.7
1/4	21-FX4TS4	33.5	15.2	14.3	12.7	10.4	4.8	7.1	11.2
3/8	21-FX6TS6	37.6	16.8	17.5	15.9	11.9	7.1	7.9	15.7
1/2	21-FX8TS8	41.1	22.9	22.2	20.6	11.9	10.4	9.7	19.1
5/8	21-FX10TS10	41.9	24.4	25.4	23.8	11.9	12.7	10.4	23.4
3/4	21-FX12TS12	43.4	24.4	28.6	27.0	11.9	15.7	11.1	26.7
1	21-FX16TS16	52.6	31.2	38.1	34.9	14.2	22.4	15.7	33.3



Fractional Tube — Pipe Butt Weld

T-Tube O.D. (in.)	Pipe Weld Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	J
1/8	1/8	21-FX2PB2	30.5	12.7	11.1	11.1	2.3	9.7	10.3
3/16	1/8	21-FX3PB2	31.2	13.7	12.7	11.1	3.0	9.7	10.3
1/4	1/8	21-FX4PB2	32.8	15.2	14.3	12.7	4.8	9.7	10.3
1/4	1/4	21-FX4PB4	37.8	15.2	14.3	14.3	4.8	14.2	13.7
5/16	1/8	21-FX5PB2	34.0	16.3	15.9	14.3	5.3	9.7	10.3
5/16	1/4	21-FX5PB4	38.6	16.3	15.9	14.3	6.4	14.2	13.7
3/8	1/4	21-FX6PB4	39.9	16.8	17.5	15.9	7.1	14.2	13.7
3/8	3/8	21-FX6PB6	39.9	16.8	17.5	17.5	7.1	14.2	17.1
3/8	1/2	21-FX6PB8	46.2	16.8	17.5	22.2	7.1	19.1	21.3
3/8	3/4	21-FX6PB12	47.8	16.8	17.5	27.0	7.1	19.1	26.7
1/2	3/8	21-FX8PB6	43.4	22.9	22.2	20.6	10.4	14.2	17.1
1/2	1/2	21-FX8PB8	49.0	22.9	22.2	22.2	10.4	19.1	21.3
1/2	3/4	21-FX8PB12	50.5	22.9	22.2	27.0	10.4	19.1	26.7
5/8	1/2	21-FX10PB8	49.0	24.4	25.4	23.8	12.7	19.1	21.3
3/4	1/2	21-FX12PB8	50.5	24.4	28.6	27.0	14.0	19.1	21.3
3/4	3/4	21-FX12PB12	50.5	24.4	28.6	27.0	15.7	19.1	26.7
1	1	21-FX16PB16	62.2	31.2	38.1	34.9	22.4	23.9	33.4
1 1/4	1 1/4	21-FX20PB20	77.2	41.1	47.6	44.5	27.7	23.9	42.2
1 1/2	1 1/2	21-FX24PB24	88.9	50.0	57.2	54.0	34.0	26.2	48.3

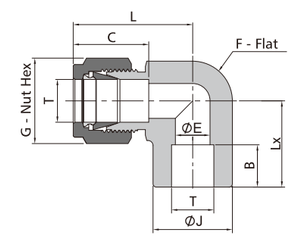
Weld Connectors



Metric Tube — Pipe Butt Weld

T-Tube O.D. (mm)	Pipe Weld Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	J
3	1/8	21-MX3PB2	30.5	12.9	12	12	2.4	9.7	10.3
4	1/8	21-MX4PB2	31.5	13.7	12	12	2.4	9.7	10.3
6	1/8	21-MX6PB2	32.8	15.3	14	14	4.8	9.7	10.3
6	1/4	21-MX6PB4	37.9	15.3	14	14	4.8	14.2	13.7
8	1/8	21-MX8PB2	34.2	16.2	16	15	5.4	9.7	10.3
8	1/4	21-MX8PB4	38.7	16.2	16	15	6.4	14.2	13.7
8	1/2	21-MX8PB8	45.6	16.2	16	22	6.4	19.1	21.3
10	1/4	21-MX10PB4	40.9	17.2	19	18	7.5	14.2	13.7
10	3/8	21-MX10PB6	40.9	17.2	19	18	7.9	14.2	17.2
10	1/2	21-MX10PB8	46.5	17.2	19	22	7.9	19.1	21.3
12	1/4	21-MX12PB4	43.4	22.8	22	22	7.5	14.2	13.7
12	3/8	21-MX12PB6	43.4	22.8	22	22	9.5	14.2	17.1
12	1/2	21-MX12PB8	49.0	22.8	22	22	9.5	19.1	21.3
14	3/8	21-MX14PB6	44.1	24.4	25	24	10.7	14.2	17.1
15	1/2	21-MX15PB8	49.0	24.4	25	24	11.9	19.1	21.3
16	1/2	21-MX16PB8	49.0	24.4	25	24	12.7	19.1	21.3
18	1/2	21-MX18PB8	50.5	24.4	30	27	13.9	19.1	21.3
30	1 1/4	21-MX30PB20	77.2	39.6	50	46	26.2	23.9	42.2
32	1 1/4	21-MX32PB20	79.6	42.0	50	46	28.6	23.9	42.2
38	1 1/2	21-MX38PB24	91.6	49.4	60	55	33.7	26.2	48.3

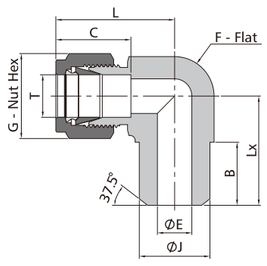
Weld Elbows



Fractional Tube — Tube Socket Weld

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm							
		L	C	G	F	B	E	Lx	J
1/8	22-FX2TS2	16.8	12.7	11.1	9.5	2.5	2.3	16.0	9.7
3/16	22-FX3TS3	18.3	13.7	12.7	11.1	4.8	3.3	17.5	11.2
1/4	22-FX4TS4	26.9	15.2	14.3	12.7	7.1	4.8	19.6	12.7
3/8	22-FX6TS6	30.5	16.8	17.5	15.9	7.9	7.1	23.1	15.7
1/2	22-FX8TS8	36.1	22.9	22.2	20.6	9.7	10.4	25.9	20.6
5/8	22-FX10TS10	29.5	24.4	25.4	27.0	10.4	12.7	29.5	23.9
3/4	22-FX12TS12	39.9	24.4	28.6	27.0	11.2	15.7	29.7	26.9
1	22-FX16TS16	49.0	31.2	38.1	34.9	15.7	22.4	36.8	35.1

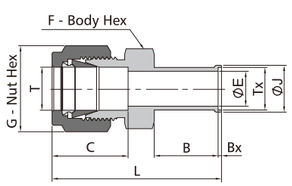
Weld Elbows



Fractional Tube — Pipe Butt Weld

T-Tube O.D. (in.)	Pipe Weld Size	Basic Ordering Number	Dimension, mm							
			L	C	G	F	B	E	Lx	J
1/8	1/8	22-FX2PB2	23.4	12.7	11.1	11.1	9.7	2.3	18.3	10.3
3/16	1/8	22-FX3PB2	25.7	13.7	12.7	12.7	9.7	3.3	18.8	10.3
1/4	1/8	22-FX4PB2	26.9	15.2	14.3	12.7	9.7	4.8	18.8	10.3
1/4	1/4	22-FX4PB4	26.9	15.2	14.3	12.7	14.2	4.8	23.4	13.7
3/8	1/4	22-FX6PB4	30.5	16.8	17.5	15.9	14.2	7.1	25.4	13.7
1/2	3/8	22-FX8PB6	34.8	22.9	22.2	19.1	14.2	10.4	28.8	17.2
1/2	1/2	22-FX8PB8	36.1	22.9	22.2	20.6	19.1	10.4	33.0	21.3
5/8	1/2	22-FX10PB8	36.3	24.4	25.4	2.2	19.1	12.7	35.1	21.3
3/4	3/4	22-FX12PB12	39.9	24.4	28.6	27.0	19.1	15.7	36.8	26.7
1	3/4	22-FX16PB12	49.3	31.2	38.1	34.9	19.1	22.4	41.9	26.7
1	1	22-FX16PB16	49.3	31.2	38.1	34.9	20.6	22.4	46.7	33.4

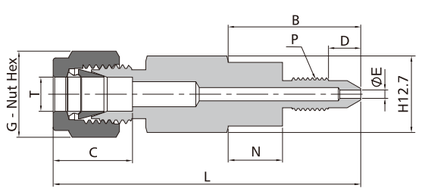
Automatic Tube Weld Connectors



Fractional Tube — Automatic Tube Weld

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm							
			L	C	G	F	B	E	Bx	J
1/4	1/4	21-FX4TB4A	44.2	15.2	14.3	12.7	19.1	4.5	0.5	7.4
3/8	3/8	21-FX6TB6A	46.7	16.8	17.5	15.9	19.1	7.8	0.8	10.4
1/2	1/2	21-FX8TB8A	50.5	22.9	2.2	20.6	19.1	10.4	1.0	14.0

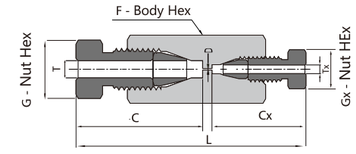
Calibration Fittings



- The calibration fittings can be connected directly with the bleed port of the transmitter so that the calibration process can be simplified.
- Two types are available to fit the bleed ports of the transmitters.

T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm							Transmitter Type
			L	B	C	D	E	G	N	
1/4	1/4-28	21-FX4-1428	42.9	19.8	15.2	10.9	1.5	14.3	-	Honeywell
1/4	5/16-24	21-FX4-51624	58.9	35.8	15.2	10.2	1.5	14.3	10.4	Rosemount/Foxboro

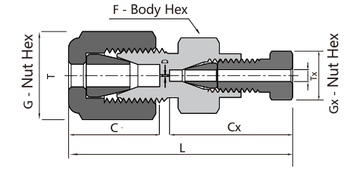
Chromatograph Union



Fractional Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm						
			L	C	G	D	F	Cx	Gx
1/16	1/16	21-FS1-□	35.37	17.39	6.35	□	6.35	17.39	6.35
1/16	1/8	21-FS2FS1-□	43.3	23.85	9.5	□	11.11	17.39	6.35
1/8	1/8	21-FS2-□	49.5	23.85	9.5	□	11.11	23.85	9.5

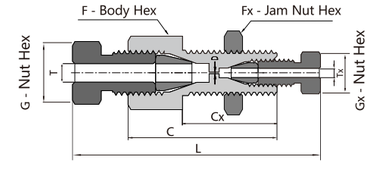
Chromatograph External/Internal Union



Fractional Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm						
			L	C	G	D	F	Cx	Gx
1/8	1/16	21-FXS2FS1-□	32.8	13.3	11.11	□	9.52	17.39	6.35

Chromatograph Bulkhead Union

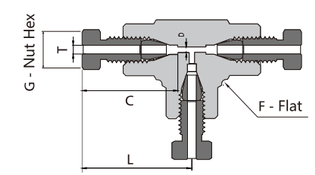


Fractional Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm							
			L	C	G	D	F	Cx	Gx	Fx
1/16	1/16	21-BFS1-□	37.2	22	6.35	□	11.11	16.5	6.35	12.7
1/8	1/16	21-FS2BFS1-□	43.3	26	9.5	□	11.11	16.5	6.35	12.7

Panel Hole Size: 8.3 mm Max. Panel Thickness: 13. 2mm

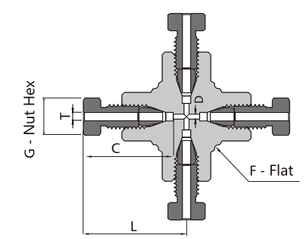
Chromatograph Tee



Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	D
1/16	23-FS1-□	20.3	17.7	6.35	9.53	□

Chromatograph Cross



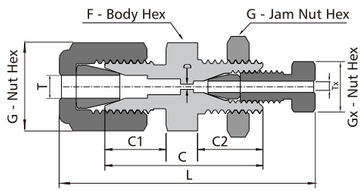
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	D
1/16	24-FS1-□	20.3	17.7	6.35	9.53	□

Note: Chromatograph fitting offers a complete range of bore size, e.g: SS21-FS1 with bore size 0.25mm, the basic ordering number is SS21-FS1-25.

D (mm)	Code	D (mm)	Code
0.15	15	0.75	75
0.25	25	1	100
0.5	50	1/16	Default

Chromatograph External/Internal Bulkhead Union

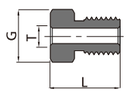


Fractional Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm								
			L	C	G	F	D	Gx	C1	C2	Fx
1/8	1/16	21-FXS2BFS1-□	37.2	23	11.11	11.11	□	6.35	8.9	9.5	12.7

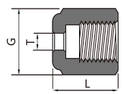
Panel Hole Size: 6.3 mm Max. Panel Thickness: 8. 2mm

Chromatograph Nut



T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm	
		L	G
1/16	N-FS1	10.9	6.35
1/8	N-FS2	14.9	9.5

Chromatograph Ferrule



Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm	
		L	G
1/16	N-FXS1	8.89	6.35
1/8	N-FXS2	12.7	11.1

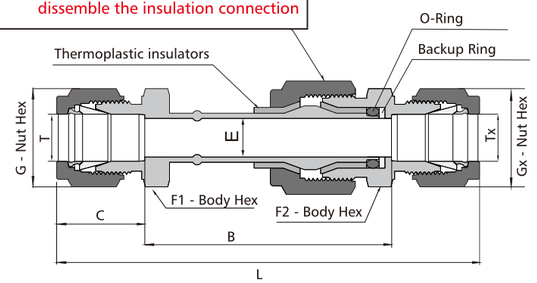
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number
1/16	F-FS1
1/8	F-FS2

Dielectric Fitting

The dielectric tube fittings are used in applications where electrical current flowing through a pipe or tube line must be interrupted to protect monitoring instruments

Caution: Do not wrench this hex, nor dissemble the insulation connection



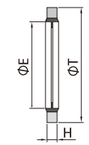
Technical Data

- Electrical resistance of insulators @ 21°C(70°F): 10x10^{9}Ω @ 10 Volts DC
- Pressure rating: 5000psig (344 bar)
- Temperature Rating: -40 to 93°C (-40 to 200°F)
  Low temperature Rating: -60° to 93°C (-76 to 200°F)

T-Tube O.D (in.)	Tx-Tube O.D (in.)	Basic Ordering Number	Dimension, mm							
			L	C	B	E	G	Gx	F1	F2
1/4	1/4	210-FX4-5	95.8	15.2	65.3	4.8	14.3	14.3	12.7	20.6
3/8	3/8	210-FX6-7	99.6	16.8	65.8	7.0	17.5	17.5	15.9	20.6
3/8	□	210-FX6N4-7	94.7	16.8	65.8	7.0	17.5	□	15.9	20.6
1/2	1/2	210-FX8-7	106.0	20.9	60.2	7.0	22.2	22.2	20.6	20.6
mm	mm		L	C	B	E	G	Gx	F1	F2
6	6	210-MX6-4	100.8	15.2	70.3	4.0	14	14	14	20.6
8	8	210-MX8-6	104.2	16.0	72.2	6.0	16	16	15	20.6
10	10	210-MX10-8	106.2	17.0	72.1	8.0	19	19	18	22
10	10	210-MX10-7	106.2	17.0	72.1	8.0	19	19	18	22
12	12	210-MX12-7	110.5	21.8	65.8	7.0	22	22	22	22
12	12	210-MX12-10	109.4	21.8	65.7	10.0	22	22	22	22
14	14	210-MX14-10	113.1	24.4	64.2	10.0	25	25	24	24

To order low temperature(-60°C) fitting, insert designator "**-LT** " at the end of basic ordering number.
e.g: "SS210-FX4-5-LT"

RS Gaskets



The RS gasket provides a seal with male ISO parallel threads.
The gasket consists of a fluorocarbon FKM or Buna inner ring bonded to a carbon steel or stainless steel outer ring.

ISO Parallel Thread Size	Basic Ordering Number	Dimension, mm		
		T	E	H
1/8	-RS-2	16.0	10.4	2.0
1/4	-RS-4	20.6	13.7	
3/8	-RS-6	23.9	17.3	
1/2	-RS-8	28.7	21.6	2.5
3/4	-RS-12	35.1	26.9	
1	-RS-16	42.9	33.8	

Metric Thread Size	Basic Ordering Number	Dimension, mm		
		T	E	H
M8 x 1	-RS-M8	13	8.7	1.0
M10 x 1	-RS-M10	16	10.7	1.5
M12 x 1.5	-RS-M12	18	12.7	
M14 x 1.5	-RS-M14	22	14.7	
M16 x 1.5	-RS-M16	24	16.7	
M18 x 1.5	-RS-M18	26	18.7	
M20 x 1.5	-RS-M20	28	20.7	
M22 x 1.5	-RS-M22	30	22.7	2.0
M24 x 1.5	-RS-M24	32	24.7	
M27 x 2	-RS-M27	36	27.2	
M30 x 2	-RS-M30	39	30.7	
M33 x 2	-RS-M33	42	33.7	
M36 x 2	-RS-M36	48	37.0	2.5
M39 x 2	-RS-M39	51	40.0	
M42 x 2	-RS-M42	53	42.7	
M45 x 2	-RS-M45	57	46.0	3.0
M48 x 2	-RS-M48	59	48.7	

Ordering Information

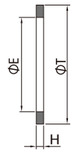
Add the material designator as a prefix to the basic ordering number to complete the ordering number.

Ring		Designator
Outer	Inner	
Stainless Steel	FKM	SSF
Carbon Steel	FKM	CSF
	Buna-N	CSB

Example:
A RS gasket with a Buna inner ring bonded to carbon steel outer ring provides a seal with 1/8 male ISO parallel thread, the complete ordering number is CSB-RS-2.

RS gasket can be used with RS fitting only.

RP Gaskets



The RP gasket provides a seal with male ISO parallel threads.

The RP gasket may be used with a RS fitting.

ISO Parallel Thread Size	Basic Ordering Number	Dimension, mm		
		T	E	H
1/8	-RP-2	15.0	9.9	1.0
1/4	-RP-4	19.1	13.2	1.5
3/8	-RP-6	23.1	16.8	
1/2	-RP-8	26.9	21.1	2.0
3/4	-RP-12	33.0	26.7	
1	-RP-16	40.1	33.2	

Metric Thread Size	Basic Ordering Number	Dimension, mm		
		T	E	H
M8 x 1	-RP-M8	13.2	8.2	1.5
M10 x 1	-RP-M10	15.2	10.2	
M12 x 1.5	-RP-M12	18.2	12.2	2.0
M14 x 1.5	-RP-M14	20.2	14.2	
M16 x 1.5	-RP-M16	22.2	16.2	
M18 x 1.5	-RP-M18	24.2	18.2	
M20 x 1.5	-RP-M20	26.2	20.2	
M22 x 1.5	-RP-M22	28.2	22.2	
M24 x 1.5	-RP-M24	30.2	24.2	
M27 x 2	-RP-M27	33.3	27.2	2.5
M30 x 2	-RP-M30	37.3	30.2	
M33 x 2	-RP-M33	40.3	33.2	
M36 x 2	-RP-M36	43.3	36.2	
M39 x 2	-RP-M39	47.3	39.2	
M42 x 2	-RP-M42	50.3	42.2	
M45 x 2	-RP-M45	53.3	45.2	
M48 x 2	-RP-M48	56.3	48.2	

RG Gaskets

The RG gasket provides a seal on pressure gauges equipped with male ISO parallel threads.

ISO Parallel Thread Size	Basic Ordering Number	Dimension, mm		
		T	E	H
1/4	-RG-4	10.7	7.6	1.8
3/8	-RG-6	14.2	8.6	2.3
1/2	-RG-8	17.8	9.1	2.5

RG Gaskets

Metric Thread Size	Basic Ordering Number	Dimension, mm		
		T	E	H
M10 x 1	-RG-M10	8.3	3.3	1.5
M12 x 1.5	-RG-M12	9.7	5.4	2.0
M14 x 1.5	-RG-M14	11.7	6.4	
M16 x 1.5	-RG-M16	13.7	8.4	
M18 x 1.5	-RG-M18	15.7	10.0	
M20 x 1.5	-RG-M20	17.6	11.4	
M22 x 1.5	-RG-M22	19.6	13.4	
M24 x 1.5	-RG-M24	21.6	14.8	
M27 x 2	-RG-M27	24.0	13.9	2.5
M30 x 2	-RG-M30	27.0	19.5	
M33 x 2	-RG-M33	30.0	21.5	
M36 x 2	-RG-M36	33.0	23.5	
M39 x 2	-RG-M39	36.0	24.5	
M42 x 2	-RG-M42	38.9	29.5	
M45 x 2	-RG-M45	41.9	30.0	
M48 x 2	-RG-M48	44.9	32.5	

RJ Gaskets

The RJ gasket provides a seal on Japanese pressure gauges equipped with male ISO parallel threads.

ISO Parallel Thread Size	Basic Ordering Number	Dimension, mm		
		T	E	H
1/4	-RJ-4	10.9	5.6	1.0
3/8	-RJ-6	13.9	5.6	1.0
1/2	-RJ-8	17.8	5.6	1.0

Ordering Information

Add the material designator as a prefix to the basic ordering number to complete the ordering number.

Material	Designator
Copper	CU
316L SS	6L
Vulcanized Fibre	QB
PTFE	T

Example:

CU-RP-2, 6L-RG-6, QB-RG-M20, T-RJ-8.

O-Rings

O-Rings for Fittings with SAE/MS Straight Threads

SAE/MS Thread Size	Ordering Number	Material
5/16-24	VI9-902	90 Durometer Fluorocarbon FKM
3/8-24	VI9-903	
7/16-20	VI9-904	
1/2-20	VI9-905	
9/16-18	VI9-906	
3/4-16	VI9-908	
7/8-14	VI9-910	
1 1/16-12	VI9-912	
1 3/16-12	VI9-914	
1 5/16-12	VI9-916	
1 5/8-12	VI9-920	
1 7/8-12	VI9-924	

O-Rings for Fittings with O-Seal Pipe Threads

NPT/ISO Thread Size	Ordering Number	Material
1/8	BN7-013	70 Durometer NBR
1/4	BN7-113	
3/8	BN7-116	
1/2	BN7-118	

O-Rings for Adjustable Fittings with ISO Parallel Threads

ISO Parallel Thread Size	Ordering Number	Material
1/8	VI9-502	90 Durometer Fluorocarbon FKM
1/4	VI9-111	
3/8	VI9-113	
1/2	VI9-508	
3/4	VI9-119	
1	VI9-217	

O-Rings for Fittings with O-Seal Straight Threads

SAE/MS Thread Size	Ordering Number	Material
5/16-24	BN7-011	70 Durometer NBR
3/8-24	BN7-012	
7/16-20	BN7-013	
1/2-20	BN7-112	
9/16-18	BN7-113	
3/4-16	BN7-116	
1-1/16-12	BN7-121	
1-5/16-12	BN7-125	

O-Rings for Fittings with Metric Threads

Metric Thread Size	Ordering Number	Material
M14 x 1.5	BN9-M14	90 Durometer NBR
M20 x 1.5	BN9-M20	