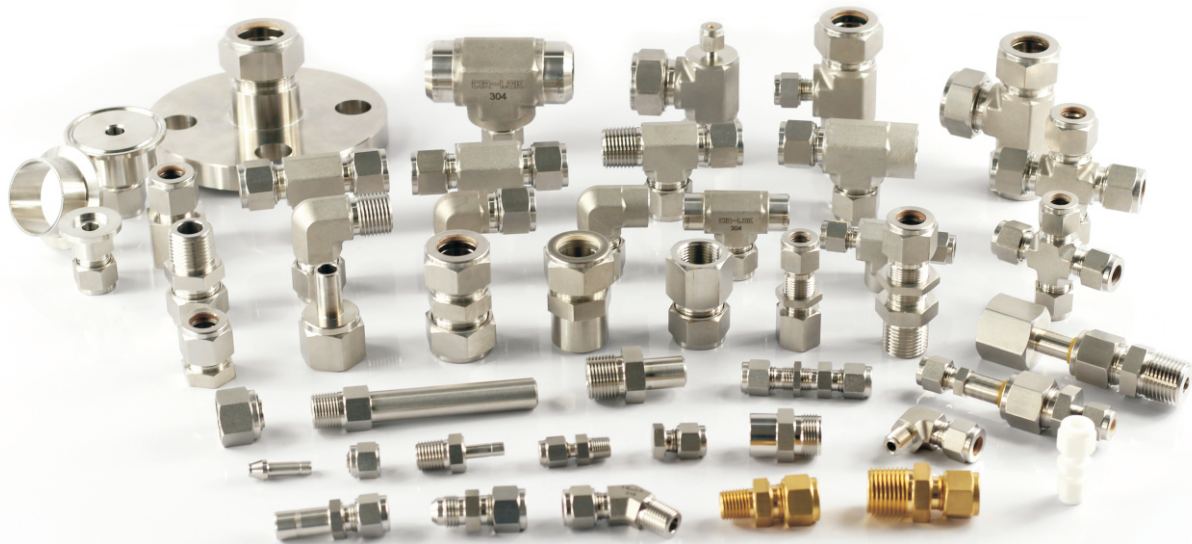


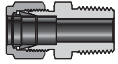
Tube Fittings

Twin Ferrule Series



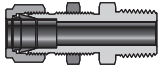
Contents

Male Connectors



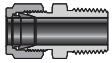
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Bulkhead Male Connectors



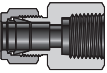
15

Thermocouple Connectors



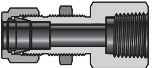
17

Female Connectors



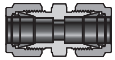
18

Bulkhead Female Connectors



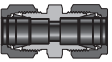
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Unions



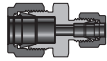
24

Conversion Unions



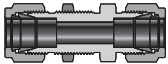
25

Reducing Unions



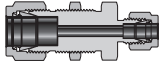
25

Bulkhead Unions



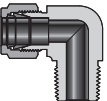
27

Bulkhead Reducing Unions



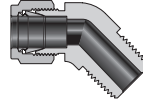
27

Male Elbows



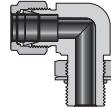
29

45° Male Elbows



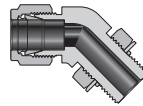
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Adjustable Male Elbows



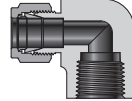
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45° Adjustable Male Elbows



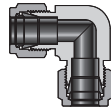
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Female Elbows



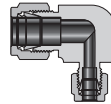
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Union Elbows



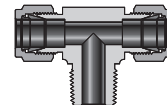
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Union Reducing Elbows



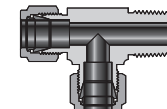
38

Male Branch Tees



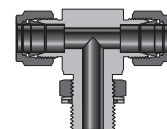
39

Male Run Tees



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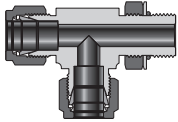
Adjustable Male Branch Tees



41

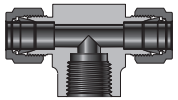
Contents

Adjustable Male Run Tees



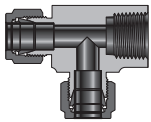
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Female Branch Tees



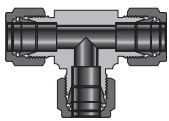
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Female Run Tees



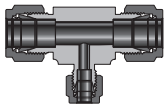
44

Union Tees



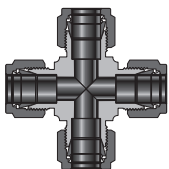
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Reducing Union Tees



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Union Crosses



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Caps



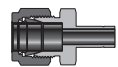
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Plugs



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Reducers



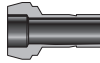
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Port Connectors



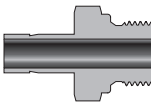
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Reducing Port Connectors



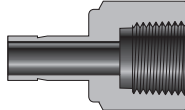
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Male Adapters



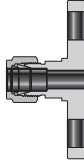
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Female Adapters



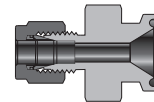
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Flange Adapters



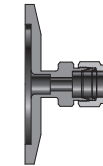
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Sanitary Flange Fittings



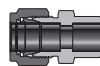
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KF Vacuum Flange Fittings



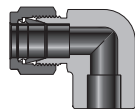
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Weld Connectors



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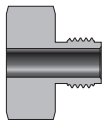
Weld Elbows



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Contents

Male Nuts



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Front Ferrules



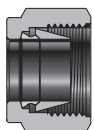
66

Rear Ferrules



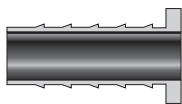
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Nuts+Ferrules



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Insert for Soft Plastic Tubings



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BS Gaskets



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BP Gaskets



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BG Gaskets



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O-rings



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Features

- ❖ Twin ferrule fittings provide metal-to-metal seal connections, non-elastomeric seals for leak-free connections
- ❖ CIR-LOK twin ferrule fittings are designed to have a maximum allowable working pressure that is higher than that of any tubing
- ❖ Industry standard design for all instrumentation grade tubing
- ❖ Stainless steel tube hardness: the hardness of the tube shall be not greater than 85 HRB
- ❖ Available in sizes from 1/16 to 2in and 2 mm to 50 mm
- ❖ CIR-LOK fittings materials include 316 stainless steel, steel, brass, aluminum, nickel-copper, Hastelloy C, 6Mo, Incoloy 625 and 825
- ❖ CIR-LOK special treated back ferrule is to provide secure
- ❖ Silver coated threads to reduce galling
- ❖ Leak-proof joints capable of satisfying high pressure vacuum and vibration applications

Performance

- ❖ Hydraulic proof pressure test (1.5 times the maximum permissible working pressure): no leakage
- ❖ Dismantling and reassembly test (dismantle 10 times): no leakage
- ❖ Minimum hydrostatic pressure test (4 times the maximum permissible ambient pressure rating): no leakage
- ❖ Vacuum test (1×10^{-4} mbar or greater): the leak rate less than 1×10^{-8}
- ❖ Maximum static gas pressure test (with nitrogen gas to 150% of pressure rating): no visible bubbles
- ❖ Hydraulic impulse and vibration test (the pressure impulses at between 0.5 Hz and 1.7 Hz and the vibration at between 23 Hz and 47 Hz): no leakage
- ❖ Thermal cycle test (ambient to +80 °C and then to -25 °C with a hydrostatic pressure): no evidence of leakage
- ❖ Pneumatic pressure vibration test (The frequency of vibration shall be set at 45 Hz and complete 20×10^6 cycles): without failure
- ❖ Fire test (in accordance with BS ISO 19921): no leakage
- ❖ Corrosion resistance test (the duration of exposure at least 168 h): no visible evidence of corrosion
- ❖ Deep water submersion test (equivalent to 3048 m of sea water): no helium detected

Materials Standards

Material	Bar Stock	Forgings
316 stainless steel	ASTM A276 ASME SA479, EN 1.4401	ASTM A182 ASME SA182, EN 1.4401
Alloy 20	ASTM B473	ASTM B462
Alloy 400/ R-405	ASTM B164. ASME SB164	ASTM B564. ASME SB564
Alloy 600	ASTM B166, ASME SB166	ASTM B564, ASME SB564
Alloy 625	ASTM B446	ASTM B564, ASME SB564
Alloy 825	ASTM B425	ASTM B564, ASME SB564
Alloy C-276	ASTM B574	ASTM B564
Aluminum	ASTM B211	ASTM B247
Brass	ASTM B16, ASTM B453	ASTM B283
Carbon steel	ASTM A108	—
Duplex 2507	ASTM A479	ASTM A182
Titanium (grade 4)	ASTM B348	ASTM B381
PFA	—	ASTM D3307 Type I
PTFE	ASTM D1710	ASTM D3294

Thread Specifications

Thread Type(End Connection)	Reference Specification
NPT	ASME B1.20.1, SAE AS71051
ISO/BSP(parallel) (Based on DIN 3852) (CIR-LOK PPT,BP,and BS fittings)	ISO 228, JIS B0202
ISO/BSP(tapered) (Based on DIN 3852) (CIR-LOK BT fittings)	ISO 7, BS EN 10226-1, JIS B0203
ISO/BSP(gauge) (Based on EN 837-1 and 837-3) (CIR-LOK BG)	ISO 228, JIS B0202
Unified (SAE) (CIR-LOK SA fittings)	ASME B1.1

NPT Thread Pressure Ratings

Ratings are based on ASME Code for Pressure Piping B31.3, Process Piping, at ambient temperature.

NPT/ ISO Pipe Size	316 S.S. and Carbon Steel				Brass			
	Male		Female		Male		Female	
	psig	bar	psig	bar	psig	bar	psig	bar
1/16	11000	760	6700	460	5500	380	3300	230
1/8	10000	690	6500	440	5000	340	3200	220
1/4	8000	550	6600	450	4000	270	3300	220
3/8	7800	540	5300	360	3900	270	2600	180
1/2	7700	530	4900	330	3800	260	2400	160
3/4	7300	500	4600	320	3600	250	2300	160
1	5300	370	4400	300	2600	180	2200	150
1 1/4	6000	410	5000	350	3000	200	2500	170
1 1/2	5000	340	4600	310	2500	170	2300	150
2	3900	270	3900	270	1900	130	1900	130

To determine pressure ratings in accordance with ASME B31.1, Power Piping:
 stainless steel material-multiply by 0.94
 carbon steel material-multiply by 0.85
 Brass material ratings remain the same.

SAE/MS Thread Pressure Ratings

Pressure ratings are based on SAE J1926/3 at ambient temperature.

SAE/MS Thread Size	316 S.S. and Carbon Steel					
	Nonpositionable		positionable			
	psig	bar	psig	bar		
5/16-24	4568	315	4568	315		
7/16-20						
1/2-20			3626	250		
9/16-18						
3/4-16	3626	250	2900	200		
7/8-14						
1 1/16-12			2900	200	2320	160
1 3/16-12						
1 5/16-12	2320	160	1813	125		
1 5/8-12						
1 7/8-12						
2 1/2-12	1813	125	1450	100		

Some fittings with O-seal, and SAE/MS ends may have lower ratings.

Positionable, ISO/BSP Parallel Thread (PPT) Pressure Ratings

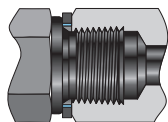
Pressure ratings are at ambient temperature.

ISO/BSPP Male Pipe Size in.	316 S.S. and Carbon Steel	
	psig	bar
1/8	4568	315
1/4		
3/8		
1/2	2320	160
3/4		
1		

Types of Sealing for parallel threads

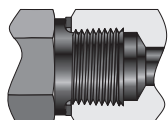
1. BS sealing: BS male thread end, BS gasket and BP female thread port

- ❖ BS male thread end complies with DIN 3852-2 type A
- ❖ BP female thread port complies with DIN 3852-2 type X



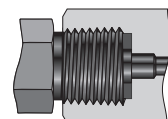
2. BP sealing: BP male thread end, BP gasket and BP female thread port

- ❖ BP male thread end complies with DIN 3852-2 type B
- ❖ BP female thread port complies with DIN 3852-2 type X
- ❖ The BP gasket can be used with a BS fitting



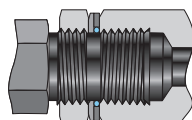
3. BG sealing: BG male thread end, BG gasket and BG female thread port

- ❖ BG female thread port complies with EN 837-1/3

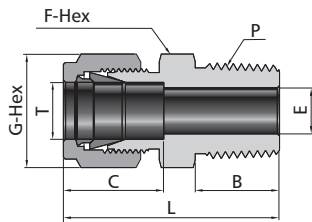


4. PPT sealing: PPT male thread end and BP female thread port

- ❖ BP female thread port complies with DIN 3852-2 type X



Male Connectors

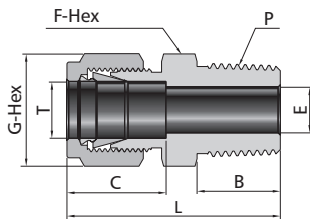


Fractional Tube

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	F1-MC-NPT1-	23.9	9.7	8.6	1.3	7.9	7.9
1/16	1/8	F1-MC-NPT2-	26.2	9.7	8.6	1.3	7.9	11.1
1/16	1/4	F1-MC-NPT4-	31.0	14.2	8.6	1.3	7.9	14.3
1/8	1/16	F2-MC-NPT1-	29.7	9.7	12.7	2.3	11.1	11.1
1/8	1/8	F2-MC-NPT2-	30.5	9.7	12.7	2.3	11.1	11.1
1/8	1/4	F2-MC-NPT4-	35.6	14.2	12.7	2.3	11.1	14.3
1/8	3/8	F2-MC-NPT6-	35.8	14.2	12.7	2.3	11.1	17.5
1/8	1/2	F2-MC-NPT8-	42.2	19.1	12.7	2.3	11.1	22.2
3/16	1/16	F3-MC-NPT1-	31.2	9.7	13.7	2.3	12.7	11.1
3/16	1/8	F3-MC-NPT2-	31.2	9.7	13.7	3.0	12.7	11.1
3/16	1/4	F3-MC-NPT4-	36.3	14.2	13.7	3.0	12.7	14.3
1/4	1/16	F4-MC-NPT1-	32.8	9.7	15.2	3.0	14.3	12.7
1/4	1/8	F4-MC-NPT2-	32.8	9.7	15.2	4.8	14.3	12.7
1/4	1/4	F4-MC-NPT4-	37.8	14.2	15.2	4.8	14.3	14.3
1/4	3/8	F4-MC-NPT6-	38.4	14.2	15.2	4.8	14.3	17.5
1/4	1/2	F4-MC-NPT8-	44.7	19.1	15.2	4.8	14.3	22.2
1/4	3/4	F4-MC-NPT12-	46.2	19.1	15.2	4.8	14.3	27.0
5/16	1/8	F5-MC-NPT2-	34.0	9.7	16.3	4.8	15.9	14.3
5/16	1/4	F5-MC-NPT4-	38.6	9.7	16.3	6.4	15.9	14.3
5/16	3/8	F5-MC-NPT6-	39.1	14.2	16.3	6.4	15.9	17.5
5/16	1/2	F5-MC-NPT8-	45.5	19.1	16.3	6.4	15.9	22.2
3/8	1/8	F6-MC-NPT2-	35.3	9.7	16.8	4.8	17.5	15.9
3/8	1/4	F6-MC-NPT4-	39.9	14.2	16.8	7.1	17.5	15.9
3/8	3/8	F6-MC-NPT6-	39.9	14.2	16.8	7.1	17.5	17.5
3/8	1/2	F6-MC-NPT8-	46.2	19.1	16.8	7.1	17.5	22.2
3/8	3/4	F6-MC-NPT12-	47.8	19.1	16.8	7.1	17.5	27.0
3/8	1	F6-MC-NPT16-	47.0	23.9	16.8	7.1	17.5	34.9
1/2	1/8	F8-MC-NPT2-	38.9	9.7	22.9	4.8	22.2	20.6
1/2	1/4	F8-MC-NPT4-	43.4	14.2	22.9	7.1	22.2	20.6
1/2	3/8	F8-MC-NPT6-	43.4	14.2	22.9	9.7	22.2	20.6
1/2	1/2	F8-MC-NPT8-	49.0	19.1	22.9	10.4	22.2	22.2
1/2	3/4	F8-MC-NPT12-	50.5	19.1	22.9	10.4	22.2	27.0
1/2	1	F8-MC-NPT16-	57.2	23.9	22.9	10.4	22.2	34.9
5/8	1/4	F10-MC-NPT4-	44.2	14.2	24.4	7.1	25.4	23.8
5/8	3/8	F10-MC-NPT6-	44.2	14.2	24.4	9.7	25.4	23.8
5/8	1/2	F10-MC-NPT8-	49.0	19.1	24.4	11.9	25.4	23.8
5/8	3/4	F10-MC-NPT12-	50.5	19.1	24.4	12.7	25.4	27.0
3/4	3/8	F12-MC-NPT6-	45.7	14.2	24.4	10.4	28.6	27.0
3/4	1/2	F12-MC-NPT8-	50.5	19.1	24.4	11.9	28.6	27.0
3/4	3/4	F12-MC-NPT12-	50.5	19.1	24.4	15.7	28.6	27.0
3/4	1	F12-MC-NPT16-	57.2	23.9	24.4	15.7	28.6	34.9
7/8	1/2	F14-MC-NPT8-	50.5	19.1	25.9	11.9	31.8	30.2
7/8	3/4	F14-MC-NPT12-	50.5	19.1	25.9	15.7	31.8	30.2
7/8	1	F14-MC-NPT16-	57.2	23.9	25.9	18.3	31.8	34.9
1	1/2	F16-MC-NPT8-	57.4	19.1	31.2	11.9	38.1	34.9
1	3/4	F16-MC-NPT12-	57.4	19.1	31.2	15.7	38.1	34.9
1	1	F16-MC-NPT16-	62.2	23.9	31.2	22.4	38.1	34.9
1 1/8	1	F18-MC-NPT16-	62.2	23.9	31.2	22.4	46.0	41.3
1 1/4	1	F20-MC-NPT16-	77.2	23.9	41.1	22.4	47.6	44.5
1 1/4	1 1/4	F20-MC-NPT20-	77.2	23.9	41.1	27.7	47.6	44.5
1 1/2	1 1/2	F24-MC-NPT24-	88.9	26.2	50.0	34.0	57.2	54.0

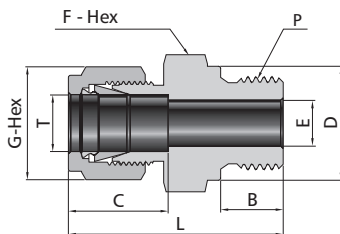
Male Connectors



Fractional Tube

ISO Tapered Thread (BSPT)

T-Tube O.D. (in.)	P-BSPT Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/8	1/8	F2-MC-MBT2-	30.5	9.7	12.7	2.3	11.1	11.1
1/8	1/4	F2-MC-MBT4-	35.6	14.2	12.7	2.3	11.1	14.3
1/4	1/8	F4-MC-MBT2-	32.8	9.7	15.2	4.8	14.3	12.7
1/4	1/4	F4-MC-MBT4-	37.8	14.2	15.2	4.8	14.3	14.3
1/4	3/8	F4-MC-MBT6-	38.4	14.2	15.2	4.8	14.3	17.5
1/4	1/2	F4-MC-MBT8-	44.7	19.1	15.2	4.8	14.3	22.2
5/16	1/8	F5-MC-MBT2-	34.0	9.7	16.3	4.8	15.9	14.3
5/16	1/4	F5-MC-MBT4-	38.6	9.7	16.3	6.4	15.9	14.3
3/8	1/8	F6-MC-MBT2-	35.3	9.7	16.8	4.8	17.5	15.9
3/8	1/4	F6-MC-MBT4-	39.9	14.2	16.8	7.1	17.5	15.9
3/8	3/8	F6-MC-MBT6-	39.9	14.2	16.8	7.1	17.5	17.5
3/8	1/2	F6-MC-MBT8-	46.2	19.1	16.8	7.1	17.5	22.2
3/8	3/4	F6-MC-MBT12-	47.8	19.1	16.8	7.1	17.5	27.0
1/2	1/4	F8-MC-MBT4-	43.4	14.2	22.9	7.1	22.2	20.6
1/2	3/8	F8-MC-MBT6-	43.4	14.2	22.9	9.7	22.2	20.6
1/2	1/2	F8-MC-MBT8-	49.0	19.1	22.9	10.4	22.2	22.2
1/2	3/4	F8-MC-MBT12-	50.5	19.1	22.9	10.4	22.2	27.0
5/8	1/2	F10-MC-MBT8-	49.0	19.1	24.4	11.9	25.4	23.8
3/4	3/4	F12-MC-MBT12-	50.5	19.1	24.4	15.7	28.6	27.0
3/4	1	F12-MC-MBT16-	57.2	23.9	24.4	15.7	28.6	34.9
1	3/4	F16-MC-MBT12-	57.4	19.1	31.2	15.7	38.1	34.9
1	1	F16-MC-MBT16-	62.2	23.9	31.2	22.4	38.1	34.9

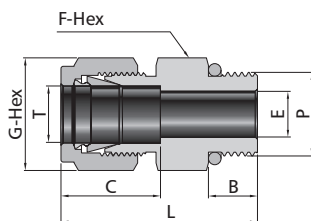
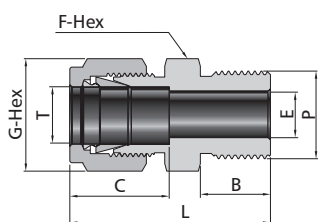
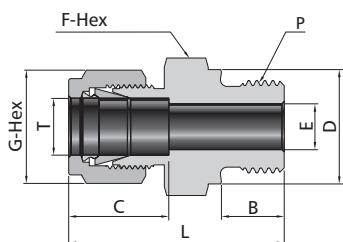


Fractional Tube

ISO Parallel Thread (BS)

T-Tube O.D. (in.)	P-BS Size	Basic Ordering Number	Dimension, mm						
			L	B	C	E	G	F	D
1/8	1/8	F2-MC-MBS2-	30.0	7.1	12.7	2.3	11.1	14.3	13.7
1/8	1/4	F2-MC-MBS4-	35.3	11.2	12.7	2.3	11.1	19.1	18.0
1/8	3/8	F2-MC-MBS6-	36.3	11.2	12.7	2.3	11.1	22.2	21.8
1/4	1/8	F4-MC-MBS2-	32.3	7.1	15.2	4.0	14.3	14.3	13.7
1/4	1/4	F4-MC-MBS4-	37.6	11.2	15.2	4.8	14.3	19.1	18.0
1/4	3/8	F4-MC-MBS6-	38.9	11.2	15.2	4.8	14.3	22.2	21.8
1/4	1/2	F4-MC-MBS8-	44.7	14.2	15.2	4.8	14.3	27.0	25.9
3/8	1/8	F6-MC-MBS2-	37.8	7.1	16.8	4.0	17.5	15.9	13.7
3/8	1/4	F6-MC-MBS4-	39.1	11.2	16.8	5.9	17.5	19.1	18.0
3/8	3/8	F6-MC-MBS6-	40.4	11.2	16.8	7.1	17.5	22.2	21.8
3/8	1/2	F6-MC-MBS8-	46.2	14.2	16.8	7.1	17.5	27.0	25.9
1/2	1/4	F8-MC-MBS4-	42.7	11.2	22.9	5.9	22.2	20.6	18.0
1/2	3/8	F8-MC-MBS6-	43.2	11.2	22.9	7.9	22.2	22.2	21.8
1/2	1/2	F8-MC-MBS8-	49.0	14.2	22.9	10.4	22.2	27.0	25.9
3/4	1/2	F12-MC-MBS8-	49.0	14.2	24.4	11.9	28.6	27.0	25.9
3/4	3/4	F12-MC-MBS12-	52.9	15.7	24.4	15.7	28.6	33.3	32.0
1	1/2	F16-MC-MBS8-	55.5	14.2	31.2	11.9	38.1	34.9	25.9
1	3/4	F16-MC-MBS12-	57.7	15.7	31.2	16.0	38.1	34.9	32.0
1	1	F16-MC-MBS16-	59.9	18.3	31.2	19.8	38.1	41.3	39.1

Male Connectors



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

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	D
1/8	1/8	F2-MC-PMBP2-	30.0	7.1	12.7	2.3	11.1	14.3	13.7
1/8	1/4	F2-MC-PMBP4-	35.3	11.2	12.7	2.3	11.1	19.1	18.0
1/4	1/8	F4-MC-PMBP2-	32.3	7.1	15.2	4.1	14.3	14.3	13.8
1/4	1/4	F4-MC-PMBP4-	37.6	11.2	15.2	4.8	14.3	19.1	18.0
1/2	3/8	F8-MC-PMBP6-	40.4	11.2	22.9	7.9	22.2	22.2	21.8
1/2	1/2	F8-MC-PMBP8-	49.0	14.2	22.9	10.4	22.2	27.0	25.9
3/4	1/2	F12-MC-PMBP8-	49.0	14.2	24.4	11.9	28.6	27.0	25.9
3/4	3/4	F12-MC-PMBP12-	52.9	15.7	24.4	15.7	28.6	33.3	32
1	1	F16-MC-PMBP16-	59.9	18.3	31.2	19.8	38.1	41.3	39.1

Fractional Tube

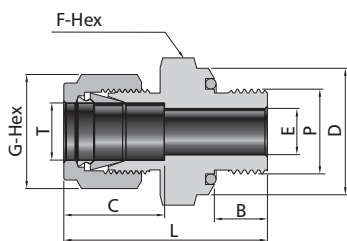
ISO Parallel Thread (BG)

T-Tube O.D. (in.)	P-BG Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/4	3/8	F4-MC-MBP6-	38.4	14.2	15.2	4.8	14.3	17.5
3/8	3/8	F6-MC-MBP6-	39.9	14.2	16.8	7.1	17.5	17.5

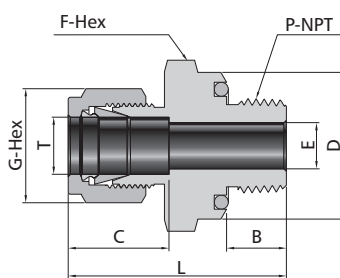
Fractional Tube

SAE/MS Straight Thread

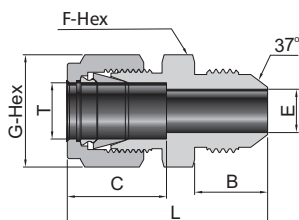
T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm						
			L	B	C	E	G	F	
1/16	5/16-24	F1-MC-OST5-	23.4	7.6	8.6	1.3	7.9	11.1	
1/8	5/16-24	F2-MC-OST5-	30.0	7.6	12.7	2.3	11.1	11.1	
1/8	7/16-20	F2-MC-OST7-	31.5	9.1	12.7	2.3	11.1	14.3	
1/8	9/16-18	F2-MC-OST9-	33.3	9.9	12.7	2.3	11.1	17.5	
3/16	3/8-24	F3-MC-OST6-	30.5	7.6	13.7	3.0	12.7	12.7	
1/4	5/16-24	F4-MC-OST5-	32.3	7.6	15.2	2.3	14.3	12.7	
1/4	7/16-20	F4-MC-OST7-	34.0	9.1	15.2	4.8	14.3	14.3	
1/4	9/16-18	F4-MC-OST9-	35.6	9.9	15.2	4.8	14.3	17.5	
1/4	3/4-16	F4-MC-OST12-	37.6	11.2	15.2	4.8	14.3	22.2	
1/4	7/8-14	F4-MC-OST14-	40.6	12.7	15.2	4.8	15.9	25.4	
5/16	1/2-20	F5-MC-OST8-	34.8	9.1	16.3	6.4	17.5	15.9	
3/8	7/16-20	F6-MC-OST7-	35.6	9.1	16.8	5.1	17.5	15.9	
3/8	9/16-18	F6-MC-OST9-	37.1	9.9	16.8	7.1	17.5	17.5	
3/8	3/4-16	F6-MC-OST12-	39.1	11.2	16.8	7.1	17.5	22.2	
3/8	7/8-14	F6-MC-OST14-	42.2	12.7	22.9	7.1	17.5	25.4	
1/2	9/16-18	F8-MC-OST9-	39.1	9.9	22.9	7.1	22.2	20.6	
1/2	3/4-16	F8-MC-OST12-	41.9	11.2	22.9	10.4	22.2	22.2	
1/2	7/8-14	F8-MC-OST14-	45.0	12.7	22.9	10.4	22.2	25.4	
1/2	1 1/16-12	F8-MC-OST17-	49.0	15.0	22.9	10.4	22.2	31.8	
5/8	3/4-16	F10-MC-OST12-	41.9	11.2	24.4	10.7	25.4	23.8	
5/8	7/8-14	F10-MC-OST14-	45.2	12.7	24.4	12.7	25.4	25.4	
3/4	3/4-16	F12-MC-OST12-	46.0	11.2	24.4	10.7	28.6	27.0	
3/4	1 1/16-12	F12-MC-OST17-	49.0	15.0	24.4	15.7	28.6	31.8	
3/4	1 5/16-12	F12-MC-OST21-	49.8	15.0	24.4	16.0	28.6	38.1	
7/8	1 3/16-12	F14-MC-OST19-	49.0	15.0	25.9	18.3	31.8	34.9	
1	1 1/16-12	F16-MC-OST17-	53.3	15.0	31.2	16.8	38.1	34.9	
1	1 5/16-12	F16-MC-OST21-	54.4	15.0	31.2	22.4	38.1	38.1	
1 1/4	1 5/8-12	F20-MC-OST26-	68.3	15.0	41.1	27.7	47.6	47.6	
1 1/2	1 7/8-12	F24-MC-OST30-	77.7	15.0	50.0	34.0	57.2	54.0	


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	F1-MC-STO5-	26.7	8.6	8.6	1.3	7.9	14.3	14.0
1/8	5/16-24	F2-MC-STO5-	32.8	8.6	12.7	2.3	11.1	14.3	14.0
3/16	3/8-24	F3-MC-STO6-	34.3	9.7	13.7	3.0	12.7	15.9	15.7
1/4	7/16-20	F4-MC-STO7-	38.4	10.4	15.2	4.8	14.3	19.1	18.8
5/16	1/2-20	F5-MC-STO8-	40.6	11.2	16.3	6.4	15.9	22.2	21.8
3/8	9/16-18	F6-MC-STO9-	42.4	11.9	16.8	7.1	17.5	23.8	23.6
1/2	3/4-16	F8-MC-STO12-	46.0	11.9	22.9	10.4	22.2	28.6	28.4
3/4	1 1/16-12	F12-MC-STO17-	52.3	14.2	24.4	15.7	28.6	38.1	37.8
1	1 5/16-12	F16-MC-STO21-	58.2	14.2	31.2	22.4	38.1	44.5	44.2

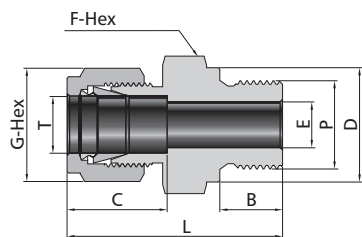

Fractional Tube
O-Seal with NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	B	C	E	G	F	D
1/8	1/8	F2-MC-NPTO2-	32.8	7.1	8.6	2.3	11.1	19.1	18.8
1/4	1/8	F4-MC-NPTO2-	35.1	7.1	15.2	4.8	14.3	19.1	18.8
1/4	1/4	F4-MC-NPTO4-	38.4	9.7	15.2	4.8	14.3	23.8	23.6
3/8	1/4	F6-MC-NPTO4-	39.9	9.7	16.8	7.1	17.5	23.8	23.6
3/8	3/8	F6-MC-NPTO6-	41.4	10.4	16.8	7.1	17.5	28.6	28.4
3/8	1/2	F6-MC-NPTO8-	47.0	13.5	16.8	7.1	17.5	33.3	33.0
1/2	1/2	F8-MC-NPTO8-	49.8	13.5	22.9	10.4	22.2	33.3	33.0


Fractional Tube
37° Flare (AN)

T-Tube O.D. (in.)	AN Tube Flare Size	Basic Ordering Number	Dimension, in. (mm)						
			L	B	C	E	G	F	
1/16	1/8	F1-MC-AN2-	1.07(27.2)	0.45(11.4)	0.34(8.6)	0.05(1.3)	0.31(7.9)	0.44(11.1)	
1/8	1/8	F2-MC-AN2-	1.27(32.3)	0.45(11.4)	0.50(12.7)	0.06(1.5)	0.44(11.1)	0.44(11.1)	
1/8	1/4	F2-MC-AN4-	1.38(35.1)	0.55(14.0)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.50(12.7)	
3/16	3/16	F3-MC-AN3-	1.32(33.5)	0.48(12.2)	0.54(13.7)	0.09(2.3)	0.50(12.7)	0.44(11.1)	
1/4	1/4	F4-MC-AN4-	1.48(37.6)	0.55(14.0)	0.60(15.2)	0.17(4.3)	0.56(14.3)	0.50(12.7)	
5/16	5/16	F5-MC-AN5-	1.51(38.4)	0.55(14.0)	0.64(16.2)	0.23(5.8)	0.63(15.9)	0.56(14.3)	
3/8	1/4	F6-MC-AN4-	1.56(39.6)	0.55(14.0)	0.66(16.8)	0.17(4.3)	0.69(17.5)	0.63(15.9)	
3/8	3/8	F6-MC-AN6-	1.56(39.6)	0.56(14.1)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.63(15.9)	
1/2	1/2	F8-MC-AN8-	1.81(46.0)	0.66(16.7)	0.90(22.8)	0.39(9.9)	0.87(22.2)	0.81(20.6)	
5/8	5/8	F10-MC-AN10-	1.93(49.0)	0.76(19.3)	0.96(24.5)	0.48(12.3)	1.00(25.4)	0.94(23.8)	
3/4	3/4	F12-MC-AN12-	2.10(53.3)	0.86(21.9)	0.96(24.4)	0.61(15.5)	1.13(28.6)	1.13(28.6)	
1	1	F16-MC-AN16-	2.42(61.5)	0.91(23.1)	1.23(31.2)	0.84(21.3)	1.50(38.1)	1.37(34.9)	

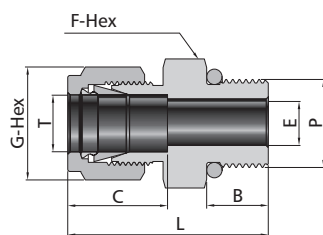
Male Connectors



Fractional Tube

Metric Thread (BSMS)

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	F2-MC-BSMS14-	36.7	12	12.7	2.3	11.1	19.1	19
1/8	M16 x 1.5	F2-MC-BSMS16-	37.5	12	12.7	2.3	11.1	22.2	21
1/8	M18 x 1.5	F2-MC-BSMS18-	38.5	12	12.7	2.3	11.1	23.8	23
1/8	M20 x 1.5	F2-MC-BSMS20-	41.1	14	12.7	2.3	11.1	25.4	25
1/4	M14 x 1.5	F4-MC-BSMS14-	38.0	12	15.2	4.8	14.3	19.1	19
1/4	M16 x 1.5	F4-MC-BSMS16-	39.9	12	15.2	4.8	14.3	22.2	21
1/4	M18 x 1.5	F4-MC-BSMS18-	40.8	12	15.2	4.8	14.3	23.8	23
1/4	M20 x 1.5	F4-MC-BSMS20-	43.6	14	15.2	4.8	14.3	25.4	25
3/8	M14 x 1.5	F6-MC-BSMS14-	41.3	12	16.8	7.1	17.5	19.1	19
3/8	M16 x 1.5	F6-MC-BSMS16-	41.3	12	16.8	7.1	17.5	22.2	21
3/8	M18 x 1.5	F6-MC-BSMS18-	41.8	12	16.8	7.1	17.5	23.8	23
3/8	M20 x 1.5	F6-MC-BSMS20-	45.1	14	16.8	7.1	17.5	25.4	25
1/2	M16 x 1.5	F8-MC-BSMS16-	44.0	12	22.9	9.0	22.2	22.2	21
1/2	M18 x 1.5	F8-MC-BSMS18-	44.0	12	22.9	10.0	22.2	23.8	23
1/2	M20 x 1.5	F8-MC-BSMS20-	47.9	14	22.9	10.4	22.2	25.4	25
1/2	M22 x 1.5	F8-MC-BSMS22-	48.5	14	22.9	10.4	22.2	27.0	27

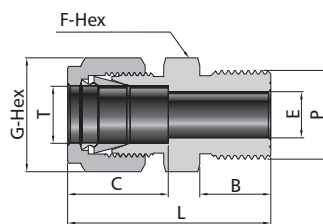


Adapt to straight thread boss of ISO 6149-1.

Fractional Tube

Metric Thread (OMS)

T-Tube O.D. (in.)	P-Metric Thread Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/4	M14X1.5	F4-MC-OMS14-	35.2	11	15.2	4.8	14.3	19.1
3/8	M14X1.5	F6-MC-OMS14-	36.7	11	16.8	7.1	17.5	19.1
3/8	M20X1.5	F6-MC-OMS20-	41.2	14	16.8	7.1	17.5	27.0
1/2	M14X1.5	F8-MC-OMS14-	40.2	11	22.9	7.5	22.2	20.6
1/2	M20X1.5	F8-MC-OMS20-	44.0	14	22.9	10.4	22.2	27.0

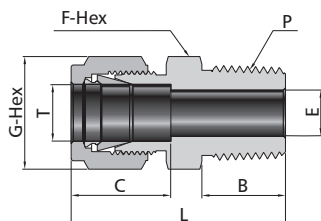


Fractional Tube

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	F1-MC-MS5-	21.8	8	8.6	1.3	7.9	7.9
1/8	M14 x 1.5	F2-MC-MS14-	34.8	13	12.7	2.3	11.1	15.9
1/8	M16 x 1.5	F2-MC-MS16-	35.8	14	12.7	2.3	11.1	17.5
1/8	M18 x 1.5	F2-MC-MS18-	37.2	15	12.7	2.3	11.1	19.1
1/8	M20 x 1.5	F2-MC-MS20-	38.2	16	12.7	2.3	11.1	22.2
1/4	M14 x 1.5	F4-MC-MS14-	36.9	13	15.2	4.8	14.3	15.9
1/4	M16 x 1.5	F6-MC-MS10-	38.1	14	15.2	4.8	14.3	17.5
1/4	M18 x 1.5	F4-MC-MS16-	39.5	15	15.2	4.8	14.3	19.1
1/4	M20 x 1.5	F4-MC-MS18-	40.7	16	15.2	4.8	14.3	22.2
3/8	M10 x 1.0	F4-MC-MS20-	36.4	11	16.8	4.8	17.5	15.9
3/8	M14 x 1.5	F6-MC-MS14-	39.3	13	16.8	7.1	17.5	15.9
3/8	M16 x 1.5	F6-MC-MS16-	39.7	14	16.8	7.1	17.5	17.5
3/8	M18 x 1.5	F6-MC-MS18-	41.5	15	16.8	7.1	17.5	19.1
3/8	M20 x 1.5	F6-MC-MS20-	42.3	16	16.8	7.1	17.5	22.2
1/2	M16 x 1.5	F8-MC-MS16-	43.2	14	22.9	8.4	22.2	20.6
1/2	M18 x 1.5	F8-MC-MS18-	43.7	15	22.9	9.6	22.2	20.6
1/2	M20 x 1.5	F8-MC-MS20-	44.9	16	22.9	10.4	22.2	22.2
1/2	M22 x 1.5	F8-MC-MS22-	47.0	17	22.9	10.4	22.2	23.8

Male Connectors

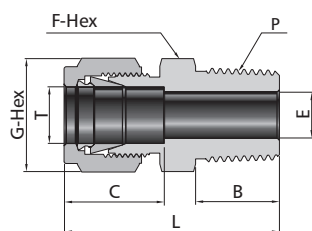


Metric Tube

NPT Thread

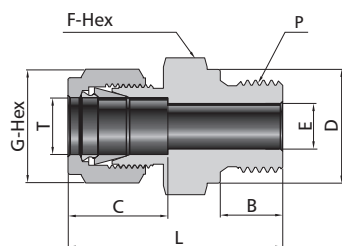
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
2	1/8	M2-MC-NPT2-	30.5	9.7	12.9	1.7	12	12
3	1/8	M3-MC-NPT2-	30.5	9.7	12.9	2.4	12	12
3	1/4	M3-MC-NPT4-	35.6	14.2	12.9	2.4	12	14
4	1/8	M4-MC-NPT2-	31.2	9.7	13.7	2.4	12	12
4	1/4	M4-MC-NPT4-	36.3	14.2	13.7	2.4	12	14
6	1/8	M6-MC-NPT2-	32.8	9.7	15.3	4.8	14	14
6	1/4	M6-MC-NPT4-	37.9	14.2	15.3	4.8	14	14
6	3/8	M6-MC-NPT6-	38.4	14.2	15.3	4.8	14	18
6	1/2	M6-MC-NPT8-	44.7	19.1	15.3	4.8	14	22
8	1/8	M8-MC-NPT2-	34.2	9.7	16.2	4.8	16	15
8	1/4	M8-MC-NPT4-	38.7	14.2	16.2	6.4	16	15
8	3/8	M8-MC-NPT6-	39.3	14.2	16.2	6.4	16	18
8	1/2	M8-MC-NPT8-	45.6	19.1	16.2	6.4	16	22
10	1/8	M10-MC-NPT2-	36.3	9.7	17.2	4.8	19	18
10	1/4	M10-MC-NPT4-	40.9	14.2	17.2	7.1	19	18
10	3/8	M10-MC-NPT6-	40.9	14.2	17.2	7.9	19	18
10	1/2	M10-MC-NPT8-	46.5	19.1	17.2	7.9	19	22
10	3/4	M10-MC-NPT12-	48.0	19.1	17.2	7.9	19	27
10	1	M10-MC-NPT16-	54.6	23.9	17.2	7.9	19	35
12	1/8	M12-MC-NPT2-	38.8	9.7	22.8	4.8	22	22
12	1/4	M12-MC-NPT4-	43.4	14.2	22.8	7.1	22	22
12	3/8	M12-MC-NPT6-	43.4	14.2	22.8	9.5	22	22
12	1/2	M12-MC-NPT8-	49.0	19.1	22.8	9.5	22	22
12	3/4	M12-MC-NPT12-	50.5	19.1	22.8	9.5	22	27
14	1/8	M14-MC-NPT2-	38.8	9.7	24.4	4.8	25	24
14	1/4	M14-MC-NPT4-	44.1	14.2	24.4	7.1	25	24
14	3/8	M14-MC-NPT6-	44.1	14.2	24.4	9.5	25	24
14	1/2	M14-MC-NPT8-	49.0	19.1	24.4	11.1	25	24
14	3/4	M14-MC-NPT12-	50.5	19.1	24.4	11.1	25	27
15	1/2	M15-MC-NPT8-	49.0	19.1	24.4	11.9	25	24
15	3/4	M15-MC-NPT12-	50.5	19.1	24.4	11.9	25	27
15	1	M15-MC-NPT16-	57.1	23.9	24.4	11.9	25	35
16	1/4	M16-MC-NPT4-	44.1	14.2	24.4	7.1	25	24
16	3/8	M16-MC-NPT6-	44.1	14.2	24.4	9.5	25	24
16	1/2	M16-MC-NPT8-	49.0	19.1	24.4	11.9	25	24
16	3/4	M16-MC-NPT12-	50.5	19.1	24.4	12.7	25	27
18	3/8	M18-MC-NPT6-	45.6	14.2	24.4	9.5	30	27
18	1/2	M18-MC-NPT8-	50.5	19.1	24.4	11.9	30	27
18	3/4	M18-MC-NPT12-	50.5	19.1	24.4	15.1	30	27
20	1/2	M20-MC-NPT8-	52.3	19.1	26.0	11.9	32	30
20	3/4	M20-MC-NPT12-	52.3	19.1	26.0	15.9	32	30
20	1	M20-MC-NPT16-	57.1	23.9	26.0	15.9	32	35
22	1/2	M22-MC-NPT8-	52.3	19.1	26.0	11.9	32	30
22	3/4	M22-MC-NPT12-	52.3	19.1	26.0	15.9	32	30
22	1	M22-MC-NPT16-	57.1	23.9	26.0	18.3	32	35
25	1/2	M25-MC-NPT8-	57.5	19.1	31.3	11.9	38	35
25	3/4	M25-MC-NPT12-	57.5	19.1	31.3	15.9	38	35
25	1	M25-MC-NPT16-	62.3	23.9	31.3	21.8	38	35
28	1	M28-MC-NPT16-	72.4	23.9	36.6	21.8	46	41
28	1 1/4	M28-MC-NPT20-	73.1	23.9	36.6	21.8	46	46
30	1 1/4	M30-MC-NPT20-	77.2	23.9	39.6	26.2	50	46
32	1 1/4	M32-MC-NPT20-	79.6	23.9	42.0	28.6	50	46
38	1 1/2	M38-MC-NPT24-	91.6	26.2	49.4	33.7	60	55

Male Connectors



Metric Tube			ISO Tapered Thread (BSPT)					
T-Tube O.D. (mm)	P-BSPT Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
2	1/8	M2-MC-MBT2-	30.5	9.7	12.9	1.7	12	12
3	1/8	M3-MC-MBT2-	30.5	9.7	12.9	2.4	12	12
3	1/4	M3-MC-MBT4-	35.6	14.2	12.9	2.4	12	14
4	1/8	M4-MC-MBT2-	31.2	9.7	13.7	2.4	12	12
4	1/4	M4-MC-MBT4-	36.3	14.2	13.7	2.4	12	14
6	1/8	M6-MC-MBT2-	32.8	9.7	15.3	4.8	14	14
6	1/4	M6-MC-MBT4-	37.9	14.2	15.3	4.8	14	14
6	3/8	M6-MC-MBT6-	38.4	14.2	15.3	4.8	14	18
6	1/2	M6-MC-MBT8-	44.7	19.1	15.3	4.8	14	22
8	1/8	M8-MC-MBT2-	34.2	9.7	16.2	4.8	16	15
8	1/4	M8-MC-MBT4-	38.7	14.2	16.2	6.4	16	15
8	3/8	M8-MC-MBT6-	39.2	14.2	16.2	6.4	16	18
8	1/2	M8-MC-MBT8-	45.6	19.1	16.2	6.4	16	22
10	1/8	M10-MC-MBT2-	36.3	9.7	17.2	4.8	19	18
10	1/4	M10-MC-MBT4-	40.9	14.2	17.2	7.1	19	18
10	3/8	M10-MC-MBT6-	40.9	14.2	17.2	7.9	19	18
10	1/2	M10-MC-MBT8-	46.5	19.1	17.2	7.9	19	22
10	3/4	M10-MC-MBT12-	48.0	19.1	17.2	7.9	19	27
12	1/8	M12-MC-MBT2-	38.3	9.7	22.8	4.8	22	22
12	1/4	M12-MC-MBT4-	43.4	14.2	22.8	7.1	22	22
12	3/8	M12-MC-MBT6-	43.4	14.2	22.8	9.5	22	22
12	1/2	M12-MC-MBT8-	49.0	19.1	22.8	9.5	22	22
12	3/4	M12-MC-MBT12-	50.5	19.1	22.8	9.5	22	27
14	1/8	M14-MC-MBT2-	38.8	9.7	24.4	4.8	25	24
14	1/4	M14-MC-MBT4-	44.1	14.2	24.4	7.1	25	24
14	3/8	M14-MC-MBT6-	44.1	14.2	24.4	7.9	25	24
14	1/2	M14-MC-MBT8-	49.0	19.1	24.4	11.1	25	24
14	3/4	M14-MC-MBT12-	50.5	19.1	24.4	11.1	25	27
15	1/2	M15-MC-MBT8-	49.0	19.1	24.4	11.9	25	24
16	1/4	M16-MC-MBT4-	44.1	14.2	24.4	7.1	25	24
16	3/8	M16-MC-MBT6-	44.1	14.2	24.4	9.5	25	24
16	1/2	M16-MC-MBT8-	49.0	19.1	24.4	11.9	25	24
16	3/4	M16-MC-MBT12-	50.5	19.1	24.4	12.7	25	27
18	1/2	M18-MC-MBT8-	50.5	19.1	24.4	11.9	30	27
18	3/4	M18-MC-MBT12-	50.5	19.1	24.4	15.1	30	27
20	1/2	M20-MC-MBT8-	52.3	19.1	26.0	11.9	32	30
20	3/4	M20-MC-MBT12-	52.3	19.1	26.0	15.9	32	30
22	3/4	M22-MC-MBT12-	52.3	19.1	26.0	15.9	32	30
22	1	M22-MC-MBT16-	57.1	23.9	26.0	18.3	32	35
25	1/2	M25-MC-MBT8-	57.5	19.1	31.3	11.9	38	35
25	3/4	M25-MC-MBT12-	57.5	19.1	31.3	15.9	38	35
25	1	M25-MC-MBT16-	62.3	23.9	31.3	21.8	38	35
28	1	M28-MC-MBT16-	72.4	23.9	36.6	21.8	46	41
28	1 1/4	M28-MC-MBT20-	73.1	23.9	36.6	21.8	46	46
30	1 1/4	M30-MC-MBT20-	77.2	23.9	39.6	26.2	50	46
32	1 1/4	M32-MC-MBT20-	79.6	23.9	42.0	28.6	50	46
38	1 1/2	M38-MC-MBT24-	91.6	26.2	49.4	33.7	60	55

Male Connectors

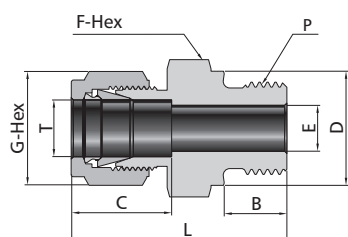


Metric Tube

ISO Parallel Thread (BS)

T-Tube O.D. (mm)	P-BS Size	Basic Ordering Number	Dimension, mm							
			L	B	C	E	G	F	D	
2	1/8	M2-MC-MBS2-	30.0	7.1	12.9	1.7	12	14	13.7	
3	1/8	M3-MC-MBS2-	30.0	7.1	12.9	2.4	12	14	13.7	
3	1/4	M3-MC-MBS4-	35.3	11.2	12.9	2.4	12	19	18.0	
4	1/8	M4-MC-MBS2-	30.7	7.1	13.7	2.4	12	14	13.7	
4	1/4	M4-MC-MBS4-	36.0	11.2	13.7	2.4	12	19	18.0	
6	1/8	M6-MC-MBS2-	32.3	7.1	15.3	4.0	14	14	13.7	
6	1/4	M6-MC-MBS4-	37.6	11.2	15.3	4.8	14	19	18.0	
6	3/8	M6-MC-MBS6-	38.9	11.2	15.3	4.8	14	22	21.6	
6	1/2	M6-MC-MBS8-	44.7	14.2	15.3	4.8	14	27	25.9	
8	1/8	M8-MC-MBS2-	33.2	7.1	16.2	4.0	16	15	14.5	
8	1/4	M8-MC-MBS4-	38.5	11.2	16.2	6.4	16	19	18.0	
8	3/8	M8-MC-MBS6-	39.8	11.2	16.2	6.4	16	22	21.6	
8	1/2	M8-MC-MBS8-	45.6	14.2	16.2	6.4	16	27	25.9	
8	3/4	M8-MC-MBS12-	49.5	15.7	16.2	6.4	16	35	32.0	
10	1/4	M10-MC-MBS4-	39.4	11.2	17.2	5.9	19	19	18.0	
10	3/8	M10-MC-MBS6-	40.6	11.2	17.2	7.9	19	22	21.6	
10	1/2	M10-MC-MBS8-	46.5	14.2	17.2	7.9	19	27	25.9	
12	1/4	M12-MC-MBS4-	42.6	11.2	22.8	5.9	22	22	21.6	
12	3/8	M12-MC-MBS6-	43.1	11.2	22.8	7.9	22	22	21.6	
12	1/2	M12-MC-MBS8-	49.0	14.2	22.8	9.5	22	27	25.9	
12	3/4	M12-MC-MBS12-	52.8	15.7	22.8	9.5	22	35	32.0	
14	1/4	M14-MC-MBS4-	42.9	11.2	24.4	7.1	25	24	18.0	
14	3/8	M14-MC-MBS6-	43.9	11.2	24.4	7.9	25	24	21.6	
14	1/2	M14-MC-MBS8-	49.0	14.2	24.4	11.1	25	27	25.9	
14	3/4	M14-MC-MBS12-	52.8	15.7	24.4	11.1	25	35	32.0	
15	3/8	M15-MC-MBS6-	43.9	11.2	24.4	7.9	25	24	21.6	
15	1/2	M15-MC-MBS8-	49.0	14.2	24.4	11.9	25	27	25.9	
15	3/4	M15-MC-MBS12-	52.8	15.7	24.4	11.9	25	35	32.0	
16	3/8	M16-MC-MBS6-	43.9	11.2	24.4	7.9	25	24	21.6	
16	1/2	M16-MC-MBS8-	49.0	14.2	24.4	11.9	25	27	25.9	
16	3/4	M16-MC-MBS12-	52.8	15.7	24.4	12.7	25	35	32.0	
18	1/2	M18-MC-MBS8-	49.0	14.2	24.4	11.9	30	27	25.9	
18	3/4	M18-MC-MBS12-	52.8	15.7	24.4	15.1	30	35	32.0	
20	1/2	M20-MC-MBS8-	50.5	14.2	26.0	11.9	32	30	25.9	
20	3/4	M20-MC-MBS12-	52.8	15.7	26.0	15.9	32	35	32.0	
22	3/4	M22-MC-MBS12-	52.8	15.7	26.0	15.9	32	35	32.0	
22	1	M22-MC-MBS16-	55.3	18.3	26.0	18.3	32	41	39.1	
25	3/4	M25-MC-MBS12-	57.5	15.7	31.3	15.9	38	35	32.0	
25	1	M25-MC-MBS16-	60.1	18.3	31.3	19.8	38	41	39.1	
28	1	M28-MC-MBS16-	70.1	18.3	36.6	19.8	46	41	39.1	
28	1 1/4	M28-MC-MBS20-	73.9	19.8	36.6	21.8	46	50	49.0	
30	1 1/4	M30-MC-MBS20-	76.5	19.8	39.6	25.0	50	50	49.0	
32	1 1/4	M32-MC-MBS20-	78.9	19.8	42.0	25.0	50	50	49.0	
38	1 1/2	M38-MC-MBS24-	90.8	22.1	49.4	31.8	60	55	54.7	

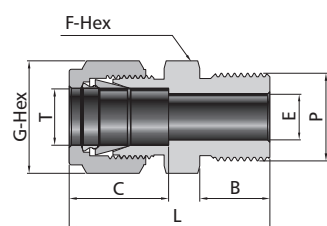
Male Connectors



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	D
3	1/8	M3-MC-PMBP2-	30.0	7.1	12.9	2.4	12	14	13.8
3	1/4	M3-MC-PMBP4-	35.3	11.2	12.9	2.4	12	19	18.0
4	1/8	M4-MC-PMBP2-	30.7	7.1	13.7	2.4	12	14	13.8
6	1/8	M6-MC-PMBP2-	32.3	7.1	15.3	4.0	14	14	13.8
6	1/4	M6-MC-PMBP4-	37.6	11.2	15.3	4.8	14	19	18.0
6	3/8	M6-MC-PMBP6-	38.9	11.2	15.3	4.8	14	22	21.8
6	1/2	M6-MC-PMBP8-	44.7	14.2	15.3	4.8	14	27	26.0
8	1/8	M8-MC-PMBP2-	33.3	7.1	16.2	4.0	16	15	13.8
8	1/4	M8-MC-PMBP4-	38.5	11.2	16.2	5.9	16	19	18.0
8	3/8	M8-MC-PMBP6-	39.8	11.2	16.2	6.4	16	22	21.8
8	1/2	M8-MC-PMBP8-	45.6	14.2	16.2	6.4	16	27	26.0
10	1/4	M10-MC-PMBP4-	39.4	11.2	17.2	5.9	19	19	18.0
10	3/8	M10-MC-PMBP6-	40.6	11.2	17.2	7.9	19	22	21.8
10	1/2	M10-MC-PMBP8-	46.5	14.2	17.2	7.9	19	27	26.0
12	1/4	M12-MC-PMBP4-	42.6	11.2	22.8	5.9	22	22	18.0
12	3/8	M12-MC-PMBP6-	43.1	11.2	22.8	7.9	22	22	21.8
12	1/2	M12-MC-PMBP8-	49.0	14.2	22.8	9.5	22	27	26.0
12	3/4	M12-MC-PMBP12-	52.8	15.7	22.8	9.5	22	35	32.0
15	1/2	M15-MC-PMBP8-	49.0	14.2	24.4	11.9	25	27	26.0
16	3/8	M16-MC-PMBP6-	43.9	11.2	24.4	7.9	25	24	21.8
16	1/2	M16-MC-PMBP8-	49.0	14.2	24.4	11.9	25	27	26.0
18	1/2	M18-MC-PMBP8-	49.0	14.2	24.4	11.9	30	27	26.0
18	3/4	M18-MC-PMBP12-	52.8	15.7	24.4	15.1	30	35	32.0
20	1/2	M20-MC-PMBP8-	50.5	14.2	26.0	11.9	32	30	26.0
20	3/4	M20-MC-PMBP12-	52.8	15.7	26.0	15.9	32	35	32.0
22	3/4	M22-MC-PMBP12-	52.8	15.7	26.0	15.9	32	35	32.0
22	1	M22-MC-PMBP16-	55.3	18.3	26.0	18.3	32	41	39.0
25	3/4	M25-MC-PMBP12-	57.5	15.7	31.3	15.9	38	35	32.0
25	1	M25-MC-PMBP16-	60.1	18.3	31.3	19.8	38	41	39.0
28	1	M28-MC-PMBP16-	70.1	18.3	36.6	19.8	46	41	39.0
28	1 1/4	M28-MC-PMBP20-	73.9	19.8	36.6	21.8	46	50	49.0
30	1 1/4	M30-MC-PMBP20-	76.5	19.8	39.6	26.2	50	50	49.0
32	1 1/4	M32-MC-PMBP20-	78.9	19.8	42.0	28.6	50	50	49.0
38	1 1/2	M38-MC-PMBP24-	89.3	20.6	49.4	31.8	60	55	54.7

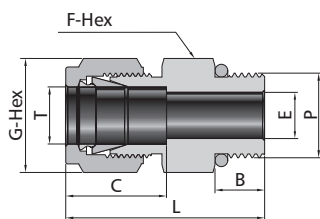


Metric Tube

ISO Parallel Thread (BG)

T-Tube O.D. (mm)	P-BG Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
6	1/4	M6-MC-MBP4-	36.9	12.9	15.3	4.8	14	14
6	3/8	M6-MC-MBP6-	39.5	14.2	15.3	4.8	14	18
8	1/8	M8-MC-MBP2-	33.9	9.8	16.2	4.0	16	14
8	1/4	M8-MC-MBP4-	37.0	12.9	16.2	6.4	16	14
8	3/8	M8-MC-MBP6-	39.3	14.2	16.2	6.4	16	18
8	1/2	M8-MC-MBP8-	45.4	18.8	16.2	6.4	16	22
10	1/4	M10-MC-MBP4-	39.5	12.9	17.2	5.9	19	18
10	1/2	M10-MC-MBP8-	46.3	18.8	17.2	7.9	19	22
12	3/8	M12-MC-MBP6-	44.2	14.2	22.8	7.9	22	22
12	1/2	M12-MC-MBP8-	49.0	18.8	22.8	9.5	22	22
14	1/4	M14-MC-MBP4-	42.9	12.9	24.4	5.9	25	24
16	3/8	M16-MC-MBP6-	43.4	14.2	24.4	7.9	25	24
16	1/2	M16-MC-MBP8-	47.9	18.8	24.4	9.5	25	24
18	1/2	M18-MC-MBP8-	49.8	18.8	24.4	9.5	30	27

Male Connectors

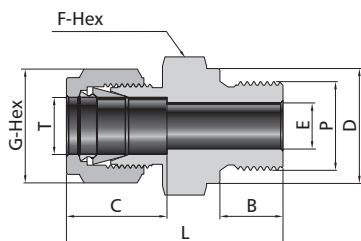


Adapt to straight thread boss of SAE J1926-1, ISO 11926-1 and MS 16142.

Metric Tube

SAE/MS Straight Thread

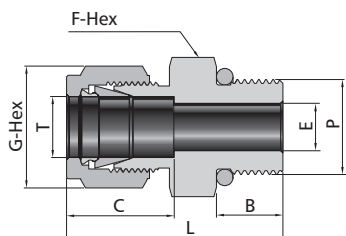
T-Tube O.D. (mm)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
6	9/16-18	M6-MC-OST9-	35.6	9.9	15.3	4.8	14	18
10	9/16-18	M10-MC-OST9-	37.3	9.9	17.2	7.1	19	22
10	3/4-16	M10-MC-OST12-	39.4	11.2	17.2	7.9	19	22
12	7/16-20	M12-MC-OST7-	40.6	9.1	22.8	5.2	22	22
12	9/16-18	M12-MC-OST9-	39.9	9.9	22.8	7.1	22	22



Metric Tube

Metric Thread (BSMS)

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	M6-MC-BSMS8-	33.3	8	15.3	3.0	14	14	12
6	M10 x 1	M6-MC-BSMS10-	36.3	8	15.3	4.0	14	14	14
6	M12 x 1.5	M6-MC-BSMS12-	38.2	12	15.3	4.8	14	18	17
6	M14 x 1.5	M6-MC-BSMS14-	39.7	12	15.3	4.8	14	19	19
8	M8 x 1	M8-MC-BSMS8-	34.1	8	16.2	3.0	16	14	12
8	M10 x 1	M8-MC-BSMS10-	34.1	8	16.2	5.0	16	15	14
8	M12 x 1.5	M8-MC-BSMS12-	40.4	12	16.2	6.0	16	18	17
8	M14 x 1.5	M8-MC-BSMS14-	40.4	12	16.2	6.4	16	19	19
10	M12 x 1.5	M10-MC-BSMS12-	40.7	12	17.2	6.0	19	18	17
10	M14 x 1.5	M10-MC-BSMS14-	41.5	12	17.2	7.9	19	19	19
12	M16 x 1.5	M12-MC-BSMS16-	45.5	12	22.8	9	22	22	21
12	M20 x 1.5	M12-MC-BSMS20-	48.0	14	22.8	9.5	22	25	25
12	M22 x 1.5	M12-MC-BSMS22-	49.5	14	22.8	9.5	22	27	27
14	M14 x 1.5	M14-MC-BSMS14-	44.9	12	24.4	8	25	24	19
14	M20 x 1.5	M14-MC-BSMS20-	48.0	14	24.4	11.1	25	25	25
16	M20 x 1.5	M16-MC-BSMS20-	48.0	14	24.4	12	25	25	25
18	M20 x 1.5	M18-MC-BSMS20-	48.5	14	24.4	12	30	27	25
20	M20 x 1.5	M20-MC-BSMS20-	50.0	14	26.0	12	32	30	25
22	M24 x 1.5	M22-MC-BSMS24-	50.5	14	26.0	15	32	30	29
25	M27 x 2	M25-MC-BSMS27-	57.5	16	31.3	16.8	38	35	32



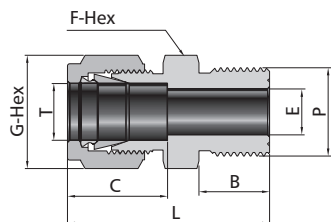
Adapt to straight thread boss of ISO 6149-1.

Metric Tube

Metric Thread (OMS)

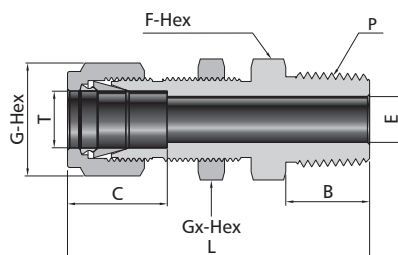
T-Tube O.D. (mm)	P-Metric Thread Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
6	M14 x 1.5	M6-MC-OMS14-	35.2	11	15.3	4.8	14	19
10	M14 x 1.5	M10-MC-OMS14-	36.7	11	17.2	7.5	19	19
10	M20 x 1.5	M10-MC-OMS20-	41.2	14	17.2	7.9	19	27
12	M14 x 1.5	M12-MC-OMS14-	40.2	11	22.8	7.5	22	22
12	M20 x 1.5	M12-MC-OMS20-	44.0	14	22.8	10.4	22	27

Male Connectors



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	M6-MC-MS6-	32.4	8	15.3	2.0	14	14
6	M8 x 1	M6-MC-MS8-	32.4	9	15.3	3.0	14	14
6	M10 x 1	M6-MC-MS10-	35.2	11	15.3	4.7	14	14
6	M12 x 1.5	M6-MC-MS12-	36.4	12	15.3	4.8	14	14
6	M14 x 1.5	M6-MC-MS14-	37.4	13	15.3	4.8	14	16
6	M16 x 1.5	M6-MC-MS16-	38.4	14	15.3	4.8	14	18
6	M18 x 1.5	M6-MC-MS18-	40.0	15	15.3	4.8	14	19
6	M20 x 1.5	M6-MC-MS20-	41.7	16	15.3	4.8	14	22
8	M8 x 1	M8-MC-MS8-	34.5	9	16.2	3.0	16	14
8	M10 x 1	M8-MC-MS10-	35.6	11	16.2	4.7	16	14
8	M12 x 1.5	M8-MC-MS12-	36.6	12	16.2	6.0	16	14
8	M14 x 1.5	M8-MC-MS14-	37.7	13	16.2	6.4	16	16
8	M20 x 1.5	M8-MC-MS20-	42.5	16	16.2	6.4	16	22
10	M12 x 1.5	M10-MC-MS12-	38.7	12	17.2	6.0	19	18
10	M14 x 1.5	M10-MC-MS14-	39.7	13	17.2	7.2	19	18
10	M20 x 1.5	M10-MC-MS20-	43.5	16	17.2	7.9	19	22
12	M12 x 1.5	M12-MC-MS12-	41.2	12	22.8	6.0	22	22
12	M16 x 1.5	M12-MC-MS16-	43.2	14	22.8	9.5	22	22
12	M18 x 1.5	M12-MC-MS18-	44.2	15	22.8	9.5	22	22
12	M20 x 1.5	M12-MC-MS20-	45.2	16	22.8	9.5	22	22
14	M14 x 1.5	M14-MC-MS14-	42.5	13	24.4	7.2	25	24
14	M16 x 1.5	M14-MC-MS16-	43.9	14	24.4	8.4	25	24
14	M20 x 1.5	M14-MC-MS20-	45.1	16	24.4	10.8	25	24
16	M20 x 1.5	M16-MC-MS20-	46.1	16	24.4	10.8	25	24
18	M20 x 1.5	M18-MC-MS20-	47.5	16	24.4	10.8	30	27
18	M22 x 1.5	M18-MC-MS22-	48.5	17	24.4	12	30	27
20	M20 x 1.5	M20-MC-MS20-	49.5	16	26.0	10.8	32	30
22	M24 x 1.5	M22-MC-MS24-	50.5	17	26.0	14.4	32	30
25	M27 x 2	M22-MC-MS27-	57.0	18	31.3	16.1	38	35

Bulkhead Male Connectors



Fractional Tube

NPT Thread

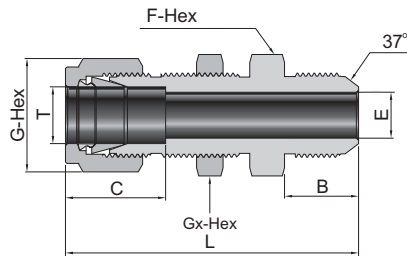
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm							Panel Hole Size (mm)	Max. Panel Thickness (mm)
			L	B	C	E	G	F	Gx		
1/16	1/16	F1-BMC-NPT1-	30.2	9.7	8.6	1.3	7.9	7.9	7.9	5.2	6.4
1/16	1/8	F1-BMC-NPT2-	32.3	9.7	8.6	1.3	7.9	11.1	7.9	5.2	6.4
1/8	1/8	F2-BMC-NPT2-	46.5	9.7	12.7	2.3	11.1	12.7	12.7	8.3	12.7
3/16	1/8	F3-BMC-NPT2-	48.0	9.7	13.7	3.0	12.7	14.3	14.3	9.9	12.7
1/4	1/8	F4-BMC-NPT2-	49.5	9.7	15.2	4.8	14.3	15.9	15.9	11.5	10.2
1/4	1/4	F4-BMC-NPT4-	54.1	14.2	15.2	4.8	14.3	15.9	15.9	11.5	10.2
1/4	3/8	F4-BMC-NPT6-	54.9	14.2	15.2	4.8	14.3	17.5	15.9	11.5	10.2
1/4	1/2	F4-BMC-NPT8-	60.3	19.1	15.2	4.8	14.3	22.2	15.9	11.5	10.2
5/16	1/8	F5-BMC-NPT2-	52.8	9.7	16.3	4.8	15.9	17.5	17.5	13.1	11.2
5/16	1/4	F5-BMC-NPT4-	57.7	14.2	16.3	6.4	15.9	17.5	17.5	13.1	11.2
3/8	1/8	F6-BMC-NPT2-	52.9	9.7	16.8	4.8	17.5	19.1	19.1	14.7	11.2
3/8	1/4	F6-BMC-NPT4-	57.4	14.2	16.8	7.1	17.5	19.1	19.1	14.7	11.2
3/8	3/8	F6-BMC-NPT6-	57.4	14.2	16.8	7.1	17.5	19.1	19.1	14.7	11.2
3/8	1/2	F6-BMC-NPT8-	63.8	19.1	16.8	7.1	17.5	22.2	19.1	14.7	11.2
1/2	1/8	F8-BMC-NPT2-	58.7	9.7	22.9	4.8	22.2	23.8	23.8	19.4	12.7
1/2	1/4	F8-BMC-NPT4-	63.2	14.2	22.9	7.1	22.2	23.8	23.8	19.4	12.7
1/2	3/8	F8-BMC-NPT6-	63.2	14.2	22.9	9.7	22.2	23.8	23.8	19.4	12.7
1/2	1/2	F8-BMC-NPT8-	68.8	19.1	22.9	10.4	22.2	23.8	23.8	19.4	12.7
5/8	3/8	F10-BMC-NPT6-	66.7	14.2	24.4	9.7	25.4	27.0	27.0	22.6	15.1
5/8	1/2	F10-BMC-NPT8-	71.5	19.1	24.4	11.9	25.4	27.0	27.0	22.6	15.1
3/4	1/2	F12-BMC-NPT8-	76.2	19.1	24.4	11.9	28.6	30.2	30.2	25.8	16.8
3/4	3/4	F12-BMC-NPT12-	76.2	19.1	24.4	15.7	28.6	30.2	30.2	25.8	16.8
7/8	3/4	F14-BMC-NPT12-	84.1	19.1	25.9	15.7	31.8	33.3	33.3	29.0	19.1
1	3/4	F16-BMC-NPT12-	88.4	19.1	31.2	15.7	38.1	41.3	41.3	33.7	19.1
1	1	F16-BMC-NPT16-	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	M6-BMC-NPT2-	49.6	9.7	15.3	4.8	14	16	16	11.5	10.2
6	1/4	M6-BMC-NPT4-	53.6	14.2	15.3	4.8	14	16	16	11.5	10.2
8	1/8	M8-BMC-NPT2-	52.3	9.7	16.2	4.8	16	18	18	13.1	11.2
8	1/4	M8-BMC-NPT4-	57.5	14.2	16.2	6.4	16	18	18	13.1	11.2
10	1/4	M10-BMC-NPT4-	58.4	14.2	17.2	7.9	19	22	22	16.3	11.2
10	3/8	M10-BMC-NPT6-	58.4	14.2	17.2	7.9	19	22	22	16.3	11.2
10	1/2	M10-BMC-NPT8-	63.1	19.1	17.2	7.9	19	22	22	16.3	11.2
12	1/4	M12-BMC-NPT4-	63.9	14.2	22.8	7.9	22	24	24	19.5	12.7
12	3/8	M12-BMC-NPT6-	63.9	14.2	22.8	9.5	22	24	24	19.5	12.7
12	1/2	M12-BMC-NPT8-	68.8	19.1	22.8	9.5	22	24	24	19.5	12.7

Bulkhead Male Connectors

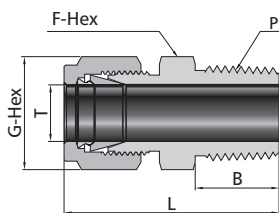


Fractional Tube

37° Flare (AN)

T-Tube O.D. (in.)	AN Tube Flare Size	Basic Ordering Number	Dimension, in. (mm)							Panel Hole Size in. (mm)	Max. Panel Thickness in. (mm)
			L	B	C	E	G	F	Gx		
1/8	1/8	F2-BMC-AN2-	1.91(48.5)	0.45(11.4)	0.50(12.7)	0.06(1.5)	0.44(11.1)	0.50(12.7)	0.50(12.7)	0.33(8.3)	0.50(12.7)
1/8	1/4	F2-BMC-AN4-	2.04(51.8)	0.55(14.0)	0.50(12.7)	0.09(2.3)	0.44(11.1)	0.63(15.9)	0.50(12.7)	0.33(8.3)	0.51(12.7)
3/16	3/16	F3-BMC-AN3-	1.98(50.3)	0.48(12.2)	0.54(13.7)	0.09(2.3)	0.50(12.7)	0.56(14.3)	0.56(14.3)	0.39(9.9)	0.50(12.7)
1/4	1/4	F4-BMC-AN4-	2.12(53.8)	0.55(14.0)	0.60(15.2)	0.17(4.3)	0.56(14.3)	0.63(15.9)	0.63(15.9)	0.45(11.5)	0.40(10.2)
5/16	5/16	F5-BMC-AN5-	2.21(56.1)	0.55(14.0)	0.64(16.2)	0.23(5.8)	0.63(15.9)	0.69(17.5)	0.69(17.5)	0.52(13.1)	0.56(14.3)
3/8	1/4	F6-BMC-AN4-	2.25(57.2)	0.55(14.0)	0.66(16.8)	0.17(4.3)	0.69(17.5)	0.75(19.1)	0.75(19.1)	0.58(14.7)	0.44(11.2)
3/8	3/8	F6-BMC-AN6-	2.25(57.2)	0.56(14.2)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.75(19.1)	0.75(19.1)	0.58(14.7)	0.44(11.2)
1/2	1/2	F8-BMC-AN8-	2.59(65.8)	0.66(16.8)	0.90(22.8)	0.39(9.9)	0.87(22.2)	0.94(23.8)	0.94(23.8)	0.76(19.4)	0.50(12.7)
5/8	5/8	F10-BMC-AN10-	2.74(69.6)	0.76(19.3)	0.96(24.4)	0.48(12.3)	1.00(25.4)	1.06(27.0)	1.06(27.0)	0.89(22.6)	0.59(15.1)
3/4	3/4	F12-BMC-AN12-	3.11(79.0)	0.86(21.8)	0.96(24.4)	0.61(15.5)	1.13(28.6)	1.19(30.2)	1.19(30.2)	1.02(25.8)	0.66(16.8)
1	1	F16-BMC-AN16-	3.64(92.5)	0.91(23.1)	1.23(31.2)	0.84(21.3)	1.50(38.1)	1.63(41.3)	1.63(41.3)	1.33(33.7)	0.75(19.1)

Thermocouple Connectors

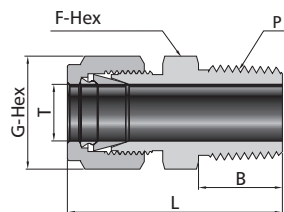


Fractional Tube

NPT Thread

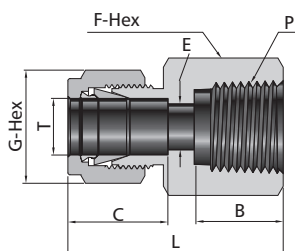
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm			
			L	B	G	F
1/16	1/16	F1-TC-NPT1-	23.9	9.7	7.9	7.9
1/16	1/8	F1-TC-NPT2-	26.2	9.7	7.9	11.1
1/16	1/4	F1-TC-NPT4-	31.0	14.2	7.9	14.3
1/8	1/16	F2-TC-NPT1-	29.7	9.7	11.1	11.1
1/8	1/8	F2-TC-NPT2-	30.5	9.7	11.1	11.1
1/8	1/4	F2-TC-NPT4-	35.6	14.2	11.1	14.3
3/16	1/8	F3-TC-NPT2-	31.2	9.7	12.7	11.1
3/16	1/4	F3-TC-NPT4-	36.3	14.2	12.7	14.3
1/4	1/8	F4-TC-NPT2-	32.8	9.7	14.3	12.7
1/4	1/4	F4-TC-NPT4-	37.8	14.2	14.3	14.3
1/4	3/8	F4-TC-NPT6-	38.4	14.2	14.3	17.5
1/4	1/2	F4-TC-NPT8-	44.7	19.1	14.3	22.2
5/16	1/4	F5-TC-NPT4-	38.6	14.2	15.9	14.3
3/8	1/4	F6-TC-NPT4-	39.9	14.2	17.5	15.9
3/8	3/8	F6-TC-NPT6-	39.9	14.2	17.5	17.5
3/8	1/2	F6-TC-NPT8-	46.2	19.1	17.5	22.2
3/8	3/4	F6-TC-NPT12-	47.8	19.1	17.5	27.0
1/2	1/2	F8-TC-NPT8-	49.0	19.1	22.2	22.2
1/2	3/4	F8-TC-NPT12-	50.5	19.1	22.2	27.0
5/8	3/4	F10-TC-NPT12-	50.5	19.1	25.4	27.0
3/4	3/4	F12-TC-NPT12-	50.5	19.1	28.6	27.0
1	1	F16-TC-NPT16-	62.2	23.9	38.1	34.9

Thermocouple Connectors



Metric Tube			NPT Thread			
T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm			
			L	B	G	F
2	1/8	M2-TC-NPT2-	30.5	9.7	12	12
3	1/8	M3-TC-NPT2-	30.5	9.7	12	12
3	1/4	M3-TC-NPT4-	35.6	14.2	12	14
4	1/8	M4-TC-NPT2-	31.2	9.7	12	12
4	1/4	M4-TC-NPT4-	36.3	14.2	12	14
6	1/8	M6-TC-NPT2-	32.8	9.7	14	14
6	1/4	M6-TC-NPT4-	37.9	14.2	14	14
6	3/8	M6-TC-NPT6-	38.4	14.2	14	18
6	1/2	M6-TC-NPT8-	44.7	19.1	14	22
8	1/4	M8-TC-NPT4-	38.7	14.2	16	15
8	3/8	M8-TC-NPT6-	39.3	14.2	16	18
8	1/2	M8-TC-NPT8-	45.6	19.1	16	22
10	3/8	M10-TC-NPT6-	40.9	14.2	19	18
10	1/2	M10-TC-NPT8-	46.5	19.1	19	22
10	3/4	M10-TC-NPT12-	48.0	19.1	19	27
10	1	M10-TC-NPT16-	54.6	23.9	19	35
12	3/8	M12-TC-NPT6-	43.4	14.2	22	22
12	1/2	M12-TC-NPT8-	49.0	19.1	22	22
12	3/4	M12-TC-NPT12-	50.5	19.1	22	27
14	1/2	M14-TC-NPT8-	49.0	19.1	25	24
14	3/4	M14-TC-NPT12-	50.5	19.1	25	27
15	1/2	M15-TC-NPT8-	49.0	19.1	25	24
15	3/4	M15-TC-NPT12-	50.5	19.1	25	27
15	1	M15-TC-NPT16-	57.1	23.9	25	35
16	3/4	M16-TC-NPT12-	50.5	19.1	25	27
18	3/4	M18-TC-NPT12-	50.5	19.1	30	27
20	1	M20-TC-NPT16-	57.1	23.9	32	35
22	1	M22-TC-NPT16-	57.1	23.9	32	35
25	1	M25-TC-NPT16-	62.3	23.9	38	35

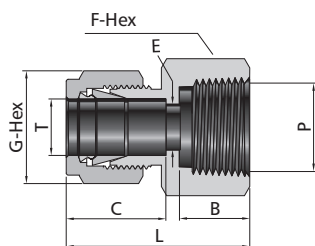
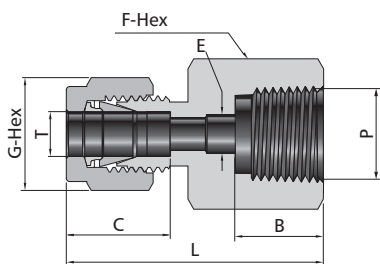
Female Connectors



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	F1-FC-FNPT1-	23.6	9.9	8.6	1.3	7.9	11.1	
1/16	1/8	F1-FC-FNPT2-	24.4	10.4	8.6	1.3	7.9	14.3	
1/8	1/8	F2-FC-FNPT2-	28.7	10.4	12.7	2.3	11.1	14.3	
1/8	1/4	F2-FC-FNPT4-	33.5	15.0	12.7	2.3	11.1	19.1	
3/16	1/8	F3-FC-FNPT2-	29.7	10.4	13.7	3.0	12.7	14.3	
1/4	1/8	F4-FC-FNPT2-	31.2	10.4	15.2	4.8	14.3	14.3	
1/4	1/4	F4-FC-FNPT4-	35.8	15.0	15.2	4.8	14.3	19.1	
1/4	3/8	F4-FC-FNPT6-	37.6	15.0	15.2	4.8	14.3	22.2	
1/4	1/2	F4-FC-FNPT8-	42.4	19.8	15.2	4.8	14.3	27.0	
5/16	1/8	F5-FC-FNPT2-	32.0	10.4	16.3	6.4	15.9	14.3	
5/16	1/4	F5-FC-FNPT4-	36.8	15.0	16.3	6.4	15.9	19.1	
3/8	1/8	F6-FC-FNPT2-	32.8	10.4	16.8	7.1	17.5	15.9	
3/8	1/4	F6-FC-FNPT4-	37.6	15.0	16.8	7.1	17.5	19.1	
3/8	3/8	F6-FC-FNPT6-	39.1	15.0	16.8	7.1	17.5	22.2	
3/8	1/2	F6-FC-FNPT8-	43.9	19.8	16.8	7.1	17.5	27.0	
3/8	3/4	F6-FC-FNPT12-	47.8	20.6	16.8	7.1	17.5	33.3	
1/2	1/4	F8-FC-FNPT4-	40.4	15.0	22.9	10.4	22.2	20.6	
1/2	3/8	F8-FC-FNPT6-	41.9	15.0	22.9	10.4	22.2	22.2	
1/2	1/2	F8-FC-FNPT8-	46.7	19.8	22.9	10.4	22.2	27.0	
1/2	3/4	F8-FC-FNPT12-	48.3	20.6	22.9	10.4	22.2	33.3	
5/8	3/8	F10-FC-FNPT6-	41.9	15.0	24.4	12.7	25.4	23.8	
5/8	1/2	F10-FC-FNPT8-	46.7	19.8	24.4	12.7	25.4	27.0	
3/4	1/2	F12-FC-FNPT8-	46.7	19.8	24.4	15.7	28.6	27.0	
3/4	3/4	F12-FC-FNPT12-	48.3	20.6	24.4	15.7	28.6	33.3	
7/8	3/4	F14-FC-FNPT12-	49.8	20.6	25.9	18.3	31.8	33.3	
1	3/4	F16-FC-FNPT12-	53.3	20.6	31.2	22.4	38.1	34.9	
1	1	F16-FC-FNPT16-	62.2	25.4	31.2	22.4	38.1	41.3	
1 1/4	1 1/4	F20-FC-FNPT20-	74.7	25.4	41.1	27.7	47.6	54.0	
1 1/2	1 1/2	F24-FC-FNPT24-	83.3	27.7	50.0	36.3	57.2	60.3	

Fractional Tube			ISO Tapered Thread (BSPT)						
T-Tube O.D. (in.)	P-BSPT Size	Basic Ordering Number	Dimension, mm						
			L	B	C	E	G	F	
1/4	1/8	F4-FC-FBT2-	31.2	10.4	15.2	4.8	14.3	14.3	
1/4	1/4	F4-FC-FBT4-	35.8	15.0	15.2	4.8	14.3	19.1	
1/4	3/8	F4-FC-FBT6-	37.6	15.0	15.2	4.8	14.3	22.2	
1/4	1/2	F4-FC-FBT8-	42.4	19.8	15.2	4.8	14.3	27.0	
3/8	1/4	F6-FC-FBT4-	37.6	15.0	16.8	7.1	17.5	19.1	
3/8	3/8	F6-FC-FBT6-	39.1	15.0	16.8	7.1	17.5	22.2	
3/8	1/2	F6-FC-FBT8-	43.9	19.8	16.8	7.1	17.5	27.0	
1/2	1/4	F8-FC-FBT4-	40.4	15.0	22.9	10.4	22.2	20.6	
1/2	3/8	F8-FC-FBT6-	41.9	15.0	22.9	10.4	22.2	22.2	
1/2	1/2	F8-FC-FBT8-	46.7	19.8	22.9	10.4	22.2	27.0	

Female Connectors



Fractional Tube

ISO Parallel Thread (BG)

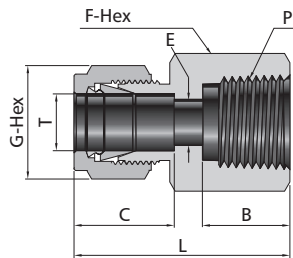
T-Tube O.D. (in.)	P-BG Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/8	1/4	F2-FC-FBP4-	35.3	12.9	12.7	2.3	11.1	19.1
1/8	3/8	F2-FC-FBP6-	38.7	14.2	12.7	2.3	11.1	23.8
1/4	1/4	F4-FC-FBP4-	37.6	12.9	15.2	4.8	14.3	19.1
1/4	3/8	F4-FC-FBP6-	37.6	14.2	15.2	4.8	14.3	23.8
1/4	1/2	F4-FC-FBP8-	43.4	18.8	15.2	4.8	14.3	27.0
5/16	1/4	F5-FC-FBP4-	38.4	12.9	16.3	5.6	15.9	19.1
5/16	3/8	F5-FC-FBP6-	39.2	14.2	16.3	6.4	15.9	23.8
5/16	1/2	F5-FC-FBP8-	40.9	18.8	16.3	7.1	15.9	27.0
3/8	1/4	F6-FC-FBP4-	39.1	12.9	16.8	5.6	17.5	19.1
3/8	3/8	F6-FC-FBP6-	38.6	14.2	16.8	6.4	17.5	23.8
3/8	1/2	F6-FC-FBP8-	41.9	18.8	16.8	7.1	17.5	27.0
1/2	1/4	F8-FC-FBP4-	41.9	12.9	22.9	5.6	22.2	22.2
1/2	3/8	F8-FC-FBP6-	44.5	14.2	22.9	6.4	22.2	23.8
1/2	1/2	F8-FC-FBP8-	48.3	18.8	22.9	7.1	22.2	27.0

Fractional Tube

Metric Thread

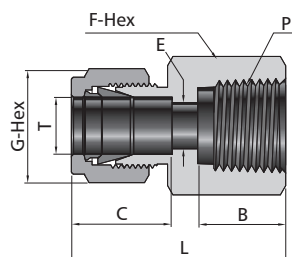
T-Tube O.D. (in.)	P-Metric Thread Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/8	M14 x 1.5	F2-FC-FMS14-	32.3	13	12.7	2.3	11.1	19.1
1/8	M16 x 1.5	F2-FC-FMS16-	33.3	14	12.7	2.3	11.1	22.2
1/8	M18 x 1.5	F2-FC-FMS18-	34.3	15	12.7	2.3	11.1	25.4
1/8	M20 x 1.5	F2-FC-FMS20-	35.3	16	12.7	2.3	11.1	27.0
1/4	M16 x 1.5	F4-FC-FMS16-	35.8	14	15.2	4.8	14.3	22.2
1/4	M18 x 1.5	F4-FC-FMS18-	36.8	15	15.2	4.8	14.3	25.4
1/4	M20 x 1.5	F4-FC-FMS20-	37.8	16	15.2	4.8	14.3	27.0
3/8	M14 x 1.5	F6-FC-FMS14-	37.1	13	16.8	7.1	17.5	19.1
3/8	M16 x 1.5	F6-FC-FMS16-	37.5	14	16.8	7.1	17.5	22.2
3/8	M18 x 1.5	F6-FC-FMS18-	38.5	15	16.8	7.1	17.5	25.4
3/8	M20 x 1.5	F6-FC-FMS20-	39.5	16	16.8	7.1	17.5	27.0
1/2	M16 x 1.5	F8-FC-FMS16-	41.4	14	22.9	8.4	22.2	22.2
1/2	M18 x 1.5	F8-FC-FMS18-	42.4	15	22.9	9.6	22.2	25.4
1/2	M20 x 1.5	F8-FC-FMS20-	43.4	16	22.9	10.4	22.2	27.0
1/2	M22 x 1.5	F8-FC-FMS22-	44.4	17	22.9	10.4	22.2	27.0

Female Connectors



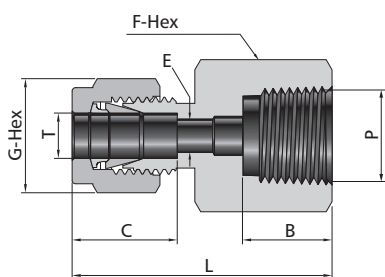
Metric Tube			NPT Thread						
T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	B	C	E	G	F	
3	1/8	M3-FC-FNPT2-	28.7	10.4	12.9	2.4	12	14	
3	1/4	M3-FC-FNPT4-	33.5	15.0	12.9	2.4	12	19	
4	1/8	M4-FC-FNPT2-	29.7	10.4	13.7	2.4	12	14	
6	1/8	M6-FC-FNPT2-	31.3	10.4	15.3	4.8	14	14	
6	1/4	M6-FC-FNPT4-	35.8	15.0	15.3	4.8	14	19	
6	3/8	M6-FC-FNPT6-	37.7	15.0	15.3	4.8	14	22	
6	1/2	M6-FC-FNPT8-	42.5	19.8	15.3	4.8	14	27	
8	1/8	M8-FC-FNPT2-	32.1	10.4	16.2	4.8	16	15	
8	1/4	M8-FC-FNPT4-	37.0	15.0	16.2	6.4	16	19	
8	3/8	M8-FC-FNPT6-	38.5	15.0	16.2	6.4	16	22	
8	1/2	M8-FC-FNPT8-	43.3	19.8	16.2	6.4	16	27	
10	1/8	M10-FC-FNPT2-	33.0	10.4	17.2	4.8	19	15	
10	1/4	M10-FC-FNPT4-	37.8	15.0	17.2	7.9	19	19	
10	3/8	M10-FC-FNPT6-	39.4	15.0	17.2	7.9	19	22	
10	1/2	M10-FC-FNPT8-	44.2	19.8	17.2	7.9	19	27	
12	1/4	M12-FC-FNPT4-	40.3	15.0	22.8	7.9	22	22	
12	3/8	M12-FC-FNPT6-	41.9	15.0	22.8	9.5	22	22	
12	1/2	M12-FC-FNPT8-	46.7	19.8	22.8	9.5	22	27	
12	3/4	M12-FC-FNPT12-	49.7	20.6	22.8	9.5	22	35	
14	3/4	M14-FC-FNPT12-	49.7	20.6	24.4	11.1	25	35	
15	1/2	M15-FC-FNPT8-	46.7	19.8	24.4	11.9	25	27	
16	3/8	M16-FC-FNPT6-	41.9	15.0	24.4	9.5	25	27	
16	1/2	M16-FC-FNPT8-	46.9	19.8	24.4	11.9	25	27	
20	1/2	M20-FC-FNPT8-	47.9	19.8	26.0	11.9	32	30	
20	3/4	M20-FC-FNPT12-	49.7	20.6	26.0	15.9	32	35	
22	3/4	M22-FC-FNPT12-	49.7	20.6	26.0	15.9	32	35	
22	1	M22-FC-FNPT16-	57.9	25.4	26.0	18.3	32	41	
25	3/4	M25-FC-FNPT12-	53.4	20.6	31.3	15.9	38	35	
25	1	M25-FC-FNPT16-	62.3	25.4	31.3	21.8	38	41	

Female Connectors



Metric Tube			ISO Tapered Thread (BSPT)					
T-Tube O.D. (mm)	P-BSPT Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
3	1/8	M3-FC-FBT2-	28.7	10.4	12.9	2.4	12	14
6	1/8	M6-FC-FBT2-	31.3	10.4	15.3	4.8	14	14
6	1/4	M6-FC-FBT4-	35.8	15.0	15.3	4.8	14	19
6	3/8	M6-FC-FBT6-	36.9	15.0	15.3	4.8	14	22
6	1/2	M6-FC-FBT8-	42.5	19.8	15.3	4.8	14	27
8	1/8	M8-FC-FBT2-	32.1	10.4	16.2	6.4	16	15
8	1/4	M8-FC-FBT4-	37.0	15.0	16.2	6.4	16	19
8	3/8	M8-FC-FBT6-	38.5	15.0	16.2	6.4	16	22
8	1/2	M8-FC-FBT8-	43.3	19.8	16.2	6.4	16	27
10	1/8	M10-FC-FBT2-	33.0	10.4	17.2	7.9	19	18
10	1/4	M10-FC-FBT4-	37.8	15.0	17.2	7.9	19	19
10	3/8	M10-FC-FBT6-	39.4	15.0	17.2	7.9	19	22
10	1/2	M10-FC-FBT8-	44.2	19.8	17.2	7.9	19	27
12	1/8	M12-FC-FBT2-	35.5	10.4	22.8	8.3	22	22
12	1/4	M12-FC-FBT4-	40.3	15.0	22.8	9.5	22	22
12	3/8	M12-FC-FBT6-	41.9	15.0	22.8	9.5	22	22
12	1/2	M12-FC-FBT8-	46.7	19.8	22.8	9.5	22	27
12	3/4	M12-FC-FBT12-	49.0	20.6	22.8	9.5	22	35
15	1/2	M15-FC-FBT8-	46.7	19.8	24.4	11.9	25	27
16	1/2	M16-FC-FBT8-	48.4	19.8	24.4	11.9	25	27
16	3/4	M16-FC-FBT12-	49.7	20.6	24.4	12.7	25	35
20	1/2	M20-FC-FBT8-	47.9	19.8	26.0	11.9	32	30
20	3/4	M20-FC-FBT12-	49.7	20.6	26.0	15.9	32	35
22	3/4	M22-FC-FBT12-	49.7	20.6	26.0	15.9	32	35
22	1	M22-FC-FBT16-	57.9	25.4	26.0	18.3	32	41
25	3/4	M25-FC-FBT12-	53.4	20.6	31.3	15.9	38	35
25	1	M25-FC-FBT16-	62.3	25.4	31.3	21.8	38	41

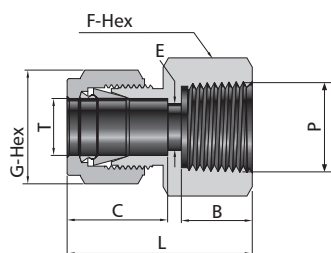
Female Connectors



Metric Tube

ISO Parallel Thread (BG)

T-Tube O.D. (mm)	P-BG Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
3	1/4	M3-FC-FBP4-	35.3	12.9	12.9	2.4	12	19
6	1/4	M6-FC-FBP4-	37.6	12.9	15.3	4.8	14	19
6	3/8	M6-FC-FBP6-	37.6	14.2	15.3	4.8	14	24
6	1/2	M6-FC-FBP8-	43.5	18.8	15.3	4.8	14	27
8	1/4	M8-FC-FBP4-	38.5	12.9	16.2	6.4	16	19
8	3/8	M8-FC-FBP6-	36.2	14.2	16.2	6.4	16	24
8	1/2	M8-FC-FBP8-	41.0	18.8	16.2	6.4	16	27
10	1/4	M10-FC-FBP4-	39.4	12.9	17.2	5.9	19	19
10	3/8	M10-FC-FBP6-	38.8	14.2	17.2	7.9	19	24
10	1/2	M10-FC-FBP8-	42.1	18.8	17.2	7.9	19	27
12	1/4	M12-FC-FBP4-	41.9	12.9	22.8	5.9	22	22
12	3/8	M12-FC-FBP6-	44.4	14.2	22.8	7.9	22	24
12	1/2	M12-FC-FBP8-	48.2	18.8	22.8	9.5	22	27
20	1/2	M20-FC-FBP8-	54.3	18.8	26.0	11.9	32	30
22	1/2	M22-FC-FBP8-	54.3	18.8	26.0	11.9	32	30

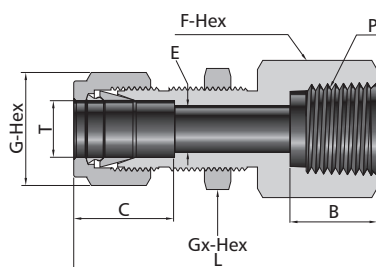


Metric Tube

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	M6-FC-FMS10-	32.7	11	15.3	4.0	14	16
6	M14 x 1.5	M6-FC-FMS14-	34.7	13	15.3	4.8	14	19
6	M20 x 1.5	M6-FC-FMS20-	37.7	16	15.3	4.8	14	27
8	M8 x 1	M8-FC-FMS8-	31.6	9	16.2	3.2	16	14
8	M10 x 1	M8-FC-FMS10-	33.6	11	16.2	4.0	16	16
8	M14 x 1.5	M8-FC-FMS14-	35.6	13	16.2	6.0	16	19
8	M20 x 1.5	M8-FC-FMS20-	38.6	16	16.2	6.4	16	27
10	M16 x 1.5	M10-FC-FMS16-	38.1	14	17.2	7.9	19	22
12	M20 x 1.5	M12-FC-FMS20-	44.9	16	22.8	9.5	22	27
14	M10 x 1	M14-FC-FMS10-	42.5	11	24.4	4.0	25	24
14	M20 x 1.5	M14-FC-FMS20-	44.9	16	24.4	10.8	25	27
14	M22 x 1.5	M14-FC-FMS22-	45.9	17	24.4	11.1	25	27
16	M20 x 1.5	M16-FC-FMS20-	44.9	16	24.4	10.8	26	27
20	M20 x 1.5	M20-FC-FMS20-	46.5	16	26.0	10.8	32	30
25	M27 x 2	M25-FC-FMS27-	54.4	18	31.3	16.1	38	35

Bulkhead Female Connectors



Fractional Tube

NPT Thread

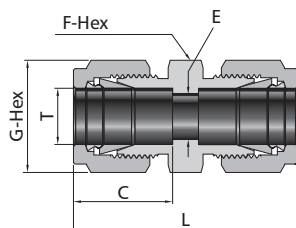
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm							Panel Hole Size (mm)	Max. Panel Thickness (mm)
			L	B	C	E	G	F	Gx		
1/16	1/16	F1-BFC-FNPT1-	26.2	9.9	8.6	1.3	7.9	11.1	7.9	5.2	3.2
1/16	1/8	F1-BFC-FNPT2-	26.9	10.4	8.6	1.3	7.9	14.3	7.9	5.2	3.2
1/8	1/8	F2-BFC-FNPT2-	44.7	10.4	12.7	2.3	11.1	14.3	12.7	8.3	12.7
1/8	1/4	F2-BFC-FNPT4-	49.6	15.0	12.7	2.3	11.1	19.1	12.7	8.3	12.7
3/16	1/8	F3-BFC-FNPT2-	45.5	10.4	13.7	3.0	12.7	14.3	14.3	9.9	12.7
1/4	1/8	F4-BFC-FNPT2-	47.0	10.4	15.2	4.8	14.3	15.9	15.9	11.5	10.2
1/4	1/4	F4-BFC-FNPT4-	51.8	15.0	15.2	4.8	14.3	19.1	15.9	11.5	10.2
1/4	3/8	F4-BFC-FNPT6-	53.3	15.0	15.2	4.8	14.3	22.2	15.9	11.5	10.2
1/4	1/2	F4-BFC-FNPT8-	58.2	19.8	15.2	4.8	14.3	27.0	15.9	11.5	10.2
5/16	1/8	F5-BFC-FNPT2-	49.8	10.4	16.3	6.4	15.9	14.3	17.5	13.1	11.2
5/16	1/4	F5-BFC-FNPT4-	60.5	15.0	16.3	6.4	15.9	19.1	17.5	13.1	11.2
3/8	1/8	F6-BFC-FNPT2-	50.3	10.4	16.8	7.1	17.5	15.9	19.1	14.5	11.2
3/8	1/4	F6-BFC-FNPT4-	55.1	15.0	16.8	7.1	17.5	19.1	19.1	14.5	11.2
3/8	3/8	F6-BFC-FNPT6-	56.6	15.0	16.8	7.1	17.5	22.2	19.1	14.5	11.2
3/8	1/2	F6-BFC-FNPT8-	61.5	19.8	16.8	7.1	17.5	27.0	19.1	14.5	11.2
3/8	3/4	F6-BFC-FNPT12-	65.3	20.6	16.8	7.1	17.5	33.3	19.1	14.5	11.2
1/2	1/4	F8-BFC-FNPT4-	60.2	15.0	22.9	10.4	22.2	23.8	23.8	19.4	12.7
1/2	3/8	F8-BFC-FNPT6-	61.7	15.0	22.9	10.4	22.2	23.8	23.8	19.4	12.7
1/2	1/2	F8-BFC-FNPT8-	66.5	19.8	22.9	10.4	22.2	27.0	23.8	19.4	12.7
1/2	3/4	F8-BFC-FNPT12-	68.1	20.6	22.9	10.4	22.2	33.3	23.8	19.4	12.7
5/8	3/8	F10-BFC-FNPT6-	62.5	15.0	24.4	12.7	25.4	23.8	27.0	22.6	15.1
5/8	1/2	F10-BFC-FNPT8-	67.3	19.8	24.4	12.7	25.4	27.0	27.0	22.6	15.1
3/4	1/2	F12-BFC-FNPT8-	72.2	19.8	24.4	15.7	28.6	27.0	30.2	25.8	19.8
3/4	3/4	F12-BFC-FNPT12-	73.7	20.6	24.4	15.7	28.6	33.3	30.2	25.8	19.8
7/8	3/4	F14-BFC-FNPT12-	80.8	20.6	25.9	18.3	31.8	33.3	33.3	29.0	23.8
1	3/4	F16-BFC-FNPT12-	84.7	20.6	31.2	22.4	38.1	41.3	41.3	33.7	23.8
1	1	F16-BFC-FNPT16-	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	M6-BFC-FNPT2-	47.2	10.4	15.3	4.8	14	16	16	11.5	10.2
6	1/4	M6-BFC-FNPT4-	51.8	15.0	15.3	4.8	14	19	16	11.5	10.2
8	1/8	M8-BFC-FNPT2-	49.6	10.4	16.2	4.8	16	18	18	13.1	11.2
10	1/4	M10-BFC-FNPT4-	55.2	15.0	17.2	7.9	19	22	22	16.3	11.2
12	3/8	M12-BFC-FNPT6-	60.9	15.0	22.8	9.5	22	24	24	19.5	12.7
12	1/2	M12-BFC-FNPT8-	66.5	19.8	22.8	9.5	22	27	24	19.5	12.7

Unions



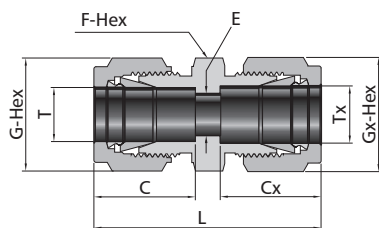
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
1/16	F1-U-F1-	25.1	8.6	7.9	11.1	1.3
1/8	F2-U-F2-	35.6	12.7	11.1	11.1	2.3
3/16	F3-U-F3-	37.3	13.7	12.7	12.7	3.0
1/4	F4-U-F4-	40.9	15.2	14.3	12.7	4.8
5/16	F5-U-F5-	42.9	16.2	15.9	14.3	6.4
3/8	F6-U-F6-	45.0	16.8	17.5	15.9	7.1
1/2	F8-U-F8-	51.3	22.9	22.2	20.6	10.4
5/8	F10-U-F10-	52.1	24.4	25.4	23.9	12.7
3/4	F12-U-F12-	53.6	24.4	28.6	27.0	15.7
7/8	F14-U-F14-	55.1	25.9	31.8	34.9	18.3
1	F16-U-F16-	64.8	31.2	38.1	34.9	22.4
1 1/8	F18-U-F18-	64.8	31.2	44.5	41.3	24.6
1 1/4	F20-U-F20-	92.2	41.1	47.6	44.5	27.7
1 1/2	F24-U-F24-	108	50.0	57.2	54.0	34.0

Metric Tube

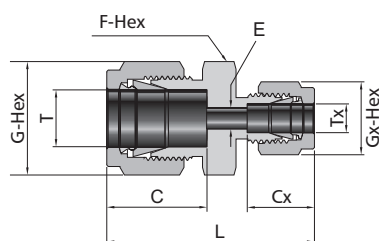
T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
2	M2-U-M2-	35.6	12.9	12	12	1.7
3	M3-U-M3-	35.3	12.9	12	12	2.4
4	M4-U-M4-	37.3	13.7	12	12	2.4
6	M6-U-M6-	41.0	15.3	14	14	4.8
8	M8-U-M8-	43.2	16.2	16	15	6.4
10	M10-U-M10-	46.2	17.2	19	18	7.9
12	M12-U-M12-	51.2	22.8	22	22	9.5
14	M14-U-M14-	52.0	24.4	25	24	11.1
15	M15-U-M15-	52.0	24.4	25	24	11.9
16	M16-U-M16-	52.0	24.4	25	24	12.7
18	M18-U-M18-	53.5	24.4	30	27	15.1
20	M20-U-M20-	55.0	26.0	32	30	15.9
22	M22-U-M22-	55.0	26.0	32	30	18.3
25	M25-U-M25-	65.0	31.3	38	35	21.8
28	M28-U-M28-	85.0	36.6	46	41	21.8
30	M30-U-M30-	92.7	39.6	50	46	26.2
32	M32-U-M32-	97.3	42.0	50	46	28.6
38	M38-U-M38-	113.6	49.4	60	55	33.7

Conversion Unions



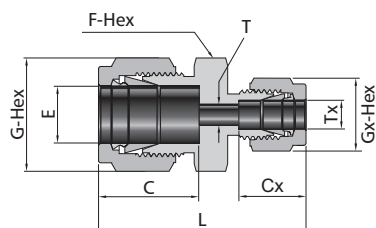
Metric Tube				Fractional Tube						
T-Tube O.D. (mm)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm							
			L	C	G	F	E	Cx	Gx	
3	1/8	M3-U-F2-	35.2	12.9	12	12	2.4	12.7	11.1	
4	1/8	M4-U-F2-	36.5	13.7	12	12	2.4	12.7	11.1	
4	1/4	M4-U-F4-	39.4	13.7	12	14	2.4	15.2	14.3	
6	1/8	M6-U-F2-	38.5	15.3	14	14	2.4	12.7	11.1	
6	1/4	M6-U-F4-	41.0	15.3	14	14	4.8	15.2	14.3	
6	5/16	M6-U-F5-	42.3	15.3	14	14	4.8	16.2	15.9	
8	1/4	M8-U-F4-	42.3	16.2	16	15	4.8	15.2	14.3	
8	3/8	M8-U-F6-	44.3	16.2	16	16	6.4	16.8	17.5	
10	1/8	M10-U-F2-	41.8	17.2	19	18	2.4	12.7	11.1	
10	1/4	M10-U-F4-	44.5	17.2	19	18	4.8	15.2	14.3	
10	5/16	M10-U-F5-	45.1	17.2	19	18	6.4	16.2	15.9	
10	3/8	M10-U-F6-	45.9	17.2	19	18	7.1	16.8	17.5	
12	5/16	M12-U-F5-	47.8	22.8	22	22	6.4	16.2	15.9	
12	3/8	M12-U-F6-	48.4	22.8	22	22	7.1	16.8	17.5	
12	1/2	M12-U-F8-	51.2	22.8	22	22	9.5	22.9	22.2	
15	1/2	M15-U-F8-	52.0	24.4	25	24	10.4	22.9	22.2	
16	5/8	M16-U-F10-	52.0	24.4	25	24	12.7	24.4	25.4	
18	3/4	M18-U-F12-	53.5	24.4	30	27	15.1	24.4	28.6	
20	1/2	M20-U-F8-	55.0	26.0	32	30	10.4	22.9	22.2	
20	1	M20-U-F16-	62.8	26.0	32	35	15.9	31.2	38.1	
25	1	M25-U-F16-	65.0	31.3	38	35	21.8	31.2	38.1	

Reducing Unions



Fractional Tube				Dimension, mm						
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	F2-U-F1-	31.0	12.7	11.1	11.1	1.3	8.6	7.9	
3/16	1/16	F3-U-F1-	32.3	13.7	12.7	11.1	1.3	8.6	7.9	
3/16	1/8	F3-U-F2-	36.6	13.7	12.7	11.1	2.3	12.7	11.1	
1/4	1/16	F4-U-F1-	34.3	15.2	14.3	12.7	1.3	8.6	7.9	
1/4	1/8	F4-U-F2-	38.6	15.2	14.3	12.7	2.3	12.7	11.1	
1/4	3/16	F4-U-F3-	39.4	15.2	14.3	12.7	3.0	13.7	12.7	
5/16	1/8	F5-U-F2-	39.6	16.2	15.9	14.3	2.3	12.7	11.1	
5/16	1/4	F5-U-F4-	42.2	16.2	15.9	14.3	4.8	15.2	14.3	
3/8	1/16	F6-U-F1-	36.6	16.8	17.5	15.9	1.3	8.6	7.9	
3/8	1/8	F6-U-F2-	40.9	16.8	17.5	15.9	2.3	12.7	11.1	
3/8	1/4	F6-U-F4-	43.2	16.8	17.5	15.9	4.8	15.2	14.3	
3/8	5/16	F6-U-F5-	44.2	16.8	17.5	15.9	6.4	16.2	15.9	
1/2	1/8	F8-U-F2-	45.2	22.8	22.2	20.6	2.3	12.7	11.1	
1/2	1/4	F8-U-F4-	47.0	22.8	22.2	20.6	4.8	15.2	14.3	
1/2	3/8	F8-U-F6-	48.5	22.8	22.2	20.6	7.1	16.8	17.5	
5/8	3/8	F10-U-F6-	49.3	24.4	25.4	23.9	7.1	16.8	17.5	
5/8	1/2	F10-U-F8-	52.1	24.4	25.4	23.9	10.4	22.8	22.2	
3/4	1/4	F12-U-F4-	49.3	24.4	28.6	27.0	4.8	15.2	14.3	
3/4	3/8	F12-U-F6-	50.8	24.4	28.6	27.0	7.1	16.8	17.5	
3/4	1/2	F12-U-F8-	53.6	24.4	28.6	27.0	10.4	22.8	22.2	
3/4	5/8	F12-U-F10-	53.6	24.4	28.6	27.0	12.7	24.4	25.4	
1	1/2	F16-U-F8-	60.5	31.2	38.1	34.9	10.4	22.8	22.2	
1	3/4	F16-U-F12-	60.5	31.2	38.1	34.9	15.7	24.4	28.6	

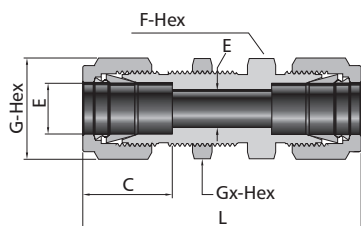
Reducing Unions



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	M3-U-M2-	35.3	12.9	12	12	1.7	12.9	12
6	2	M6-U-M2-	38.6	15.3	14	14	1.7	12.9	12
6	3	M6-U-M3-	38.6	15.3	14	14	2.4	12.9	12
6	4	M6-U-M4-	39.4	15.3	14	14	2.4	13.7	12
8	6	M8-U-M6-	42.3	16.3	16	15	4.8	15.3	14
10	6	M10-U-M6-	44.5	17.2	19	18	4.8	15.3	14
10	8	M10-U-M8-	45.1	17.2	19	18	6.4	16.3	16
12	6	M12-U-M6-	47.0	22.8	22	22	4.8	15.3	14
12	8	M12-U-M8-	47.8	22.8	22	22	6.4	16.3	16
12	10	M12-U-M10-	48.7	22.8	22	22	7.9	17.2	19
16	10	M16-U-M10-	49.5	24.4	25	24	7.9	17.2	19
16	12	M16-U-M12-	52.0	24.4	25	24	9.5	22.8	22
18	12	M18-U-M12-	53.5	24.4	30	27	9.5	22.8	22
25	18	M25-U-M18-	61.0	31.3	38	35	15.1	24.4	30
25	20	M25-U-M20-	62.3	31.3	38	35	15.9	26.0	32
30	18	M30-U-M18-	75.4	39.6	50	46	15.1	24.4	30
30	20	M30-U-M20-	75.4	39.6	50	46	15.9	26.0	32
30	25	M30-U-M25-	80.1	39.6	50	46	21.8	31.3	38
32	18	M32-U-M18-	77.8	42.0	50	46	15.1	24.4	30
32	20	M32-U-M20-	77.8	42.0	50	46	15.9	26.0	32
32	25	M32-U-M25-	82.3	42.0	50	46	21.8	31.3	38
38	20	M38-U-M20-	87.5	49.4	60	55	15.9	26.0	32
38	25	M38-U-M25-	92.0	49.4	60	55	21.8	31.3	38
38	30	M38-U-M30-	104.6	49.4	60	55	26.2	39.6	50

Bulkhead Unions



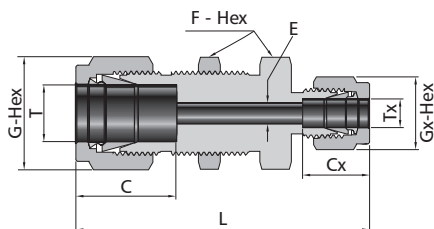
Fractional Tube

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	F1-BU-F1-	31.5	8.6	1.3	7.9	7.9	7.9	5.2	3.0
1/8	F2-BU-F2-	51.3	12.7	2.3	11.1	12.7	12.7	8.3	12.7
3/16	F3-BU-F3-	53.6	13.7	3.0	12.7	14.3	14.3	9.9	12.7
1/4	F4-BU-F4-	57.7	15.2	4.8	14.3	15.9	15.9	11.5	10.2
5/16	F5-BU-F5-	60.7	16.3	6.4	15.9	17.5	17.5	13.1	11.2
3/8	F6-BU-F6-	62.2	16.8	7.1	17.5	19.1	19.1	14.7	11.2
1/2	F8-BU-F8-	71.1	22.9	10.4	22.2	23.8	23.8	19.4	12.7
5/8	F10-BU-F10-	72.6	24.4	12.7	25.4	27.0	27.0	22.6	12.7
3/4	F12-BU-F12-	79.0	24.4	15.7	28.6	30.2	30.2	25.8	16.8
7/8	F14-BU-F14-	84.6	25.9	18.3	31.8	34.9	34.9	29.0	19.1
1	F16-BU-F16-	95.8	31.2	22.4	38.1	41.3	41.3	33.7	19.1
1 1/4	F20-BU-F20-	123.2	41.1	27.8	47.6	47.6	47.6	41.7	19.1
1 1/2	F24-BU-F24-	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	M3-BU-M3-	51.3	12.9	2.4	12	14	14	8.3	12.7
4	M4-BU-M4-	53.6	13.7	2.4	12	14	14	9.9	12.7
6	M6-BU-M6-	57.7	15.3	4.8	14	16	16	11.5	10.2
8	M8-BU-M8-	61.0	16.2	6.4	16	18	18	13.1	11.2
10	M10-BU-M10-	63.7	17.2	7.9	19	22	22	16.3	11.2
12	M12-BU-M12-	71.0	22.8	9.5	22	24	24	19.5	12.7
14	M14-BU-M14-	72.5	24.4	11.1	25	27	27	22.5	12.7
15	M15-BU-M15-	72.5	24.4	11.9	25	27	27	22.8	12.7
16	M16-BU-M16-	72.5	24.4	12.7	25	27	27	22.8	12.7
18	M18-BU-M18-	78.9	24.4	15.1	30	30	30	26.0	16.8
20	M20-BU-M20-	84.5	26.0	15.9	32	35	35	29.0	19.0
25	M25-BU-M25-	96.0	31.3	21.8	38	41	41	34.0	19.0
30	M30-BU-M30-	124.0	39.6	26.2	50	50	50	40.5	19.0
32	M32-BU-M32-	128.0	42.0	28.6	50	50	50	42.5	19.0
38	M38-BU-M38-	145.0	49.4	33.7	60	60	60	50.5	19.0

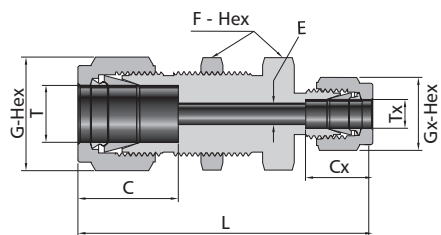
Bulkhead Reducing Unions



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	F4-BU-F2-	55.1	15.2	2.3	14.3	15.9	12.7	11.1	11.5	10.2
3/8	1/4	F6-BU-F4-	60.7	16.8	4.8	17.5	19.1	15.2	14.3	14.7	11.2
1/2	1/4	F8-BU-F4-	66.8	22.9	4.8	22.2	23.8	15.2	14.3	19.4	12.7

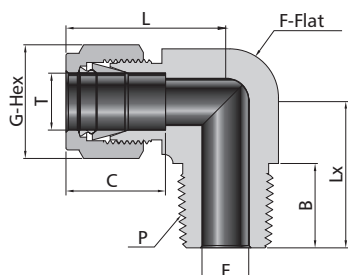
Bulkhead Reducing Unions



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	M6-BU-M3-	55.1	15.3	2.4	14	16	12.9	12	11.5	10.2	
8	6	M8-BU-M6-	60.1	16.2	4.8	16	18	15.3	14	13.1	11.2	
12	8	M12-BU-M8-	67.6	22.8	6.4	22	24	16.2	16	19.5	12.7	

Male Elbows



Fractional Tube

NPT Thread

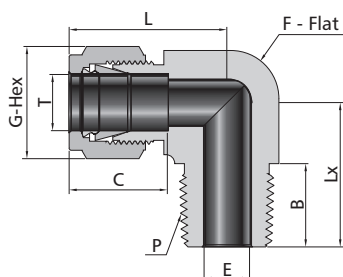
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm							
			L	C	G	F	E	B	Lx	
1/16	1/16	F1-ME-NPT1-	19.1	8.6	7.9	11.1	1.3	9.7	17.8	
1/16	1/8	F1-ME-NPT2-	19.1	8.6	7.9	11.1	1.3	9.7	17.8	
1/8	1/16	F2-ME-NPT1-	23.6	12.7	11.1	11.1	2.4	9.7	17.8	
1/8	1/8	F2-ME-NPT2-	23.6	12.7	11.1	11.1	2.4	9.7	17.8	
1/8	1/4	F2-ME-NPT4-	24.6	12.7	11.1	12.7	2.4	14.2	23.4	
3/16	1/8	F3-ME-NPT2-	25.4	13.7	12.7	12.7	3.0	9.7	18.8	
3/16	1/4	F3-ME-NPT4-	25.4	13.7	12.7	12.7	3.0	14.2	23.4	
1/4	1/16	F4-ME-NPT1-	26.9	15.2	14.3	12.7	3.0	9.7	18.8	
1/4	1/8	F4-ME-NPT2-	26.9	15.2	14.3	12.7	4.8	9.7	18.8	
1/4	1/4	F4-ME-NPT4-	26.9	15.2	14.3	12.7	4.8	14.2	23.4	
1/4	3/8	F4-ME-NPT6-	29.7	15.2	14.3	17.5	4.8	14.2	26.2	
1/4	1/2	F4-ME-NPT8-	31.8	15.2	14.3	20.6	4.8	19.1	33.0	
5/16	1/8	F5-ME-NPT2-	28.7	16.3	15.9	14.3	4.8	9.7	19.8	
5/16	1/4	F5-ME-NPT4-	28.7	16.3	15.9	14.3	6.4	14.2	24.4	
5/16	3/8	F5-ME-NPT6-	30.5	16.3	15.9	17.5	6.4	14.2	26.2	
3/8	1/8	F6-ME-NPT2-	30.5	16.8	17.5	15.9	4.8	9.7	20.8	
3/8	1/4	F6-ME-NPT4-	30.5	16.8	17.5	15.9	7.1	14.2	25.4	
3/8	3/8	F6-ME-NPT6-	31.2	16.8	17.5	17.5	7.1	14.2	26.2	
3/8	1/2	F6-ME-NPT8-	33.3	16.8	17.5	20.6	7.1	19.1	33.0	
3/8	3/4	F6-ME-NPT12-	37.1	16.8	17.5	27.0	7.1	19.1	36.8	
1/2	1/4	F8-ME-NPT4-	36.1	22.9	22.2	20.6	7.1	14.2	28.2	
1/2	3/8	F8-ME-NPT6-	36.1	22.9	22.2	20.6	9.7	14.2	28.2	
1/2	1/2	F8-ME-NPT8-	36.1	22.9	22.2	20.6	10.4	19.1	33.0	
1/2	3/4	F8-ME-NPT12-	39.9	22.9	22.2	27.0	10.4	19.1	36.8	
5/8	3/8	F10-ME-NPT6-	38.1	24.4	25.4	23.8	9.7	14.2	30.2	
5/8	1/2	F10-ME-NPT8-	38.1	24.4	25.4	23.8	11.9	19.1	35.1	
5/8	3/4	F10-ME-NPT12-	39.9	24.4	25.4	27.0	12.7	19.1	36.8	
3/4	1/2	F12-ME-NPT8-	39.9	24.4	28.6	27.0	11.9	19.1	36.8	
3/4	3/4	F12-ME-NPT12-	39.9	24.4	28.6	27.0	15.7	19.1	36.8	
7/8	3/4	F14-ME-NPT12-	44.7	25.9	31.8	34.9	15.7	19.1	41.7	
1	3/4	F16-ME-NPT12-	49.0	31.2	38.1	34.9	15.7	19.1	41.7	
1	1	F16-ME-NPT16-	49.0	31.2	38.1	34.9	22.4	23.9	46.5	
1 1/4	1 1/4	F20-ME-NPT20-	66.5	41.1	47.6	42.9	27.7	23.9	52.4	
1 1/2	1 1/2	F24-ME-NPT24-	78.0	50.0	57.2	50.8	34.0	26.2	60.5	

Fractional Tube

ISO Tapered Thread (BSPT)

T-Tube O.D. (in.)	P-BSPT Size	Basic Ordering Number	Dimension, mm							
			L	C	G	F	E	B	Lx	
1/8	1/8	F2-ME-MBT2-	23.6	12.7	11.1	11.1	2.4	9.7	17.8	
1/8	1/4	F2-ME-MBT4-	24.6	12.7	11.1	12.7	2.4	14.2	23.4	
1/4	1/8	F4-ME-MBT2-	26.9	15.2	14.3	12.7	4.8	9.7	18.8	
1/4	1/4	F4-ME-MBT4-	26.9	15.2	14.3	12.7	4.8	14.2	23.4	
1/4	3/8	F4-ME-MBT6-	29.7	15.2	14.3	17.5	4.8	14.2	26.2	
1/4	1/2	F4-ME-MBT8-	31.8	15.2	14.3	20.6	4.8	19.1	33.0	
5/16	1/4	F5-ME-MBT4-	28.7	16.3	15.9	14.3	6.4	14.2	24.4	
3/8	1/8	F6-ME-MBT2-	30.5	16.8	17.5	15.9	4.8	9.7	20.8	
3/8	1/4	F6-ME-MBT4-	30.5	16.8	17.5	15.9	7.1	14.2	25.4	
3/8	3/8	F6-ME-MBT6-	31.2	16.8	17.5	17.5	7.1	14.2	26.2	
1/2	3/8	F8-ME-MBT6-	36.1	22.9	22.2	20.6	9.7	14.2	27.9	
1/2	1/2	F8-ME-MBT8-	36.1	22.9	22.2	20.6	10.4	19.1	33.0	
3/4	1/2	F12-ME-MBT8-	39.9	24.4	28.6	27.0	11.9	19.1	36.8	
1	1	F16-ME-MBT16-	49.0	31.2	38.1	34.9	22.4	23.9	46.5	

Male Elbows

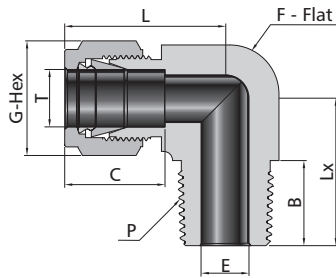


Metric Tube

NPT Thread

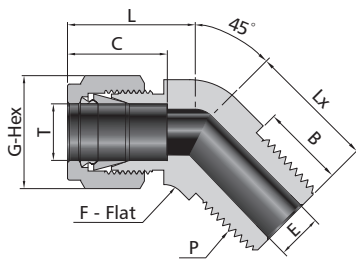
T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm							
			L	C	G	F	E	B	Lx	
3	1/8	M3-ME-NPT2-	23.6	12.9	12	11.1	2.4	9.7	17.8	
3	1/4	M3-ME-NPT4-	24.6	12.9	12	12.7	2.4	14.2	23.4	
4	1/8	M4-ME-NPT2-	25.4	13.7	12	12.7	2.4	9.7	18.8	
4	1/4	M4-ME-NPT4-	25.4	13.7	12	12.7	2.4	14.2	23.4	
6	1/8	M6-ME-NPT2-	27.0	15.3	14	12.7	4.8	9.7	18.8	
6	1/4	M6-ME-NPT4-	27.0	15.3	14	12.7	4.8	14.2	23.4	
6	3/8	M6-ME-NPT6-	29.8	15.3	14	17.5	4.8	14.2	26.2	
6	1/2	M6-ME-NPT8-	31.8	15.3	14	20.6	4.8	19.0	33.0	
8	1/8	M8-ME-NPT2-	28.8	16.2	16	14.3	4.8	9.7	19.8	
8	1/4	M8-ME-NPT4-	28.8	16.2	16	14.3	6.4	14.2	24.4	
8	3/8	M8-ME-NPT6-	30.6	16.2	16	17.5	6.4	14.2	26.2	
8	1/2	M8-ME-NPT8-	32.6	16.2	16	20.6	6.4	19.1	33.0	
10	1/8	M10-ME-NPT2-	31.5	17.2	19	17.5	4.8	9.7	21.6	
10	1/4	M10-ME-NPT4-	31.5	17.2	19	17.5	7.1	14.2	26.2	
10	3/8	M10-ME-NPT6-	31.5	17.2	19	17.5	7.9	14.2	26.2	
10	1/2	M10-ME-NPT8-	33.5	17.2	19	20.6	7.9	19.1	33.0	
12	1/8	M12-ME-NPT2-	36.0	22.8	22	20.6	4.8	9.7	23.6	
12	1/4	M12-ME-NPT4-	36.0	22.8	22	20.6	7.1	14.2	28.2	
12	3/8	M12-ME-NPT6-	36.0	22.8	22	20.6	9.5	14.2	28.2	
12	1/2	M12-ME-NPT8-	36.0	22.8	22	20.6	9.5	19.1	33.0	
12	3/4	M12-ME-NPT12-	39.8	22.8	22	27.0	9.5	19.1	36.8	
15	1/2	M15-ME-NPT8-	38.0	24.4	25	23.8	11.9	19.1	35.1	
16	1/4	M16-ME-NPT4-	38.0	24.4	25	23.8	7.1	14.2	30.2	
16	3/8	M16-ME-NPT6-	38.0	24.4	25	23.8	9.5	14.2	30.2	
16	1/2	M16-ME-NPT8-	38.0	24.4	25	23.8	11.9	19.1	35.1	
16	3/4	M16-ME-NPT12-	39.8	24.4	25	27.0	12.7	19.1	36.8	
18	1/2	M18-ME-NPT8-	39.8	24.4	30	27.0	11.9	19.1	36.8	
18	3/4	M18-ME-NPT12-	39.8	24.4	30	27.0	15.1	19.1	36.8	
20	1/2	M20-ME-NPT8-	44.6	26.0	32	34.9	11.9	19.1	41.7	
20	3/4	M20-ME-NPT12-	44.6	26.0	32	34.9	15.9	19.1	41.7	
22	3/4	M22-ME-NPT12-	44.6	26.0	32	34.9	15.9	19.1	41.7	
22	1	M22-ME-NPT16-	44.6	26.0	32	34.9	18.3	23.9	46.5	
25	3/4	M25-ME-NPT12-	49.1	31.3	38	34.9	15.9	19.0	41.7	
25	1	M25-ME-NPT16-	49.1	31.3	38	34.9	21.8	23.9	46.5	
30	1 1/4	M30-ME-NPT20-	69.9	39.6	50	42.9	26.2	23.9	53.1	
32	1 1/4	M32-ME-NPT20-	72.3	42.0	50	42.9	27.8	23.9	53.1	
38	1 1/2	M38-ME-NPT24-	84.0	49.4	60	50.8	33.7	26.2	60.4	

Male Elbows



Metric Tube			ISO Tapered Thread (BSPT)							
T-Tube O.D. (mm)	P-BSPT Size	Basic Ordering Number	Dimension, mm							
			L	C	G	F	E	B	Lx	
3	1/8	M3-ME-MBT2-	23.6	12.9	12	11.1	2.4	9.7	17.8	
3	1/4	M3-ME-MBT4-	24.6	12.9	12	12.7	2.4	14.2	23.4	
4	1/8	M4-ME-MBT2-	25.4	13.7	12	12.7	2.4	9.7	18.8	
4	1/4	M4-ME-MBT4-	25.4	13.7	12	12.7	2.4	14.2	23.4	
6	1/8	M6-ME-MBT2-	27.0	15.3	14	12.7	4.8	9.7	18.8	
6	1/4	M6-ME-MBT4-	27.0	15.3	14	12.7	4.8	14.2	23.4	
6	3/8	M6-ME-MBT6-	29.8	15.3	14	17.5	4.8	14.2	26.2	
6	1/2	M6-ME-MBT8-	31.8	15.3	14	20.6	4.8	19.0	33.0	
8	1/8	M8-ME-MBT2-	28.8	16.2	16	14.3	4.8	9.7	19.8	
8	1/4	M8-ME-MBT4-	28.8	16.2	16	14.3	6.4	14.2	24.4	
8	3/8	M8-ME-MBT6-	30.6	16.2	16	17.5	6.4	14.2	26.2	
8	1/2	M8-ME-MBT8-	32.6	16.2	16	20.6	6.4	19.1	33.0	
10	1/8	M10-ME-MBT2-	31.5	17.2	19	17.5	4.8	9.7	21.6	
10	1/4	M10-ME-MBT4-	31.5	17.2	19	17.5	7.1	14.2	26.2	
10	3/8	M10-ME-MBT6-	31.5	17.2	19	17.5	7.9	14.2	26.2	
10	1/2	M10-ME-MBT8-	33.5	17.2	19	20.6	7.9	19.1	33.0	
12	1/8	M12-ME-MBT2-	36.0	22.8	22	20.6	4.8	9.7	23.6	
12	1/4	M12-ME-MBT4-	36.0	22.8	22	20.6	7.1	14.2	28.2	
12	3/8	M12-ME-MBT6-	36.0	22.8	22	20.6	9.5	14.2	28.2	
12	1/2	M12-ME-MBT8-	36.0	22.8	22	20.6	9.5	19.1	33.0	
12	3/4	M12-ME-MBT12-	39.8	22.8	22	27.0	9.5	19.1	36.8	
14	1/2	M14-ME-MBT8-	38.1	24.4	25	23.8	11.1	19.1	35.1	
15	1/2	M15-ME-MBT8-	38.1	24.4	25	23.8	11.9	19.1	35.1	
16	1/4	M16-ME-MBT4-	38.0	24.4	25	23.8	7.1	14.2	30.2	
16	3/8	M16-ME-MBT6-	38.0	24.4	25	23.8	9.5	14.2	30.2	
16	1/2	M16-ME-MBT8-	38.0	24.4	25	23.8	11.9	19.1	35.1	
16	3/4	M16-ME-MBT12-	39.8	24.4	25	27.0	12.7	19.1	36.8	
18	1/2	M18-ME-MBT8-	39.8	24.4	30	27.0	11.9	19.1	36.8	
18	3/4	M18-ME-MBT12-	39.8	24.4	30	27.0	15.1	19.1	36.8	
20	1/2	M20-ME-MBT8-	44.6	26.0	32	34.9	11.9	19.1	41.7	
20	3/4	M20-ME-MBT12-	44.6	26.0	32	34.9	15.9	19.1	41.7	
22	3/4	M22-ME-MBT12-	44.6	26.0	32	34.9	15.9	19.1	41.7	
22	1	M22-ME-MBT16-	44.6	26.0	32	34.9	18.3	23.9	46.5	
25	3/4	M25-ME-MBT12-	49.1	31.3	38	34.9	15.9	19.1	41.7	
25	1	M25-ME-MBT16-	49.1	31.3	38	34.9	21.8	23.9	46.5	
28	1	M28-ME-MBT16-	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	F1-45ME-NPT1-	15.7	8.6	7.9	9.5	1.3	9.7	14.5
1/8	1/8	F2-45ME-NPT2-	20.8	12.7	11.1	11.1	2.3	9.7	16.8
3/16	1/8	F3-45ME-NPT2-	21.6	13.7	12.7	11.1	3.0	9.7	14.7
1/4	1/8	F4-45ME-NPT2-	24.6	15.2	14.3	12.7	4.8	9.7	16.5
1/4	1/4	F4-45ME-NPT4-	24.6	15.2	14.3	12.7	4.8	14.3	21.1
5/16	1/8	F5-45ME-NPT2-	24.1	16.3	15.9	14.3	4.8	9.7	16.8
3/8	1/8	F6-45ME-NPT2-	27.9	16.8	17.5	15.9	4.8	9.7	18.3
3/8	1/4	F6-45ME-NPT4-	27.9	16.8	17.5	15.9	7.1	14.3	22.9
3/8	3/8	F6-45ME-NPT6-	29.2	16.8	17.5	20.6	7.1	19.1	24.1
1/2	3/8	F8-45ME-NPT6-	32.0	22.9	22.2	20.6	9.7	19.1	24.1
5/8	1/2	F10-45ME-NPT8-	30.7	24.4	25.4	23.8	11.9	19.1	29.7
3/4	3/4	F12-45ME-NPT12-	34.0	24.4	28.6	27.0	15.7	19.1	31.0
7/8	3/4	F14-45ME-NPT12-	40.4	25.9	31.8	31.8	15.7	19.1	32.3
1	1	F16-45ME-NPT16-	40.4	31.2	38.1	34.9	22.4	23.9	37.8

Metric Tube

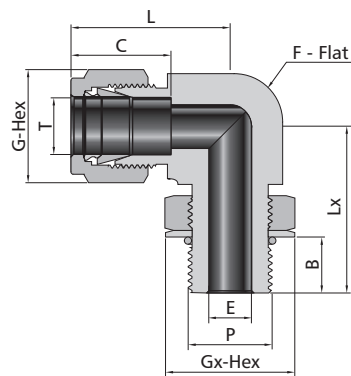
NPT Thread

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
6	1/8	M6-45ME-NPT2-	23.4	15.3	14	12.7	4.8	9.7	16.8
6	1/4	M6-45ME-NPT4-	23.4	15.3	14	12.7	4.8	14.3	21.8
8	1/8	M8-45ME-NPT2-	24.3	16.2	16	15.9	4.8	9.7	16.8
10	1/4	M10-45ME-NPT4-	26.6	17.2	19	17.5	7.9	14.3	24.1
12	3/8	M12-45ME-NPT6-	29.1	22.8	22	20.6	9.5	19.1	24.1
12	1/2	M12-45ME-NPT8-	30.7	22.8	22	20.6	9.5	19.1	29.7
16	1/2	M16-45ME-NPT8-	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.



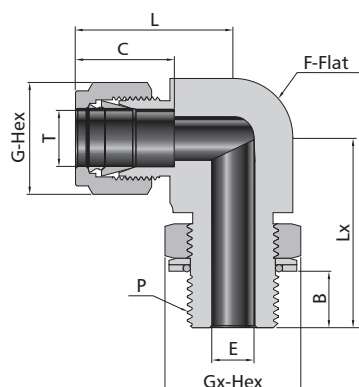
Fractional Tube

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	F4-PME-PST7-	28.4	9.9	15.2	14.3	4.8	12.7	28.4	14.3	
1/4	9/16-18	F4-PME-PST9-	30.5	11.2	15.2	14.3	4.8	15.9	32.3	17.5	
5/16	1/2-20	F5-PME-PST8-	30.2	9.9	16.3	15.9	5.8	14.3	29.5	15.9	
3/8	7/16-20	F6-PME-PST7-	33.3	9.9	16.8	17.5	5.1	15.9	31.5	14.3	
3/8	9/16-18	F6-PME-PST9-	32.0	11.2	16.8	17.5	7.1	15.9	32.3	17.5	
3/8	3/4-16	F6-PME-PST12-	34.8	12.7	16.8	17.5	7.1	20.6	37.8	22.2	
1/2	9/16-18	F8-PME-PST9-	37.6	11.2	22.9	22.2	7.1	20.6	37.5	17.5	
1/2	3/4-16	F8-PME-PST12-	37.6	12.7	22.9	22.2	10.4	20.6	37.8	22.2	
5/8	7/8-14	F10-PME-PST14-	39.6	14.2	24.4	25.4	12.7	23.8	43.4	25.4	
3/4	1 1/16-12	F12-PME-PST17-	41.4	16.8	24.4	28.6	15.7	27.0	48.8	31.8	
7/8	1 3/16-12	F14-PME-PST19-	43.2	16.8	25.9	31.8	18.3	30.2	50.5	34.9	
1	1 5/16-12	F16-PME-PST21-	50.5	16.8	31.2	38.1	22.4	34.9	53.6	38.1	
1 1/4	1 5/8-12	F20-PME-PST26-	67.8	16.8	41.1	47.6	27.7	42.9	58.2	47.6	
1 1/2	1 7/8-12	F24-PME-PST30-	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 (PPT)

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	F4-PME-PPT2-	26.9	8.1	15.2	14.3	4.1	12.7	26.4	14.3	
1/4	1/4	F4-PME-PPT4-	29.0	9.1	15.2	14.3	4.8	15.9	32.3	19.1	
3/8	1/4	F6-PME-PPT4-	30.5	9.1	16.8	17.5	5.8	15.9	32.3	19.1	
3/8	3/8	F6-PME-PPT6-	33.3	9.4	16.8	17.5	7.1	20.6	37.1	22.2	
1/2	1/4	F8-PME-PPT4-	36.1	9.1	22.9	22.2	5.8	20.6	35.1	19.1	
1/2	3/8	F8-PME-PPT6-	36.1	9.4	22.9	22.2	7.9	20.6	37.1	22.2	
1/2	1/2	F8-PME-PPT8-	38.1	13.0	22.9	22.2	10.4	23.8	43.4	27.0	
5/8	1/2	F10-PME-PPT8-	38.1	13.0	24.4	25.4	11.9	23.8	43.4	27.0	
3/4	1/2	F12-PME-PPT8-	39.9	13.0	24.4	28.6	11.9	27.0	45.2	27.0	
3/4	3/4	F12-PME-PPT12-	39.9	13.0	24.4	28.6	15.7	27.0	48.8	34.9	
1	3/4	F16-PME-PPT12-	49.0	13.0	31.2	38.1	15.7	34.9	53.3	34.9	
1	1	F16-PME-PPT16-	49.0	14.0	31.2	38.1	19.8	34.9	53.6	41.3	

Metric Tube

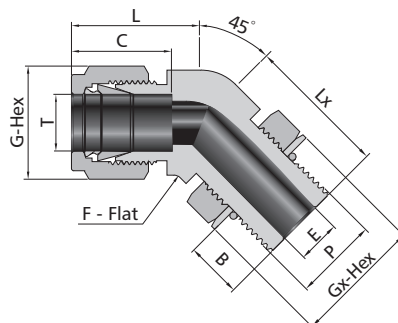
ISO Parallel Thread (PPT)

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	M6-PME-PPT2-	27.0	8.1	15.3	14	4.0	12.7	26.4	14.3	
6	1/4	M6-PME-PPT4-	29.0	9.1	15.3	14	4.8	15.9	32.3	19.1	
8	1/8	M8-PME-PPT2-	28.8	8.1	16.2	16	4.0	14.3	27.4	14.3	
8	1/4	M8-PME-PPT4-	29.9	9.1	16.2	16	5.9	15.9	32.2	19.1	
10	1/4	M10-PME-PPT4-	33.5	9.1	17.2	19	5.9	20.6	35.0	19.1	
10	3/8	M10-PME-PPT6-	33.5	9.4	17.2	19	7.9	20.6	37.1	22.2	
12	1/4	M12-PME-PPT4-	36.0	9.1	22.8	22	5.9	20.6	35.0	19.1	
12	3/8	M12-PME-PPT6-	36.0	9.4	22.8	22	7.9	20.6	37.1	22.2	
12	1/2	M12-PME-PPT8-	38.0	13.0	22.8	22	9.5	23.8	43.4	27.0	
12	3/4	M12-PME-PPT12-	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.

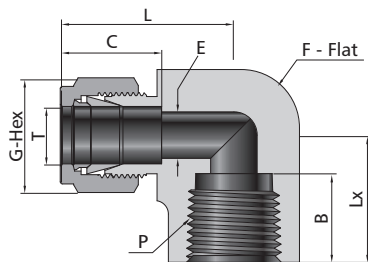


Fractional Tube

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	F4-45PME-PST7-	25.7	9.9	15.2	14.3	4.8	12.7	25.7	14.3	
3/8	9/16-18	F6-45PME-PST9-	27.9	11.2	16.8	17.5	7.1	15.9	28.2	17.5	
1/2	3/4-16	F8-45PME-PST12-	32.0	12.7	22.9	22.2	10.4	20.6	32.3	22.2	
3/4	1 1/16-12	F12-45PME-PST17-	39.9	16.8	24.4	28.6	15.7	27.0	47.2	31.8	
1	1 5/16-12	F16-45PME-PST21-	47.5	16.8	31.2	38.1	22.4	33.3	50.5	38.1	

Female Elbows



Fractional Tube

NPT Thread

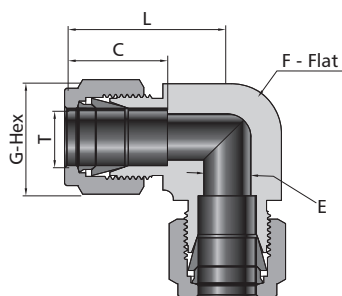
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm							
			L	B	C	G	E	F	Lx	
1/16	1/16	F1-FE-FNPT1-	18.0	9.9	8.6	7.9	1.3	11.1	14.2	
1/16	1/8	F1-FE-FNPT2-	20.6	10.4	8.6	7.9	1.3	14.3	19.1	
1/8	1/8	F2-FE-FNPT2-	24.6	10.4	12.7	11.1	2.3	14.3	19.1	
1/8	1/4	F2-FE-FNPT4-	27.4	15.0	12.7	11.1	2.3	17.5	22.4	
3/16	1/8	F3-FE-FNPT2-	25.4	10.4	13.7	12.7	3.0	12.7	19.1	
1/4	1/8	F4-FE-FNPT2-	26.9	10.4	15.2	14.3	4.8	14.3	19.1	
1/4	1/4	F4-FE-FNPT4-	29.7	15.0	15.2	14.3	4.8	17.5	22.4	
1/4	3/8	F4-FE-FNPT6-	31.8	15.0	15.2	14.3	4.8	20.6	22.4	
1/4	1/2	F4-FE-FNPT8-	34.5	19.8	15.2	14.3	4.8	25.4	28.4	
5/16	1/8	F5-FE-FNPT2-	28.7	10.4	16.3	15.9	6.4	14.3	19.1	
5/16	1/4	F5-FE-FNPT4-	30.5	15.0	16.3	15.9	6.4	17.5	22.4	
3/8	1/8	F6-FE-FNPT2-	30.5	10.4	16.8	17.5	7.1	15.9	19.1	
3/8	1/4	F6-FE-FNPT4-	31.2	15.0	16.8	17.5	7.1	17.5	22.4	
3/8	3/8	F6-FE-FNPT6-	33.3	15.0	16.8	17.5	7.1	20.6	22.4	
3/8	1/2	F6-FE-FNPT8-	36.1	19.8	16.8	17.5	7.1	25.4	28.4	
1/2	1/4	F8-FE-FNPT4-	36.1	15.0	22.9	22.2	10.4	20.6	22.4	
1/2	3/8	F8-FE-FNPT6-	36.1	15.0	22.9	22.2	10.4	20.6	22.4	
1/2	1/2	F8-FE-FNPT8-	38.9	19.8	22.9	22.2	10.4	25.4	28.4	
5/8	3/8	F10-FE-FNPT6-	38.1	15.0	24.4	25.4	12.7	23.8	22.4	
5/8	1/2	F10-FE-FNPT8-	39.9	19.8	24.4	25.4	12.7	27.0	28.4	
3/4	1/2	F12-FE-FNPT8-	39.9	19.8	24.4	28.6	15.7	27.0	28.4	
3/4	3/4	F12-FE-FNPT12-	44.7	20.6	24.4	28.6	15.7	34.9	31.8	
7/8	3/4	F14-FE-FNPT12-	44.7	20.6	25.9	31.8	18.3	34.9	31.8	
1	3/4	F16-FE-FNPT12-	49.0	20.6	31.2	38.1	22.4	34.9	31.8	
1	1	F16-FE-FNPT16-	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	M6-FE-FNPT2-	27.0	10.4	15.3	14	4.8	12.7	19.0	
6	1/4	M6-FE-FNPT4-	29.8	15.0	15.3	14	4.8	17.5	22.4	
8	1/8	M8-FE-FNPT2-	28.8	10.4	16.2	16	4.8	14.3	19.1	
8	1/4	M8-FE-FNPT4-	30.6	15.0	16.2	16	6.4	17.5	22.4	
10	1/4	M10-FE-FNPT4-	33.5	15.0	17.2	19	7.9	20.6	22.4	
10	3/8	M10-FE-FNPT6-	33.5	15.0	17.2	19	7.9	20.6	22.4	
10	1/2	M10-FE-FNPT8-	36.6	19.8	17.2	19	7.9	25.4	28.5	
12	1/4	M12-FE-FNPT4-	36.0	15.0	22.8	22	7.9	20.6	22.4	
12	3/8	M12-FE-FNPT6-	36.0	15.0	22.8	22	9.5	20.6	22.4	
12	1/2	M12-FE-FNPT8-	38.8	19.8	22.8	22	9.5	25.4	28.4	
16	3/8	M16-FE-FNPT6-	39.5	15.0	24.4	25	9.5	27.0	23.6	
16	1/2	M16-FE-FNPT8-	39.5	19.8	24.4	25	12.7	27.0	28.5	

Union Elbows



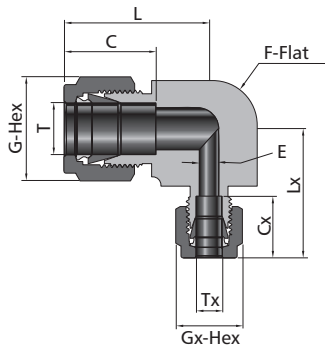
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
1/16	F1-UE-F1-	17.8	8.6	7.9	9.5	1.3
1/8	F2-UE-F2-	22.4	12.7	11.1	9.5	2.3
3/16	F3-UE-F3-	25.4	13.7	12.7	12.7	3.0
1/4	F4-UE-F4-	26.9	15.2	14.3	12.7	4.8
5/16	F5-UE-F5-	28.7	16.3	15.9	14.3	6.4
3/8	F6-UE-F6-	30.5	16.8	17.5	15.9	7.1
1/2	F8-UE-F8-	36.1	22.9	22.2	20.6	10.4
5/8	F10-UE-F10-	38.1	24.4	25.4	23.8	12.7
3/4	F12-UE-F12-	39.9	24.4	28.6	27.0	15.7
7/8	F14-UE-F14-	44.7	25.9	31.8	34.9	18.3
1	F16-UE-F16-	49.0	31.2	38.1	34.9	22.4
1 1/8	F18-UE-F18-	55.1	31.2	41.3	42.9	24.6
1 1/4	F20-UE-F20-	66.5	41.1	47.6	42.9	27.7
1 1/2	F24-UE-F24-	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	M3-UE-M3-	22.3	12.9	12	9.5	2.4
4	M4-UE-M4-	25.4	13.7	12	12.7	2.4
6	M6-UE-M6-	27.0	15.3	14	12.7	4.8
8	M8-UE-M8-	28.8	16.2	16	14.3	6.4
10	M10-UE-M10-	31.5	17.2	19	17.5	7.9
12	M12-UE-M12-	36.0	22.8	22	20.6	9.5
14	M14-UE-M14-	38.0	24.4	25	23.8	11.0
15	M15-UE-M15-	38.8	24.4	25	23.8	11.9
16	M16-UE-M16-	38.0	24.4	25	23.8	12.7
18	M18-UE-M18-	39.8	24.4	30	27.0	15.1
20	M20-UE-M20-	44.6	26.0	32	34.9	15.9
22	M22-UE-M22-	44.6	26.0	32	34.9	18.3
25	M25-UE-M25-	49.1	31.3	38	34.9	21.8
28	M28-UE-M28-	64.0	36.6	46	42.9	21.8
30	M30-UE-M30-	69.9	39.6	50	42.9	26.2
32	M32-UE-M32-	72.3	42.0	50	42.9	28.6
38	M38-UE-M38-	84.0	49.4	60	50.8	33.7

Union Reducing Elbows



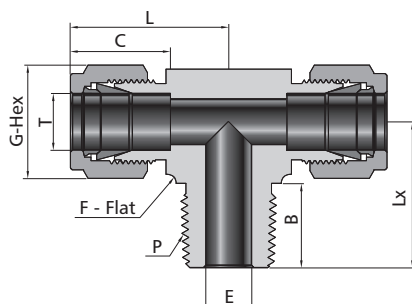
Fractional Tube

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	F3-UE-F2-	25.4	13.7	12.7	12.7	2.3	12.7	11.1	24.7	
1/4	1/8	F4-UE-F2-	26.9	15.2	14.3	12.7	2.3	12.7	11.1	25.4	
5/16	1/8	F5-UE-F2-	29.7	16.3	15.9	14.3	2.3	12.7	11.1	26.4	
5/16	1/4	F5-UE-F4-	29.7	16.3	15.9	14.3	4.8	15.2	14.3	29.0	
3/8	1/8	F6-UE-F2-	30.5	16.8	17.5	15.9	2.3	12.7	11.1	26.4	
3/8	1/4	F6-UE-F4-	30.5	16.8	17.5	15.9	4.8	15.2	14.3	29.0	
3/8	5/16	F6-UE-F5-	30.5	16.8	17.5	15.9	6.4	16.3	15.9	29.7	
1/2	1/4	F8-UE-F4-	36.1	22.9	22.2	20.6	4.8	15.2	14.3	32.2	
1/2	5/16	F8-UE-F5-	36.1	22.9	22.2	20.6	6.4	16.3	15.9	32.5	
1/2	3/8	F8-UE-F6-	36.1	22.9	22.2	20.6	7.1	16.8	17.5	33.6	
5/8	3/8	F10-UE-F6-	38.1	24.4	25.4	23.8	7.1	16.8	17.5	35.6	
5/8	1/2	F10-UE-F8-	38.1	24.4	25.4	23.8	10.4	22.9	22.2	38.1	
3/4	1/4	F12-UE-F4-	39.9	24.4	28.6	27.0	4.8	15.2	14.3	35.9	
3/4	3/8	F12-UE-F6-	39.9	24.4	28.6	27.0	7.1	16.8	17.5	37.4	
3/4	1/2	F12-UE-F8-	39.9	24.4	28.6	27.0	10.4	22.9	22.2	39.9	
7/8	1/4	F14-UE-F4-	44.7	25.9	31.8	34.9	4.8	15.2	14.3	40.7	
1	1/2	F16-UE-F8-	49.0	31.2	38.1	34.9	10.4	22.9	22.2	44.4	
1	3/4	F16-UE-F12-	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	M8-UE-M6-	28.8	16.2	16	14.3	4.8	15.3	14	27.9	
10	8	M10-UE-M8-	31.5	17.2	19	17.5	6.4	16.2	16	30.5	
12	8	M12-UE-M8-	36.0	22.8	22	20.6	6.4	16.2	16	32.6	
14	8	M14-UE-M8-	38.8	24.4	25	23.8	6.4	16.2	16	35.4	
14	10	M14-UE-M10-	38.8	24.4	25	23.8	7.9	17.2	19	36.4	

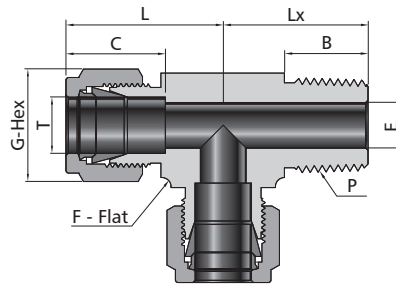
Male Branch Tees



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	F2-MBT-F2-NPT2-	23.6	12.7	11.1	11.1	2.3	9.7	17.8
1/8	1/4	F2-MBT-F2-NPT4-	24.6	12.7	11.1	12.7	2.3	14.2	23.4
3/16	1/8	F3-MBT-F3-NPT2-	24.4	13.7	12.7	11.1	3.0	9.7	17.8
1/4	1/8	F4-MBT-F4-NPT2-	26.9	15.2	14.3	12.7	4.8	9.7	18.8
1/4	1/4	F4-MBT-F4-NPT4-	26.9	15.2	14.3	12.7	4.8	14.2	23.4
5/16	1/8	F5-MBT-F5-NPT2-	29.7	16.3	15.9	15.9	4.8	9.7	20.8
5/16	1/4	F5-MBT-F5-NPT4-	29.7	16.3	15.9	15.9	6.4	14.2	25.7
3/8	1/4	F6-MBT-F6-NPT4-	30.5	16.8	17.5	15.9	7.1	14.2	25.4
3/8	3/8	F6-MBT-F6-NPT6-	33.3	16.8	17.5	20.6	7.1	14.2	28.2
1/2	3/8	F8-MBT-F8-NPT6-	36.1	22.9	22.2	20.6	9.7	14.2	28.2
1/2	1/2	F8-MBT-F8-NPT8-	36.1	22.9	22.2	20.6	10.4	19.1	33.0
5/8	1/2	F10-MBT-F10-NPT8-	38.9	24.4	25.4	25.4	11.9	19.1	35.8
3/4	3/4	F12-MBT-F12-NPT12-	39.9	24.4	28.6	27.0	15.7	19.1	36.8
7/8	3/4	F14-MBT-F14-NPT12-	44.7	25.9	31.8	33.3	15.7	19.1	38.1
1	3/4	F16-MBT-F16-NPT12-	49.3	31.2	38.1	33.3	15.7	19.1	42.2
1	1	F16-MBT-F16-NPT16-	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	M6-MBT-M6-NPT2-	27.0	15.3	14	12.7	4.8	9.7	18.8
6	1/4	M6-MBT-M6-NPT4-	27.0	15.3	14	12.7	4.8	14.2	23.4
8	1/8	M8-MBT-M8-NPT2-	29.9	16.2	16	15.9	4.8	9.7	20.8
8	1/4	M8-MBT-M8-NPT4-	29.9	16.2	16	15.9	6.4	14.2	25.4
10	1/4	M10-MBT-M10-NPT4-	33.5	17.2	19	20.6	7.9	14.2	28.2
10	3/8	M10-MBT-M10-NPT6-	33.5	17.2	19	20.6	7.9	14.2	28.2
12	1/4	M12-MBT-M12-NPT4-	36.0	22.8	22	20.6	7.9	14.2	28.2
12	3/8	M12-MBT-M12-NPT6-	36.0	22.8	22	20.6	9.5	14.2	28.2
12	1/2	M12-MBT-M12-NPT8-	36.0	22.8	22	20.6	9.5	19.1	33.0
16	1/2	M16-MBT-M16-NPT8-	38.8	24.4	25	25.4	11.9	19.1	35.8

Male Run Tees



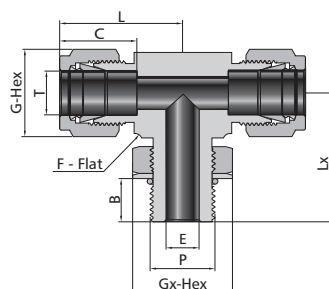
Fractional Tube			NPT Thread							
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm							
			L	C	G	F	E	B	Lx	
1/8	1/8	F2-MRT-NPT2-F2-	23.6	12.7	11.1	11.1	2.3	9.7	17.8	
1/8	1/4	F2-MRT-NPT4-F2-	24.6	12.7	11.1	12.7	2.3	14.2	23.4	
3/16	1/8	F3-MRT-NPT2-F3-	24.4	13.7	12.7	11.1	3.0	9.7	17.8	
1/4	1/8	F4-MRT-NPT2-F4-	26.9	15.2	14.3	12.7	4.8	9.7	18.8	
1/4	1/4	F4-MRT-NPT4-F4-	26.9	15.2	14.3	12.7	4.8	14.2	23.4	
5/16	1/8	F5-MRT-NPT2-F5-	29.7	16.3	15.9	15.9	4.8	9.7	20.8	
5/16	1/4	F5-MRT-NPT4-F5-	29.7	16.3	15.9	15.9	6.4	14.2	25.7	
3/8	1/4	F6-MRT-NPT4-F6-	30.5	16.8	17.5	15.9	7.1	14.2	25.4	
3/8	3/8	F6-MRT-NPT6-F6-	33.3	16.8	17.5	20.6	7.1	14.2	28.2	
1/2	3/8	F8-MRT-NPT6-F8-	36.1	22.9	22.2	20.6	9.7	14.2	28.2	
1/2	1/2	F8-MRT-NPT8-F8-	36.1	22.9	22.2	20.6	10.4	19.1	33.0	
5/8	1/2	F10-MRT-NPT8-F10-	38.1	24.4	25.4	23.8	11.9	19.1	35.8	
3/4	3/4	F12-MRT-NPT12-F12-	39.9	24.4	28.6	27.0	15.7	19.1	36.8	
7/8	3/4	F14-MRT-NPT12-F14-	44.7	25.9	31.8	33.3	15.7	19.1	38.1	
1	3/4	F16-MRT-NPT12-F16-	49.3	31.2	38.1	33.3	15.7	19.1	42.2	
1	1	F16-MRT-NPT16-F16-	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	M6-MRT-NPT2-M6-	27.0	15.3	14	12.7	4.8	9.7	18.0	
6	1/4	M6-MRT-NPT4-M6-	27.0	15.3	14	12.7	4.8	14.2	23.4	
8	1/8	M8-MRT-NPT2-M8-	29.9	16.2	16	15.9	4.8	9.7	20.8	
8	1/4	M8-MRT-NPT4-M8-	29.9	16.2	16	15.9	6.4	14.2	25.4	
10	1/4	M10-MRT-NPT4-M10-	33.5	17.2	19	20.6	7.9	14.2	28.2	
10	1/2	M10-MRT-NPT8-M10-	33.5	17.2	19	20.6	7.9	14.2	28.2	
12	1/4	M12-MRT-NPT4-M12-	36.0	22.8	22	20.6	7.9	14.2	28.2	
12	3/8	M12-MRT-NPT6-M12-	36.0	22.8	22	20.6	9.5	14.2	28.2	
12	1/2	M12-MRT-NPT8-M12-	36.0	22.8	22	20.6	9.5	19.1	33.0	
16	1/2	M16-MRT-NPT8-M16-	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.



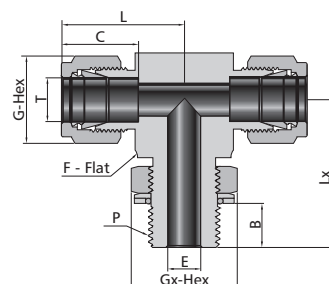
Fractional Tube

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	F4-PMBT-F4-PST7-	28.5	9.9	15.2	4.8	14.3	12.7	28.5	14.3
3/8	9/16-18	F6-PMBT-F6-PST9-	32.0	11.2	16.8	7.1	17.5	15.9	32.3	17.5
1/2	3/4-16	F8-PMBT-F8-PST12-	37.6	12.7	22.9	10.4	22.2	20.6	37.8	22.2
3/4	1 1/16-12	F12-PMBT-F12-PST17-	41.4	16.8	24.4	15.7	28.6	27.0	48.8	28.6
1	1 5/16-12	F16-PMBT-F16-PST21-	50.5	16.8	31.2	22.4	38.1	34.9	53.6	38.1
1 1/4	1 5/8-12	F20-PMBT-F20-PST26-	67.8	16.8	41.1	27.7	47.6	42.9	58.2	47.6
1 1/4	1 7/8-12	F24-PMBT-F24-PST30-	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 (PPT)

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	F4-PMBT-F4-PPT2-	26.9	8.1	15.2	4.1	14.3	12.7	26.4	14.3
1/4	1/4	F4-PMBT-F4-PPT4-	29.0	9.1	15.2	4.8	14.3	15.9	32.3	19.1
3/8	1/4	F6-PMBT-F6-PPT4-	30.5	9.1	16.8	5.8	17.5	15.9	32.3	19.1
1/2	3/8	F8-PMBT-F8-PPT6-	36.1	9.4	22.9	7.9	22.2	20.6	37.1	22.2
1/2	1/2	F8-PMBT-F8-PPT8-	38.1	13.0	22.9	10.4	22.2	23.8	43.4	27.0
5/8	1/2	F10-PMBT-F10-PPT8-	38.1	13.0	24.4	11.9	25.4	23.8	43.4	27.0
3/4	1/2	F12-PMBT-F12-PPT8-	39.9	13.0	24.4	11.9	28.6	27.0	45.2	27.0
3/4	3/4	F12-PMBT-F12-PPT12-	39.9	13.0	24.4	15.7	28.6	27.0	48.8	34.9
1	1	F16-PMBT-F16-PPT16-	49.0	14.0	31.2	19.8	38.1	34.9	53.6	41.3

Metric Tube

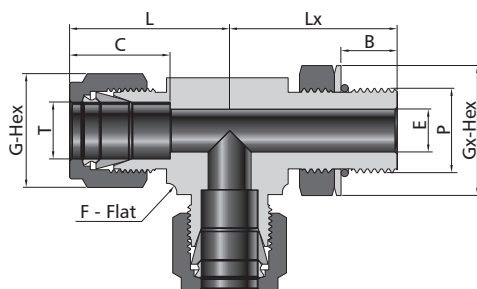
ISO Parallel Thread (PPT)

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	M6-PMBT-M6-PPT2-	27.0	8.1	15.3	4.0	14	12.7	26.4	14.3
6	1/4	M6-PMBT-M6-PPT4-	29.0	9.1	15.3	4.8	14	15.9	32.2	19.1
8	1/8	M8-PMBT-M8-PPT2-	28.8	8.1	16.2	4.0	16	14.3	27.5	14.3
8	1/4	M8-PMBT-M8-PPT4-	29.9	9.1	16.2	5.9	16	15.9	32.2	19.1
10	1/4	M10-PMBT-M10-PPT4-	33.5	9.1	17.2	5.9	19	20.6	35.1	19.1
12	3/8	M12-PMBT-M12-PPT6-	36.0	9.4	22.8	7.9	22	20.6	37.1	22.2
12	1/2	M12-PMBT-M12-PPT8-	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.



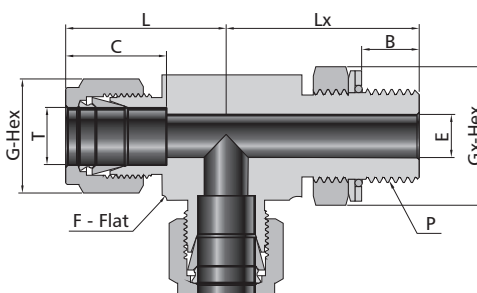
Fractional Tube

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	F4-PMRT-PST7-F4-	28.5	9.9	15.2	4.8	14.3	12.7	28.5	14.3	
3/8	9/16-18	F6-PMRT-PST9-F6-	32.0	11.2	16.8	7.1	17.5	15.9	32.3	17.5	
1/2	3/4-16	F8-PMRT-PST12-F8-	37.6	12.7	22.9	10.4	22.2	20.6	37.8	22.2	
3/4	1 1/16-12	F12-PMRT-PST17-F12-	41.4	16.8	24.4	15.7	28.6	27.0	48.8	28.6	
1	1 5/16-12	F16-PMRT-PST21-F16-	50.5	16.8	31.2	22.4	38.1	34.9	53.6	38.1	
1 1/4	1 5/8-12	F20-PMRT-PST26-F20-	67.8	16.8	41.1	27.7	47.6	42.9	58.2	47.6	
1 1/2	1 7/8-12	F24-PMRT-PST30-F24-	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 (PPT)

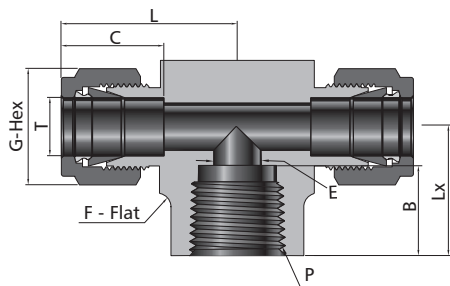
T-Tube O.D. (in.)	P-ISO Parallel Thread Size	Basic Ordering Number	Dimension, mm								
			L	B	C	E	G	F	Lx	Gx	
1/4	1/8	F4-PMRT-PPT2-F4-	26.9	8.1	15.2	4.1	14.3	12.7	26.4	14.3	
1/4	1/4	F4-PMRT-PPT4-F4-	29.0	9.1	15.2	4.8	14.3	15.9	32.3	19.1	
3/8	1/4	F6-PMRT-PPT4-F6-	30.5	9.1	16.8	5.8	17.5	15.9	32.3	19.1	
1/2	3/8	F8-PMRT-PPT6-F8-	36.1	9.4	22.9	7.9	22.2	20.6	37.1	22.2	
1/2	1/2	F8-PMRT-PPT8-F8-	38.1	13.0	22.9	10.4	22.2	23.8	43.4	27.0	
5/8	1/2	F10-PMRT-PPT8-F10-	38.1	13.0	24.4	11.9	25.4	23.8	43.4	27.0	
3/4	1/2	F12-PMRT-PPT8-F12-	39.9	13.0	24.4	11.9	28.6	27.0	45.2	27.0	
3/4	3/4	F12-PMRT-PPT12-F12-	39.9	13.0	24.4	15.7	28.6	27.0	48.8	34.9	
1	1	F16-PMRT-PPT16-F16-	49.0	14.0	31.2	19.8	38.1	34.9	53.6	41.3	

Metric Tube

ISO Parallel Thread (PPT)

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	M6-PMRT-PPT2-M6-	27.0	8.1	15.3	4.0	14	12.7	26.4	14.3	
6	1/4	M6-PMRT-PPT4-M6-	29.0	9.1	15.3	4.8	14	15.9	32.2	19.1	
8	1/8	M8-PMRT-PPT2-M8-	28.8	8.1	16.2	4.0	16	14.3	27.5	14.3	
8	1/4	M8-PMRT-PPT4-M8-	29.9	9.1	16.2	5.9	16	15.9	32.2	19.1	
10	1/4	M10-PMRT-PPT4-M10-	33.5	9.1	17.2	5.9	19	20.6	35.1	19.1	
12	3/8	M12-PMRT-PPT6-M12-	36.0	9.4	22.8	7.9	22	20.6	37.1	22.2	
12	1/2	M12-PMRT-PPT8-M12-	38.0	13.0	22.8	9.5	22	23.8	43.5	27.0	

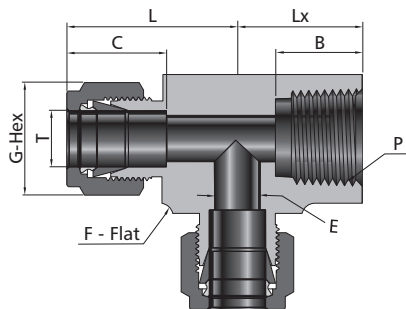
Female Branch Tees



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	F2-FBT-F2-FNPT2-	24.6	12.7	11.1	12.7	2.3	10.4	19.1
3/16	1/8	F3-FBT-F3-FNPT2-	25.7	13.7	12.7	12.7	3.0	10.4	19.1
1/4	1/8	F4-FBT-F4-FNPT2-	26.9	15.2	14.3	12.7	4.8	10.4	19.1
1/4	1/4	F4-FBT-F4-FNPT4-	29.7	15.2	14.3	17.5	4.8	15.0	22.4
5/16	1/8	F5-FBT-F5-FNPT2-	29.7	16.2	15.9	15.9	6.4	10.4	19.1
3/8	1/4	F6-FBT-F6-FNPT2-	31.2	16.8	17.5	17.5	7.1	15.0	22.4
3/8	3/8	F6-FBT-F6-FNPT4-	33.3	16.8	17.5	20.6	7.1	15.0	22.4
3/8	1/2	F6-FBT-F6-FNPT6-	36.1	16.8	17.5	25.4	7.1	19.8	28.4
1/2	1/4	F8-FBT-F8-FNPT4-	36.1	22.9	22.2	20.6	10.4	15.0	22.4
1/2	3/8	F8-FBT-F8-FNPT6-	36.1	22.9	22.2	20.6	10.4	15.0	22.4
1/2	1/2	F8-FBT-F8-FNPT8-	38.9	22.9	22.2	25.4	10.4	19.8	28.4
5/8	1/2	F10-FBT-F10-FNPT8-	38.9	24.4	25.4	25.4	12.7	19.8	28.4
3/4	3/4	F12-FBT-F12-FNPT12-	44.7	24.4	28.6	34.9	15.7	20.6	31.8
7/8	3/4	F14-FBT-F14-FNPT12-	44.7	25.9	31.8	34.9	18.3	20.6	31.8
1	3/4	F16-FBT-F16-FNPT12-	49.0	31.2	38.1	34.9	22.4	20.6	31.8
1	1	F16-FBT-F16-FNPT16-	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	M6-FBT-M6-FNPT2-	27.0	15.3	14	12.7	4.8	10.4	19.0
6	1/4	M6-FBT-M6-FNPT4-	29.8	15.3	14	17.5	4.8	15.0	22.4
8	1/8	M8-FBT-M8-FNPT2-	29.9	16.2	16	15.9	6.4	10.4	19.0
8	1/4	M8-FBT-M8-FNPT4-	30.6	16.2	16	17.5	6.4	15.0	22.4
10	1/4	M10-FBT-M10-FNPT4-	33.5	17.2	19	20.6	7.9	15.0	22.4
12	1/8	M12-FBT-M12-FNPT2-	36.0	22.8	22	20.6	6.4	10.4	22.3
12	1/4	M12-FBT-M12-FNPT4-	36.0	22.8	22	20.6	9.5	15.0	22.4
12	3/8	M12-FBT-M12-FNPT6-	36.0	22.8	22	20.6	9.5	15.0	22.4
12	1/2	M12-FBT-M12-FNPT8-	38.8	22.8	22	25.4	9.5	19.8	28.5
16	1/2	M16-FBT-M16-FNPT8-	38.8	24.4	25	25.4	12.7	19.8	28.4

Female Run Tees



Fractional Tube

NPT Thread

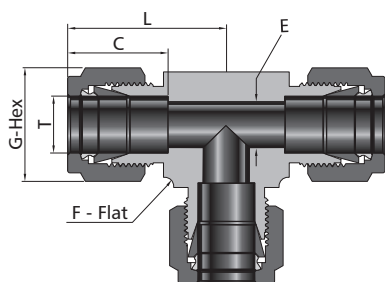
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
1/8	1/8	F2-FRT-FNPT2-F2-	24.6	12.7	11.1	12.7	2.3	10.4	19.1
3/16	1/8	F3-FRT-FNPT2-F3-	25.7	13.7	12.7	12.7	3.0	10.4	19.1
1/4	1/8	F4-FRT-FNPT2-F4-	26.9	15.2	14.3	12.7	4.8	10.4	19.1
1/4	1/4	F4-FRT-FNPT4-F4-	29.7	15.2	14.3	17.5	4.8	15.0	22.4
5/16	1/8	F5-FRT-FNPT2-F5-	29.7	16.2	15.9	15.9	6.4	10.4	19.1
3/8	1/4	F6-FRT-FNPT4-F6-	31.2	16.8	17.5	17.5	7.1	15.0	22.4
1/2	1/4	F8-FRT-FNPT4-F8-	36.1	22.9	22.2	20.6	10.4	15.0	22.4
1/2	3/8	F8-FRT-FNPT6-F8-	36.1	22.9	22.2	20.6	10.4	15.0	22.4
1/2	1/2	F8-FRT-FNPT8-F8-	39.9	22.9	22.2	27.0	10.4	19.8	28.4
5/8	1/2	F10-FRT-FNPT8-F10-	39.9	24.4	25.4	27.0	12.7	19.8	28.4
3/4	3/4	F12-FRT-FNPT12-F12-	44.7	24.4	28.6	34.9	15.7	20.6	31.8
7/8	1/2	F14-FRT-FNPT8-F14-	44.7	25.9	31.8	34.9	15.7	19.8	28.4
7/8	3/4	F14-FRT-FNPT12-F14-	44.7	25.9	31.8	34.9	18.3	20.6	31.8
1	3/4	F16-FRT-FNPT12-F16-	49.0	31.2	38.1	34.9	22.4	20.6	31.8
1	1	F16-FRT-FNPT16-F16-	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	M6-FRT-FNPT2-M6-	27.0	15.3	14	12.7	4.8	10.4	19.0
6	1/4	M6-FRT-FNPT4-M6-	29.8	15.3	14	17.5	4.8	15.0	22.4
8	1/8	M8-FRT-FNPT2-M8-	29.9	16.2	16	15.9	4.8	10.4	19.0
8	1/4	M8-FRT-FNPT4-M8-	30.6	16.2	16	17.5	6.4	15.0	22.4
10	1/4	M10-FRT-FNPT4-M10-	33.5	17.2	19	20.6	7.9	15.0	22.4
12	1/4	M12-FRT-FNPT4-M12-	36.0	22.8	22	20.6	9.5	15.0	22.4
12	3/8	M12-FRT-FNPT6-M12-	36.0	22.8	22	20.6	9.5	15.0	23.1
12	1/2	M12-FRT-FNPT8-M12-	38.8	22.8	22	25.4	9.5	19.8	28.5
16	1/2	M16-FRT-FNPT8-M16-	39.8	24.4	25	27.0	11.9	19.8	28.4

Union Tees



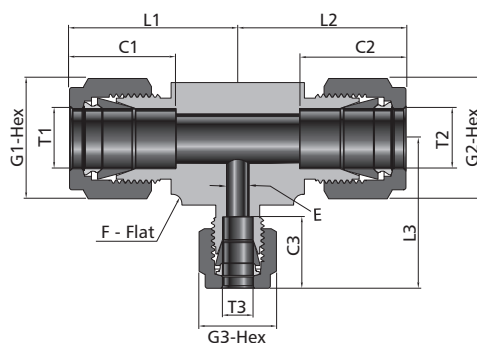
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
1/16	F1-UT-F1-F1-	17.8	8.6	7.9	9.5	1.3
1/8	F2-UT-F2-F2-	22.4	12.7	11.1	9.5	2.3
3/16	F3-UT-F3-F3-	24.4	13.7	12.7	11.1	3.0
1/4	F4-UT-F4-F4-	26.9	15.2	14.3	12.7	4.8
5/16	F5-UT-F5-F5-	29.7	16.2	15.9	15.9	6.4
3/8	F6-UT-F6-F6-	30.5	16.8	17.5	15.9	7.1
1/2	F8-UT-F8-F8-	36.1	22.9	22.2	20.6	10.4
5/8	F10-UT-F10-F10-	38.9	24.4	25.4	25.4	12.7
3/4	F12-UT-F12-F12-	39.9	24.4	28.6	27.0	15.7
7/8	F14-UT-F14-F14-	44.7	25.9	31.8	34.9	18.3
1	F16-UT-F16-F16-	49.0	31.2	38.1	34.9	22.4
1 1/8	F18-UT-F18-F18-	55.1	31.2	46.0	42.9	24.6
1 1/4	F20-UT-F20-F20-	66.5	41.1	47.6	42.9	27.7
1 1/2	F24-UT-F24-F24-	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	M2-UT-M2-M2-	22.3	12.9	12	9.5	1.7
3	M3-UT-M3-M3-	22.3	12.9	12	9.5	2.4
4	M4-UT-M4-M4-	25.4	13.7	12	12.7	2.4
6	M6-UT-M6-M6-	27.0	15.3	14	12.7	4.8
8	M8-UT-M8-M8-	29.9	16.2	16	15.9	6.4
10	M10-UT-M10-M10-	31.5	17.2	19	17.5	7.9
12	M12-UT-M12-M12-	36.0	22.8	22	20.6	9.5
14	M14-UT-M14-M14-	38.8	24.4	25	25.4	11.1
15	M15-UT-M15-M15-	38.8	24.4	25	25.4	11.9
16	M16-UT-M16-M16-	38.8	24.4	25	25.4	12.7
18	M18-UT-M18-M18-	38.8	24.4	30	27.0	15.1
20	M20-UT-M20-M20-	44.6	26.0	32	34.9	15.9
22	M22-UT-M22-M22-	44.6	26.0	32	34.9	18.3
25	M25-UT-M25-M25-	49.1	31.3	38	34.9	21.8
28	M28-UT-M28-M28-	64.0	36.6	46	42.9	21.8
30	M30-UT-M30-M30-	69.9	39.6	50	42.9	26.2
32	M32-UT-M32-M32-	72.3	42.0	50	42.9	28.6
38	M38-UT-M38-M38-	84.0	49.4	60	50.8	33.7

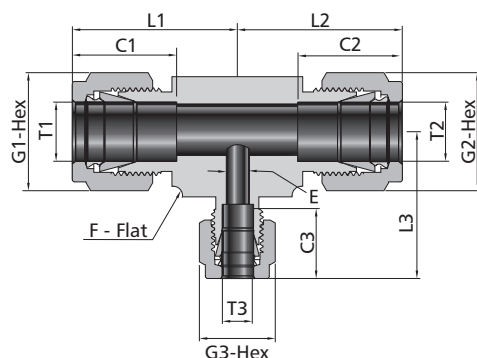
Reducing Union Tees



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	F4-UT-F4-F2-	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	F6-UT-F4-F4-	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	F6-UT-F4-F6-	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	F6-UT-F6-F4-	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	F8-UT-F4-F4-	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	F8-UT-F4-F8-	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	F8-UT-F6-F6-	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	F8-UT-F6-F8-	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	F8-UT-F8-F4-	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	F8-UT-F8-F6-	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	F10-UT-F6-F6-	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	F10-UT-F6-F8-	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	F10-UT-F8-F6-	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	F10-UT-F8-F8-	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	F10-UT-F10-F6-	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	F10-UT-F10-F8-	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	F12-UT-F6-F6-	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	F12-UT-F8-F6-	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	F12-UT-F8-F8-	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	F12-UT-F10-F6-	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	F12-UT-F10-F8-	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	F12-UT-F10-F10-	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	F12-UT-F12-F4-	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	F12-UT-F12-F6-	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	F12-UT-F12-F8-	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	F12-UT-F12-F10-	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	F14-UT-F8-F12-	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	F14-UT-F10-F6-	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	F14-UT-F12-F6-	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	F14-UT-F12-F8-	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	F14-UT-F12-F12-	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	F14-UT-F14-F4-	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	F14-UT-F14-F6-	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	F16-UT-F6-F6-	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	F16-UT-F8-F4-	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	F16-UT-F8-F6-	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	F16-UT-F8-F8-	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	F16-UT-F8-F16-	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	F16-UT-F10-F6-	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	F16-UT-F12-F6-	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	F16-UT-F12-F8-	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	F16-UT-F12-F10-	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	F16-UT-F12-F16-	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	F16-UT-F14-F4-	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	F16-UT-F14-F6-	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	F16-UT-F14-F8-	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	F16-UT-F14-F12-	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	F16-UT-F14-F14-	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	F16-UT-F16-F4-	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	F16-UT-F16-F6-	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	F16-UT-F16-F8-	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	F16-UT-F16-F10-	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	F16-UT-F16-F12-	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	F16-UT-F16-F14-	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	F20-UT-F20-F16-	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	F24-UT-F24-F16-	78.7	78.7	60.0	50.0	50.0	31.3	57.2	57.2	38.1	50.8	22.4

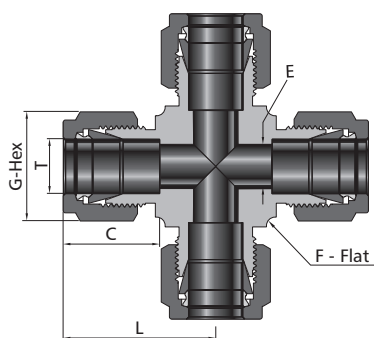
Reducing Union Tees



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	M3-UT-M3-M6-	24.7	24.7	27.0	12.9	12.9	15.3	12	12	14	12.7	2.4	
6	6	3	M6-UT-M6-M3-	27.0	27.0	25.4	15.3	15.3	12.9	14	14	12	12.7	2.4	
6	6	8	M6-UT-M6-M8-	28.0	28.0	28.8	15.3	15.3	16.2	14	14	16	14.3	4.8	
8	8	6	M8-UT-M8-M6-	30.0	30.0	29.0	16.2	16.2	15.3	16	16	14	15.9	4.8	
8	8	12	M8-UT-M8-M12-	35.2	35.2	36.0	16.2	16.2	22.8	16	16	22	20.6	6.4	
10	10	6	M10-UT-M10-M6-	31.5	31.5	29.9	17.2	17.2	15.3	19	19	14	17.5	4.8	
10	10	8	M10-UT-M10-M8-	31.5	31.5	30.7	17.2	17.2	16.2	19	19	16	17.5	6.4	
12	12	6	M12-UT-M12-M6-	36.0	36.0	31.8	22.8	22.8	15.3	22	22	14	20.6	4.8	
12	12	8	M12-UT-M12-M8-	36.0	36.0	35.2	22.8	22.8	16.2	22	22	16	20.6	6.4	
12	12	14	M12-UT-M12-M14-	38.0	38.0	38.0	22.8	22.8	24.4	22	22	25	25.4	9.5	
12	12	18	M12-UT-M12-M18-	39.8	39.8	39.8	22.8	22.8	24.4	22	22	30	27.0	9.5	
14	14	8	M14-UT-M14-M8-	38.0	38.0	37.2	24.4	24.4	16.2	25	25	16	25.4	6.4	
14	14	10	M14-UT-M14-M10-	38.0	38.0	38.0	24.4	24.4	17.2	25	25	19	25.4	7.9	
15	15	12	M15-UT-M15-M12-	38.8	38.8	38.8	24.4	24.4	22.8	25	25	22	25.4	9.5	
16	16	8	M16-UT-M16-M8-	38.8	37.2	38.8	24.4	16.2	24.4	25	16	25	25.4	6.4	
16	16	12	M16-UT-M16-M12-	38.8	38.8	38.9	24.4	24.4	22.8	25	25	22	25.4	9.5	
18	18	8	M18-UT-M18-M8-	39.8	39.8	39.0	24.4	24.4	16.2	30	30	16	27.0	6.4	
18	18	10	M18-UT-M18-M10-	39.8	39.8	39.8	24.4	24.4	17.2	30	30	19	27.0	7.9	
18	18	12	M18-UT-M18-M12-	39.8	39.8	39.8	24.4	24.4	22.8	30	30	22	27.0	9.5	
18	18	14	M18-UT-M18-M14-	39.8	39.8	39.8	24.4	24.4	24.4	30	30	25	27.0	11.1	
20	20	14	M20-UT-M20-M14-	44.6	44.6	44.6	26.0	26.0	24.4	32	32	25	34.9	11.1	
22	22	12	M22-UT-M22-M12-	44.6	44.6	44.6	26.0	26.0	22.8	32	32	22	34.9	9.5	
25	25	12	M25-UT-M25-M12-	49.1	49.1	44.7	31.3	31.3	22.8	38	38	22	34.9	9.5	

Union Crosses



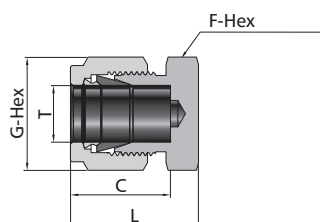
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
1/8	F2-UC-F2-F2-F2-	22.4	12.7	11.1	9.5	2.3
3/16	F3-UC-F3-F3-F3-	24.4	13.7	12.7	11.1	3.0
1/4	F4-UC-F4-F4-F4-	26.9	15.2	14.3	12.7	4.8
5/16	F5-UC-F5-F5-F5-	29.7	16.2	15.9	15.9	6.4
3/8	F6-UC-F6-F6-F6-	30.5	16.8	17.5	15.9	7.1
1/2	F8-UC-F8-F8-F8-	36.1	22.9	22.2	20.6	10.4
5/8	F10-UC-F10-F10-F10-	36.3	24.4	25.4	27.0	12.7
3/4	F12-UC-F12-F12-F12-	39.9	24.4	28.6	27.0	15.7
7/8	F14-UC-F14-F14-F14-	44.7	25.9	31.8	34.9	18.3
1	F16-UC-F16-F16-F16-	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	M3-UC-M3-M3-M3-	22.3	12.9	12	9.5	2.4
4	M4-UC-M4-M4-M4-	25.4	13.7	12	12.7	2.4
6	M6-UC-M6-M6-M6-	27.0	15.3	14	12.7	4.8
8	M8-UC-M8-M8-M8-	29.9	16.2	16	15.9	6.4
10	M10-UC-M10-M10-M10-	33.5	17.2	19	20.6	7.9
12	M12-UC-M12-M12-M12-	36.0	22.8	22	20.6	9.5
16	M16-UC-M16-M16-M16-	37.0	24.4	25	23.8	12.7
18	M18-UC-M18-M18-M18-	38.3	24.4	30	27.0	15.1
20	M20-UC-M20-M20-M20-	44.6	26.0	32	34.9	15.9
22	M22-UC-M22-M22-M22-	44.7	26.0	32	34.9	18.3
25	M25-UC-M25-M25-M25-	49.2	31.3	38	34.9	21.8

Caps



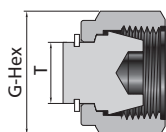
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm			
		L	C	G	F
1/16	CA-F1-	15.0	8.6	7.9	7.9
1/8	CA-F2-	20.1	12.7	11.1	11.1
3/16	CA-F3-	21.3	13.7	12.7	11.1
1/4	CA-F4-	23.4	15.2	14.3	12.7
5/16	CA-F5-	24.4	16.3	15.9	14.3
3/8	CA-F6-	25.7	16.8	17.5	15.9
1/2	CA-F8-	29.2	22.9	22.2	20.6
5/8	CA-F10-	30.0	24.4	25.4	23.8
3/4	CA-F12-	31.5	24.4	28.6	27.0
7/8	CA-F14-	34.0	25.9	31.8	30.2
1	CA-F16-	38.4	31.2	38.1	34.9
1 1/8	CA-F18-	38.4	31.2	46.0	41.3
1 1/4	CA-F20-	53.3	41.1	47.6	44.5
1 1/2	CA-F24-	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	CA-M2-	20.1	12.9	12	12
3	CA-M3-	20.1	12.9	12	12
4	CA-M4-	21.3	13.7	12	12
6	CA-M6-	23.1	15.3	14	14
8	CA-M8-	24.5	16.2	16	15
10	CA-M10-	26.6	17.2	19	18
12	CA-M12-	29.1	22.8	22	22
14	CA-M14-	29.9	24.4	25	24
15	CA-M15-	29.9	24.4	25	24
16	CA-M16-	29.9	24.4	25	24
18	CA-M18-	31.4	24.4	30	27
20	CA-M20-	34.0	26.0	32	30
22	CA-M22-	34.0	26.0	32	30
25	CA-M25-	38.5	31.3	38	35
28	CA-M28-	48.5	36.6	46	41
30	CA-M30-	53.4	39.6	50	46
32	CA-M32-	55.8	42.0	50	46
38	CA-M38-	65.4	49.4	60	55

Plugs



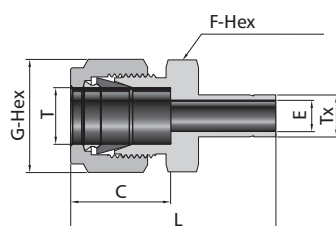
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm
		G
1/16	PL-F1-	7.9
1/8	PL-F2-	11.1
3/16	PL-F3-	12.7
1/4	PL-F4-	14.3
5/16	PL-F5-	15.9
3/8	PL-F6-	17.5
1/2	PL-F8-	22.2
5/8	PL-F10-	25.4
3/4	PL-F12-	28.6
7/8	PL-F14-	31.8
1	PL-F16-	38.1
1 1/4	PL-F20-	47.6
1 1/2	PL-F24-	57.2

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm
		G
2	PL-M2-	12
3	PL-M3-	12
4	PL-M4-	12
6	PL-M6-	14
8	PL-M8-	16
10	PL-M10-	19
12	PL-M12-	22
14	PL-M14-	25
15	PL-M15-	25
16	PL-M16-	25
18	PL-M18-	30
20	PL-M20-	32
22	PL-M22-	32
25	PL-M25-	38
28	PL-M28-	46
30	PL-M30-	50
32	PL-M32-	50
38	PL-M38-	60

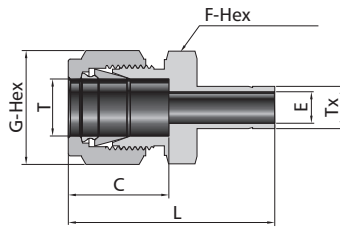
Reducers



Metric Tube

T-Tube O.D. (mm)	Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm				
			L	C	G	F	E
2	3	M2-R-MT3-	33.5	12.9	12	12	1.7
3	4	M3-R-MT4-	35.0	12.9	12	12	2.4
3	6	M3-R-MT6-	36.1	12.9	12	12	2.4
3	10	M3-R-MT10-	38.4	12.9	12	14	2.4
4	6	M4-R-MT6-	37.1	13.7	12	12	2.4
6	3	M6-R-MT3-	36.9	15.3	14	14	1.9
6	8	M6-R-MT8-	39.9	15.3	14	14	4.8
6	10	M6-R-MT10-	40.7	15.3	14	14	4.8
6	12	M6-R-MT12-	46.3	15.3	14	14	4.8
6	18	M6-R-MT18-	49.6	15.3	14	22	4.8
8	6	M8-R-MT6-	40.3	16.2	16	15	4.1
8	10	M8-R-MT10-	42.0	16.2	16	15	6.4
8	12	M8-R-MT12-	47.6	16.2	16	15	6.4
10	6	M10-R-MT6-	42.4	17.2	19	18	4.1
10	8	M10-R-MT8-	43.4	17.2	19	18	5.6
10	12	M10-R-MT12-	49.8	17.2	19	18	7.9
10	15	M10-R-MT15-	51.3	17.2	19	18	7.9
10	18	M10-R-MT18-	51.3	17.2	19	22	7.9
12	6	M12-R-MT6-	44.9	22.8	22	22	4.1
12	8	M12-R-MT8-	45.9	22.8	22	22	5.6
12	10	M12-R-MT10-	46.7	22.8	22	22	7.1
12	16	M12-R-MT16-	53.8	22.8	22	22	9.5
12	18	M12-R-MT18-	53.8	22.8	22	22	9.5
12	20	M12-R-MT20-	56.1	22.8	22	22	9.5
12	22	M12-R-MT22-	56.1	22.8	22	24	9.5
12	25	M12-R-MT25-	62.4	22.8	22	27	9.5
16	12	M16-R-MT12-	53.0	24.4	25	24	8.8
18	12	M18-R-MT12-	54.6	24.4	30	27	8.8
18	16	M18-R-MT16-	56.1	24.4	30	27	12.0
18	20	M18-R-MT20-	57.6	24.4	30	27	15.1
18	22	M18-R-MT22-	57.6	24.4	30	27	15.1
18	25	M18-R-MT25-	62.4	24.4	30	27	15.1
20	16	M20-R-MT16-	57.9	26.0	32	30	12.0
20	18	M20-R-MT18-	57.9	26.0	32	30	13.9
20	22	M20-R-MT22-	59.4	26.0	32	30	15.9
20	25	M20-R-MT25-	64.2	26.0	32	30	15.8
22	18	M22-R-MT18-	57.9	26.0	32	30	13.9
22	20	M22-R-MT20-	59.4	26.0	32	30	15.5
22	25	M22-R-MT25-	64.2	26.0	32	30	18.3
25	18	M25-R-MT18-	63.1	31.3	38	35	13.9
25	20	M25-R-MT20-	64.6	31.3	38	35	15.5

Reducers

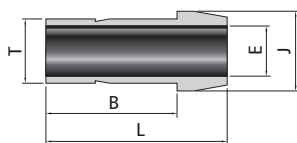


Metric Tube

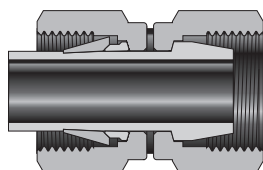
Fractional Tube

T-Tube O.D. (mm)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
			L	C	G	F	E
2	1/8	M2-R-FT2-	33.5	12.9	12	12	1.7
3	1/8	M3-R-FT2-	33.5	12.9	12	12	2.0
3	1/4	M3-R-FT4-	36.1	12.9	12	12	2.4
4	1/4	M4-R-FT4-	37.1	13.7	12	12	2.4
6	1/8	M6-R-FT2-	36.9	15.3	14	14	2.0
6	1/4	M6-R-FT4-	39.2	15.3	14	14	4.4
6	5/16	M6-R-FT5-	39.9	15.3	14	14	4.8
6	3/8	M6-R-FT6-	40.7	15.3	14	14	4.8
6	1/2	M6-R-FT8-	46.3	15.3	14	14	4.8
8	1/4	M8-R-FT4-	40.3	16.2	16	15	4.4
8	3/8	M8-R-FT6-	42.0	16.2	16	15	6.4
8	1/2	M8-R-FT8-	47.6	16.2	16	15	6.4
10	3/8	M10-R-FT6-	44.2	17.2	19	18	6.8
10	1/2	M10-R-FT8-	49.8	17.2	19	18	7.9
12	1/2	M12-R-FT8-	52.3	22.8	22	22	9.3
12	3/4	M12-R-FT12-	53.8	22.8	22	22	9.5
18	3/4	M18-R-FT12-	56.1	24.4	30	27	14.7
18	1	M18-R-FT16-	62.4	24.4	30	27	15.1
25	1	M25-R-FT16-	69.5	31.3	38	35	20.2

Port Connectors



1" /25 mm and below



1 1/4" /28 mm and above

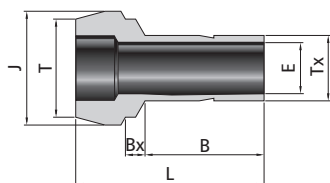
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm			
		L	B	E	J
1/16	PC-F1-	13.7	10.7	0.8	3.3
1/8	PC-F2-	22.4	15.7	2.0	6.1
1/4	PC-F4-	24.6	18.8	4.3	9.4
5/16	PC-F5-	25.9	20.1	5.6	10.9
3/8	PC-F6-	26.2	20.3	6.9	12.7
1/2	PC-F8-	35.8	25.9	9.4	15.7
5/8	PC-F10-	37.8	28.1	11.9	20.5
3/4	PC-F12-	37.3	27.7	14.7	22.1
1	PC-F16-	48.0	34.5	20.3	28.4
1 1/4	PC-F20-	69.1	50.6	25.9	37.4
1 1/2	PC-F24-	84.1	59.4	31.8	45.8

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm			
		L	B	E	J
3	PC-M3-	22.2	15.7	1.9	6.0
6	PC-M6-	24.6	18.7	4.1	9.0
8	PC-M8-	25.9	20.0	5.6	11.0
10	PC-M10-	26.1	20.2	7.1	13.1
12	PC-M12-	35.8	26.0	8.8	15.0
15	PC-M15-	37.8	27.6	11.2	19.6
16	PC-M16-	37.8	27.6	12.0	20.6
18	PC-M18-	37.8	27.7	13.9	21.0
20	PC-M20-	39.4	29.2	15.5	24.6
25	PC-M25-	49.3	34.5	19.9	31.2
28	PC-M28-	63.5	48.3	22.5	34.4
30	PC-M30-	67.6	52.2	24.3	37.4
32	PC-M32-	69.7	52.4	26.5	39.4
38	PC-M38-	81.9	61.4	31.6	45.8

Reducing Port Connectors



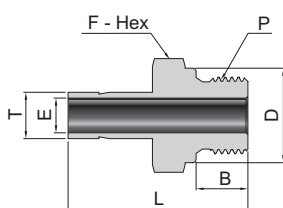
Fractional Tube

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
			L	B	E	Bx	J
1/8	1/16	F2-PC-F1-	17.3	8.6	0.8	2.0	6.1
1/4	1/16	F4-PC-F1-	18.0	8.6	0.8	3.6	9.4
1/4	1/8	F4-PC-F2-	22.6	13.5	2.0	3.3	9.4
3/8	1/8	F6-PC-F2-	23.1	13.5	2.0	3.8	12.7
3/8	1/4	F6-PC-F4-	24.9	15.7	4.3	3.3	12.7
1/2	1/4	F8-PC-F4-	29.2	15.7	4.3	3.8	15.7
1/2	3/8	F8-PC-F6-	30.5	17.5	6.9	3.3	15.7
3/4	1/2	F12-PC-F8-	37.8	23.1	9.4	3.8	22.1
1	1/2	F16-PC-F8-	42.9	24.4	9.4	4.8	28.5
1	3/4	F16-PC-F12-	43.7	25.9	14.7	4.1	28.5

Metric Tube

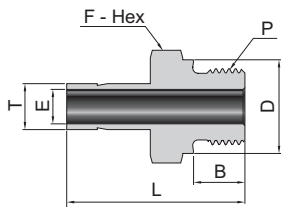
T-Tube O.D. (mm)	Tx-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm				
			L	B	E	Bx	J
6	3	M6-PC-M3-	22.6	13.5	1.9	3.2	9.0
8	6	M8-PC-M6-	24.7	15.7	4.1	3.1	11.0
10	6	M10-PC-M6-	25.0	15.7	4.1	3.4	13.1
10	8	M10-PC-M8-	26.3	17.0	5.6	3.1	13.1
12	6	M12-PC-M6-	29.6	15.7	4.1	3.6	15.0
12	8	M12-PC-M8-	29.8	16.8	5.6	3.4	15.0
12	10	M12-PC-M10-	30.4	17.5	7.1	3.1	15.0
16	12	M16-PC-M12-	36.2	23.1	8.8	3.4	19.0
28	25	M28-PC-M25-	56.5	33.0	19.8	8.2	34.3
32	25	M32-PC-M25-	60.3	33.0	19.8	9.9	39.5
38	25	M38-PC-M25-	65.8	33.0	19.8	12.3	47.1

Male Adapters



Fractional Tube

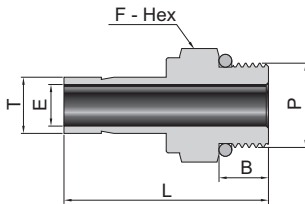
T-Tube O.D. (in.)	P-BS Size	Basic Ordering Number	Dimension, in. (mm)				
			L	B	E	F	D
1/8	1/8	FT2-MA-MBS2-	1.22(31.0)	0.28(7.1)	0.08(2.0)	0.56(14.3)	0.54(13.7)
1/8	1/4	FT2-MA-MBS4-	1.41(35.8)	0.44(11.2)	0.08(2.0)	0.75(19.1)	0.70(17.8)
1/4	1/8	FT4-MA-MBS2-	1.31(33.3)	0.28(7.1)	0.16(4.1)	0.56(14.3)	0.54(13.7)
1/4	1/4	FT4-MA-MBS4-	1.50(38.1)	0.44(11.2)	0.17(4.3)	0.75(19.1)	0.70(17.8)
3/8	1/8	FT6-MA-MBS2-	1.34(34.0)	0.28(7.1)	0.05(1.3)	0.56(14.3)	0.54(13.7)
3/8	1/4	FT6-MA-MBS4-	1.57(39.9)	0.44(11.2)	0.23(5.8)	0.75(19.1)	0.70(17.8)
3/8	3/8	FT6-MA-MBS6-	1.60(40.6)	0.44(11.2)	0.27(6.9)	0.87(22.2)	0.85(21.6)
3/8	1/2	FT6-MA-MBS8-	1.69(42.9)	0.56(14.2)	0.28(7.1)	1.06(27.0)	1.02(25.9)
1/2	1/4	FT8-MA-MBS4-	1.79(45.5)	0.44(11.2)	0.23(5.8)	0.75(19.1)	0.70(17.8)
1/2	3/8	FT8-MA-MBS6-	1.82(46.2)	0.44(11.2)	0.31(7.9)	0.87(22.2)	0.85(21.6)
1/2	1/2	FT8-MA-MBS8-	1.94(49.2)	0.56(14.2)	0.37(9.4)	1.06(27.0)	1.02(25.9)
5/8	1/2	FT10-MA-MBS8-	1.97(50.0)	0.56(14.2)	0.47(11.9)	1.06(27.0)	1.02(25.9)
3/4	3/4	FT12-MA-MBS12-	2.16(54.9)	0.63(16.0)	0.58(14.7)	1.31(33.3)	1.26(32.0)
1	1	FT16-MA-MBS16-	2.54(64.5)	0.72(18.3)	0.80(20.3)	1.63(41.3)	1.53(38.9)



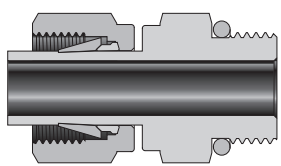
Fractional Tube

ISO Parallel Thread (BP)

T-Tube O.D. (in.)	P-BP Size	Basic Ordering Number	Dimension, in. (mm)				
			L	B	E	F	D
1/8	1/8	FT2-MA-PMBP2-	1.09(27.7)	0.28(7.1)	0.05(1.3)	0.56(14.3)	0.54(13.7)
1/8	1/4	FT2-MA-PMBP4-	1.31(33.3)	0.44(11.2)	0.05(1.3)	0.75(19.1)	0.70(17.8)
1/4	1/8	FT4-MA-PMBP2-	1.19(30.2)	0.28(7.1)	0.16(4.1)	0.56(14.3)	0.54(13.7)
1/4	1/4	FT4-MA-PMBP4-	1.50(38.1)	0.44(11.2)	0.18(4.6)	0.75(19.1)	0.70(17.8)
3/8	1/8	FT6-MA-PMBP2-	1.34(34.0)	0.28(7.1)	0.05(1.3)	0.75(19.1)	0.54(13.7)
3/8	1/4	FT6-MA-PMBP4-	1.47(37.3)	0.44(11.2)	0.25(6.4)	0.75(19.1)	0.70(17.8)
3/8	3/8	FT6-MA-PMBP6-	1.50(38.1)	0.44(11.2)	0.28(7.1)	0.87(22.2)	0.85(21.6)
3/8	1/2	FT6-MA-PMBP8-	1.69(42.9)	0.56(14.2)	0.28(7.1)	1.06(27.0)	1.02(25.9)
1/2	1/4	FT8-MA-PMBP4-	1.69(42.9)	0.44(11.2)	0.25(6.4)	0.75(19.1)	0.70(17.8)
1/2	3/8	FT8-MA-PMBP6-	1.72(43.7)	0.44(11.2)	0.31(7.9)	0.87(22.2)	0.85(21.6)
1/2	1/2	FT8-MA-PMBP8-	1.94(49.3)	0.56(14.2)	0.39(9.9)	1.06(27.0)	1.02(25.9)
5/8	1/2	FT10-MA-PMBP8-	1.97(50.0)	0.56(14.2)	0.47(11.9)	1.06(27.0)	1.02(25.9)
3/4	3/4	FT12-MA-PMBP12-	2.09(53.1)	0.63(16.0)	0.58(14.7)	1.32(33.5)	1.26(32.0)
1	1	FT16-MA-PMBP16-	2.49(63.3)	0.72(18.3)	0.80(20.3)	1.63(41.3)	1.53(38.9)



1" and below



1 1/4" and above

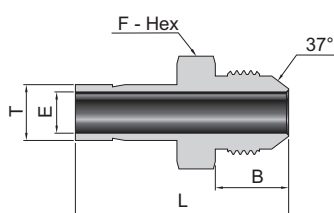
Adapt to straight thread boss of SAE J1926-1, ISO 11926-1 and MS 16142.

Fractional Tube

SAE/MS Straight Thread

T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/8	5/16-24	FT2-MA-OST5-	1.20(30.5)	0.30(7.6)	0.08(2.0)	0.44(11.1)
1/4	7/16-20	FT4-MA-OST7-	1.39(35.3)	0.36(9.1)	0.17(4.3)	0.56(14.3)
3/8	7/16-20	FT6-MA-OST7-	1.46(37.1)	0.36(9.1)	0.20(5.1)	0.56(14.3)
3/8	9/16-18	FT6-MA-OST9-	1.52(38.6)	0.39(9.9)	0.27(6.9)	0.69(17.5)
3/8	3/4-16	FT6-MA-OST12-	1.60(40.6)	0.44(11.2)	0.27(6.9)	0.87(22.2)
1/2	9/16-18	FT8-MA-OST9-	1.74(44.2)	0.39(9.9)	0.28(7.1)	0.69(17.5)
1/2	3/4-16	FT8-MA-OST12-	1.82(46.2)	0.44(11.2)	0.37(9.4)	0.87(22.2)
5/8	7/8-14	FT10-MA-OST14-	1.94(49.3)	0.50(12.7)	0.47(11.9)	1.00(25.4)
3/4	1 1/16-12	FT12-MA-OST17-	2.10(53.3)	0.59(15.0)	0.58(14.7)	1.25(31.8)
1	1 5/16-12	FT16-MA-OST21-	2.41(61.2)	0.59(15.0)	0.80(20.3)	1.50(38.1)
1 1/4	1 5/8-12	FT20-MA-OST26-	2.81(71.4)	0.59(15.0)	1.02(25.9)	1.87(47.6)
1 1/2	1 7/8-12	FT24-MA-OST30-	3.28(83.3)	0.59(15.0)	1.25(31.8)	2.13(54.0)

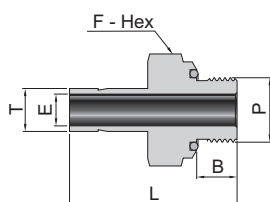
Male Adapters



Fractional Tube

37° Flare (AN)

T-Tube O.D. (in.)	AN Tube Flare Size	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/4	1/4	FT4-MA-AN4-	1.46(37.1)	0.55(14.0)	0.17(4.3)	0.50(12.7)
3/8	1/4	FT6-MA-AN4-	1.53(38.9)	0.55(14.0)	0.17(4.3)	0.50(12.7)
3/8	3/8	FT6-MA-AN6-	1.56(39.6)	0.56(14.2)	0.27(6.9)	0.63(15.9)
1/2	1/2	FT8-MA-AN8-	1.91(48.5)	0.66(16.8)	0.37(9.4)	0.81(20.6)
3/4	3/4	FT12-MA-AN12-	2.21(56.1)	0.86(21.8)	0.58(14.7)	1.13(28.6)
1	1	FT16-MA-AN16-	2.58(65.5)	0.91(23.1)	0.80(20.3)	1.37(34.9)

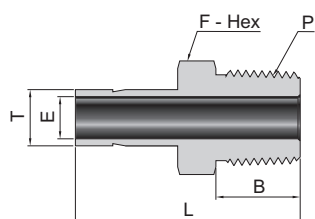


Fractional Tube

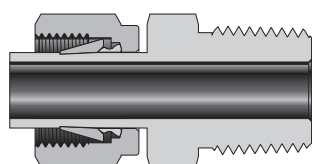
O-Seal with SAE/MS Straight Thread

T-Tube O.D. (in.)	P-SAE/MS Thread Size	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/8	5/16-24	FT2-MA-STO5-	1.28(32.5)	0.34(8.6)	0.08(2.0)	0.56(14.3)
3/16	3/8-24	FT3-MA-STO6-	1.38(35.1)	0.38(9.7)	0.12(3.0)	0.63(15.9)
1/4	7/16-20	FT4-MA-STO7-	1.54(39.1)	0.41(10.4)	0.17(4.3)	0.75(19.1)
5/16	1/2-20	FT5-MA-STO8-	1.64(41.7)	0.44(11.2)	0.22(5.6)	0.87(22.2)
3/8	9/16-18	FT6-MA-STO9-	1.70(43.2)	0.47(11.9)	0.27(6.9)	0.94(23.8)
1/2	3/4-16	FT8-MA-STO12-	1.95(49.5)	0.47(11.9)	0.37(9.4)	1.13(28.6)

Male Adapters



1" and below



1 1/4" and above

Fractional Tube

NPT Thread

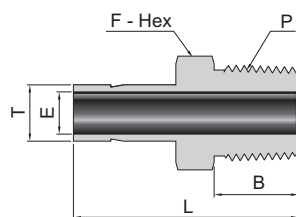
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/16	1/8	FT1-MA-NPT2-	1.00(25.4)	0.38(9.7)	0.03(0.8)	0.44(11.1)
1/8	1/8	FT2-MA-NPT2-	1.16(29.5)	0.38(9.7)	0.08(2.0)	0.44(11.1)
1/8	1/4	FT2-MA-NPT4-	1.37(34.8)	0.56(14.2)	0.08(2.0)	0.56(14.3)
3/16	1/8	FT3-MA-NPT2-	1.19(30.2)	0.38(9.7)	0.12(3.0)	0.44(11.1)
3/16	1/4	FT3-MA-NPT4-	1.40(35.6)	0.56(14.2)	0.12(3.0)	0.56(14.3)
1/4	1/8	FT4-MA-NPT2-	1.25(31.8)	0.38(9.7)	0.17(4.3)	0.44(11.1)
1/4	1/4	FT4-MA-NPT4-	1.46(37.1)	0.56(14.2)	0.17(4.3)	0.56(14.3)
1/4	3/8	FT4-MA-NPT6-	1.49(37.8)	0.56(14.2)	0.17(4.3)	0.69(17.5)
1/4	1/2	FT4-MA-NPT8-	1.71(43.4)	0.75(19.1)	0.17(4.3)	0.87(22.2)
5/16	1/8	FT5-MA-NPT2-	1.29(32.8)	0.38(9.7)	0.19(4.8)	0.44(11.1)
5/16	1/4	FT5-MA-NPT4-	1.50(38.1)	0.56(14.2)	0.22(5.6)	0.56(14.3)
5/16	3/8	FT5-MA-NPT6-	1.53(38.9)	0.56(14.2)	0.22(5.6)	0.69(17.5)
5/16	1/2	FT5-MA-NPT8-	1.74(44.2)	0.75(19.1)	0.22(5.6)	0.87(22.2)
3/8	1/8	FT6-MA-NPT2-	1.32(33.5)	0.38(9.7)	0.19(4.8)	0.44(11.1)
3/8	1/4	FT6-MA-NPT4-	1.53(38.9)	0.56(14.2)	0.27(6.9)	0.56(14.3)
3/8	3/8	FT6-MA-NPT6-	1.56(39.6)	0.56(14.2)	0.27(6.9)	0.69(17.5)
3/8	1/2	FT6-MA-NPT8-	1.78(45.2)	0.75(19.1)	0.27(6.9)	0.87(22.2)
1/2	1/4	FT8-MA-NPT4-	1.75(44.5)	0.56(14.2)	0.28(7.1)	0.56(14.3)
1/2	3/8	FT8-MA-NPT6-	1.78(45.2)	0.56(14.2)	0.37(9.4)	0.69(17.5)
1/2	1/2	FT8-MA-NPT8-	2.00(50.8)	0.75(19.1)	0.37(9.4)	0.87(22.2)
5/8	1/2	FT10-MA-NPT8-	2.06(52.3)	0.75(19.1)	0.47(11.9)	0.87(22.2)
3/4	1/2	FT12-MA-NPT8-	2.06(52.3)	0.75(19.1)	0.47(11.9)	0.87(22.2)
3/4	3/4	FT12-MA-NPT12-	2.06(52.3)	0.75(19.1)	0.58(14.7)	1.06(27.0)
3/4	1	FT12-MA-NPT16-	2.41(61.2)	0.94(23.9)	0.81(20.7)	1.37(34.9)
1	3/4	FT16-MA-NPT12-	2.31(58.7)	0.75(19.1)	0.62(15.7)	1.06(27.0)
1	1	FT16-MA-NPT16-	2.60(66.0)	0.94(23.9)	0.80(20.3)	1.37(34.9)
1 1/4	1 1/4	FT20-MA-NPT20-	3.16(80.3)	0.94(23.9)	1.02(25.9)	1.75(44.5)
1 1/2	1 1/2	FT24-MA-NPT24-	3.72(94.5)	1.03(26.2)	1.25(31.8)	2.13(54.0)

Fractional Tube

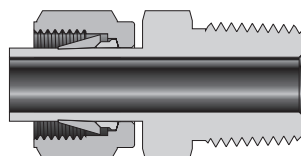
ISO Tapered Thread (BSPT)

T-Tube O.D. (in.)	P-BSPT Size	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/8	1/8	FT2-MA-MBT2-	1.16(29.5)	0.38(9.7)	0.08(2.0)	0.44(11.1)
1/8	1/4	FT2-MA-MBT4-	1.37(34.8)	0.56(14.2)	0.08(2.0)	0.56(14.3)
1/4	1/8	FT4-MA-MBT2-	1.25(31.8)	0.38(9.7)	0.17(4.3)	0.44(11.1)
1/4	1/4	FT4-MA-MBT4-	1.46(37.1)	0.56(14.2)	0.17(4.3)	0.56(14.3)
1/4	3/8	FT4-MA-MBT6-	1.49(37.8)	0.56(14.2)	0.17(4.3)	0.69(17.5)
1/4	1/2	FT4-MA-MBT8-	1.71(43.4)	0.75(19.1)	0.17(4.3)	0.87(22.2)
5/16	1/8	FT5-MA-MBT2-	1.29(32.8)	0.38(9.7)	0.19(4.8)	0.44(11.1)
5/16	1/4	FT5-MA-MBT4-	1.50(38.1)	0.56(14.2)	0.22(5.6)	0.56(14.3)
3/8	1/4	FT6-MA-MBT4-	1.53(38.9)	0.56(14.2)	0.27(6.9)	0.56(14.3)
3/8	3/8	FT6-MA-MBT6-	1.56(39.6)	0.56(14.2)	0.27(6.9)	0.69(17.5)
3/8	1/2	FT6-MA-MBT8-	1.78(45.2)	0.75(19.1)	0.27(6.9)	0.87(22.2)
1/2	1/4	FT8-MA-MBT4-	1.75(44.5)	0.56(14.2)	0.28(7.1)	0.56(14.3)
1/2	3/8	FT8-MA-MBT6-	1.78(45.2)	0.56(14.2)	0.37(9.4)	0.69(17.5)
1/2	1/2	FT8-MA-MBT8-	2.00(50.8)	0.75(19.1)	0.37(9.4)	0.87(22.2)
5/8	3/8	FT10-MA-MBT6-	1.91(48.5)	0.56(14.2)	0.37(9.5)	0.69(17.5)
5/8	1/2	FT10-MA-MBT8-	2.06(52.3)	0.75(19.1)	0.47(11.9)	0.87(22.2)
3/4	3/4	FT12-MA-MBT12-	2.06(52.3)	0.75(19.1)	0.58(14.7)	1.06(27.0)
1	1	FT16-MA-MBT16-	2.60(66.0)	0.94(23.9)	0.80(20.3)	1.37(34.9)

Male Adapters



25 mm and below



28 mm and above

Metric Tube

NPT Thread

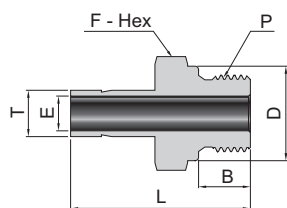
T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)			
			L	B	E	F
3	1/8	MT3-MA-NPT2-	29.4(1.16)	9.7(0.38)	1.8(0.07)	12.0(0.47)
4	1/8	MT4-MA-NPT2-	29.4(1.16)	9.7(0.38)	2.0(0.08)	12.0(0.47)
6	1/8	MT6-MA-NPT2-	32.8(1.29)	9.7(0.38)	4.1(0.16)	12.0(0.47)
6	1/4	MT6-MA-NPT4-	38.1(1.50)	14.2(0.56)	4.1(0.16)	14.0(0.55)
6	3/8	MT6-MA-NPT6-	39.2(1.54)	14.2(0.56)	4.1(0.16)	18.0(0.71)
6	1/2	MT6-MA-NPT8-	42.1(1.66)	19.1(0.75)	4.1(0.16)	22.0(0.87)
8	1/4	MT8-MA-NPT4-	39.1(1.54)	14.2(0.56)	5.6(0.22)	14.0(0.55)
8	3/8	MT8-MA-NPT6-	39.9(1.57)	14.2(0.56)	5.6(0.22)	19.0(0.75)
10	1/4	MT10-MA-NPT4-	39.9(1.57)	14.2(0.56)	7.1(0.28)	14.0(0.55)
10	3/8	MT10-MA-NPT6-	40.6(1.60)	14.2(0.56)	7.1(0.28)	18.0(0.71)
10	1/2	MT10-MA-NPT8-	46.2(1.82)	19.1(0.75)	7.1(0.28)	22.0(0.87)
12	1/4	MT12-MA-NPT4-	46.5(1.83)	14.2(0.56)	7.1(0.28)	14.0(0.55)
12	3/8	MT12-MA-NPT6-	46.2(1.82)	14.2(0.56)	8.8(0.35)	18.0(0.71)
12	1/2	MT12-MA-NPT8-	52.1(2.05)	19.1(0.75)	8.8(0.35)	22.0(0.87)
16	1/2	MT16-MA-NPT8-	50.8(2.00)	19.1(0.75)	12.7(0.50)	22.0(0.87)
16	3/4	MT16-MA-NPT12-	51.6(2.03)	19.1(0.75)	12.7(0.50)	27.0(1.06)
18	1/2	MT18-MA-NPT8-	50.8(2.00)	19.1(0.75)	12.7(0.50)	27.0(1.06)
18	3/4	MT18-MA-NPT12-	51.6(2.03)	19.1(0.75)	14.0(0.55)	27.0(1.06)
20	1/2	MT20-MA-NPT8-	51.8(2.04)	19.1(0.75)	11.9(0.47)	22.0(0.87)
20	3/4	MT20-MA-NPT12-	52.4(2.06)	19.1(0.75)	15.1(0.59)	27.0(1.06)
25	1	MT25-MA-NPT16-	65.9(2.59)	23.9(0.94)	19.8(0.78)	35.0(1.38)
28	1	MT28-MA-NPT16-	74.4(2.93)	23.9(0.94)	22.2(0.87)	35.0(1.38)
28	1 1/4	MT28-MA-NPT20-	76.2(3.00)	23.9(0.94)	22.5(0.89)	46.0(1.81)
30	1	MT30-MA-NPT16-	79.2(3.12)	23.9(0.94)	22.2(0.87)	41.0(1.61)
30	1 1/4	MT30-MA-NPT20-	80.0(3.15)	23.9(0.94)	24.3(0.96)	46.0(1.81)
32	1 1/4	MT32-MA-NPT20-	81.0(3.19)	23.9(0.94)	26.5(1.04)	46.0(1.81)
38	1 1/2	MT38-MA-NPT24-	92.2(3.63)	26.2(1.03)	31.6(1.24)	55.0(2.17)

Metric Tube

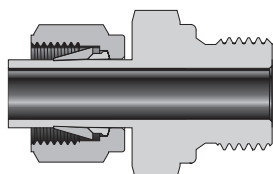
ISO Tapered Thread (BSPT)

T-Tube O.D. (mm)	P-BSPT Size	Basic Ordering Number	Dimension, mm (in.)			
			L	B	E	F
3	1/8	MT3-MA-MBT2-	29.4(1.16)	9.7(0.38)	1.8(0.07)	12.0(0.47)
4	1/8	MT4-MA-MBT2-	29.4(1.16)	9.7(0.38)	2.0(0.08)	12.0(0.47)
6	1/8	MT6-MA-MBT2-	32.8(1.29)	9.7(0.38)	4.1(0.16)	12.0(0.47)
6	1/4	MT6-MA-MBT4-	38.1(1.50)	14.2(0.56)	4.1(0.16)	14.0(0.55)
8	1/4	MT8-MA-MBT4-	39.1(1.54)	14.2(0.56)	5.6(0.22)	14.0(0.55)
8	3/8	MT8-MA-MBT6-	39.9(1.57)	14.2(0.56)	5.6(0.22)	18.0(0.71)
10	1/4	MT10-MA-MBT4-	39.9(1.57)	14.2(0.56)	7.1(0.28)	14.0(0.55)
10	3/8	MT10-MA-MBT6-	40.6(1.60)	14.2(0.56)	7.1(0.28)	18.0(0.71)
10	1/2	MT10-MA-MBT8-	44.5(1.75)	19.1(0.75)	7.5(0.30)	22.0(0.87)
12	1/4	MT12-MA-MBT4-	46.5(1.83)	14.2(0.56)	7.1(0.28)	16.0(0.63)
12	3/8	MT12-MA-MBT6-	46.2(1.82)	14.2(0.56)	8.8(0.35)	18.0(0.71)
12	1/2	MT12-MA-MBT8-	51.8(2.04)	19.1(0.75)	8.8(0.35)	22.0(0.87)
16	1/2	MT16-MA-MBT8-	50.8(2.00)	19.1(0.75)	12.7(0.50)	22.0(0.87)
18	3/4	MT18-MA-MBT12-	51.6(2.03)	19.1(0.75)	14.0(0.55)	27.0(1.06)
20	3/4	MT20-MA-MBT12-	52.4(2.06)	19.1(0.75)	15.1(0.59)	27.0(1.06)
25	1	MT25-MA-MBT16-	65.9(2.59)	23.9(0.94)	19.8(0.78)	35.0(1.38)
28	1	MT28-MA-MBT16-	74.7(2.94)	23.9(0.94)	22.2(0.87)	35.0(1.38)
28	1 1/4	MT28-MA-MBT20-	76.2(3.00)	23.9(0.94)	22.5(0.89)	46.0(1.81)
30	1 1/4	MT30-MA-MBT20-	80.0(3.15)	23.9(0.94)	24.3(0.96)	46.0(1.81)
32	1 1/4	MT32-MA-MBT20-	81.0(3.19)	23.9(0.94)	26.5(1.04)	46.0(1.81)
38	1 1/2	MT38-MA-MBT24-	92.2(3.63)	26.2(1.03)	31.6(1.24)	55.0(2.17)

Male Adapters



25 mm and below

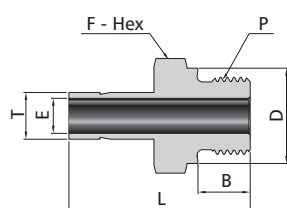


28 mm and above

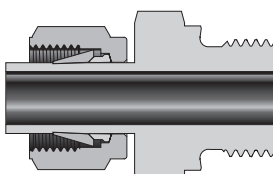
Metric Tube

ISO Parallel Thread (BS)

T-Tube O.D. (mm)	P-BS Size	Basic Ordering Number	Dimension, mm (in.)				
			L	B	E	F	D
3	1/8	MT3-MA-MBS2-	31.0(1.22)	7.1(0.28)	1.8(0.07)	14.0(0.55)	13.7(0.54)
4	1/8	MT4-MA-MBS2-	31.8(1.25)	7.1(0.28)	2.0(0.08)	14.0(0.55)	13.7(0.54)
6	1/8	MT6-MA-MBS2-	34.3(1.35)	7.1(0.28)	4.0(0.16)	14.0(0.55)	13.7(0.54)
6	1/4	MT6-MA-MBS4-	39.1(1.54)	11.2(0.44)	4.1(0.16)	19.0(0.75)	17.8(0.70)
8	1/4	MT8-MA-MBS4-	40.1(1.58)	11.2(0.44)	5.6(0.22)	19.0(0.75)	17.8(0.70)
10	1/4	MT10-MA-MBS4-	40.9(1.61)	11.2(0.44)	5.9(0.23)	19.0(0.75)	17.8(0.70)
10	3/8	MT10-MA-MBS6-	41.7(1.64)	11.2(0.44)	7.1(0.28)	22.0(0.87)	21.6(0.85)
10	1/2	MT10-MA-MBS8-	44.7(1.76)	14.2(0.56)	7.1(0.28)	27.0(1.06)	25.9(1.02)
12	1/4	MT12-MA-MBS4-	46.7(1.84)	11.2(0.44)	5.9(0.23)	19.0(0.75)	17.8(0.70)
12	3/8	MT12-MA-MBS6-	47.2(1.86)	11.2(0.44)	7.9(0.31)	22.0(0.87)	21.6(0.85)
12	1/2	MT12-MA-MBS8-	50.5(1.99)	14.2(0.56)	8.8(0.35)	27.0(1.06)	25.9(1.02)
16	1/2	MT16-MA-MBS8-	50.8(2.00)	14.2(0.56)	11.9(0.47)	27.0(1.06)	25.9(1.02)
18	3/4	MT18-MA-MBS12-	55.9(2.20)	16.0(0.63)	13.9(0.55)	35.0(1.38)	32.0(1.26)
20	3/4	MT20-MA-MBS12-	57.0(2.24)	16.0(0.63)	15.1(0.59)	35.0(1.38)	32.0(1.26)
25	1	MT25-MA-MBS16-	65.1(2.56)	18.3(0.72)	19.8(0.78)	41.0(1.61)	38.9(1.53)
28	1	MT28-MA-MBS16-	72.9(2.87)	18.3(0.72)	19.8(0.78)	41.0(1.61)	38.9(1.53)
28	1 1/4	MT28-MA-MBS20-	77.0(3.03)	19.8(0.78)	22.5(0.89)	50.0(1.97)	49.0(1.93)
30	1 1/4	MT30-MA-MBS20-	80.8(3.18)	19.8(0.78)	24.3(0.96)	50.0(1.97)	49.0(1.93)
32	1 1/4	MT32-MA-MBS20-	81.8(3.22)	19.8(0.78)	26.5(1.04)	50.0(1.97)	49.0(1.93)
38	1 1/2	MT38-MA-MBS24-	94.5(3.72)	22.1(0.87)	31.6(1.24)	55.0(2.17)	54.7(2.15)



25 mm and below



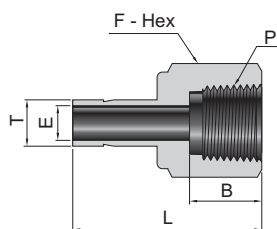
28 mm and above

Metric Tube

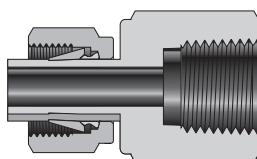
ISO Parallel Thread (BP)

T-Tube O.D. (mm)	P-BP Size	Basic Ordering Number	Dimension, mm (in.)				
			L	B	E	F	D
3	1/8	MT3-MA-PMBP2-	31.0(1.22)	7.1(0.28)	1.8(0.07)	14.0(0.55)	13.7(0.54)
4	1/8	MT4-MA-PMBP2-	31.8(1.25)	7.1(0.28)	2.0(0.08)	14.0(0.55)	13.7(0.54)
6	1/8	MT6-MA-PMBP2-	33.3(1.31)	7.1(0.28)	4.0(0.16)	14.0(0.55)	13.7(0.54)
6	1/4	MT6-MA-PMBP4-	38.1(1.50)	11.2(0.44)	4.0(0.16)	19.0(0.75)	17.8(0.70)
8	1/4	MT8-MA-PMBP4-	38.9(1.53)	11.2(0.44)	6.4(0.25)	19.0(0.75)	17.8(0.70)
10	1/4	MT10-MA-PMBP4-	38.9(1.53)	11.2(0.44)	6.4(0.25)	19.0(0.75)	17.8(0.70)
10	3/8	MT10-MA-PMBP6-	39.7(1.56)	11.2(0.44)	7.5(0.30)	22.0(0.87)	21.6(0.85)
10	1/2	MT10-MA-PMBP8-	42.9(1.69)	14.2(0.56)	7.5(0.30)	27.0(1.06)	25.9(1.02)
12	1/4	MT12-MA-PMBP4-	43.7(1.72)	11.2(0.44)	6.4(0.25)	19.0(0.75)	17.8(0.70)
12	3/8	MT12-MA-PMBP6-	44.5(1.75)	11.2(0.44)	7.9(0.31)	22.0(0.87)	21.6(0.85)
12	1/2	MT12-MA-PMBP8-	49.2(1.94)	14.2(0.56)	9.1(0.36)	27.0(1.06)	25.9(1.02)
16	1/2	MT16-MA-PMBP8-	50.8(2.00)	14.2(0.56)	11.9(0.47)	27.0(1.06)	25.9(1.02)
18	3/4	MT18-MA-PMBP12-	53.2(2.09)	16.0(0.63)	14.0(0.55)	33.0(1.30)	32.0(1.26)
20	3/4	MT20-MA-PMBP12-	54.0(2.13)	16.0(0.63)	15.1(0.59)	33.0(1.30)	32.0(1.26)
25	1	MT25-MA-PMBP16-	65.1(2.56)	18.3(0.72)	19.8(0.78)	41.0(1.61)	38.9(1.53)
28	1	MT28-MA-PMBP16-	72.7(2.86)	18.3(0.72)	19.8(0.78)	41.0(1.61)	38.9(1.53)
28	1 1/4	MT28-MA-PMBP20-	77.3(3.04)	19.8(0.78)	22.5(0.89)	50.0(1.97)	49.0(1.93)
30	1 1/4	MT30-MA-PMBP20-	80.8(3.18)	19.8(0.78)	24.3(0.96)	50.0(1.97)	49.0(1.93)
32	1 1/4	MT32-MA-PMBP20-	82.1(3.23)	19.8(0.78)	26.5(1.04)	50.0(1.97)	49.0(1.93)
38	1 1/2	MT38-MA-PMBP24-	94.5(3.72)	22.1(0.87)	31.6(1.24)	55.0(2.17)	54.7(2.15)

Female Adapters



1" and below



1 1/4" and above

Fractional Tube

NPT Thread

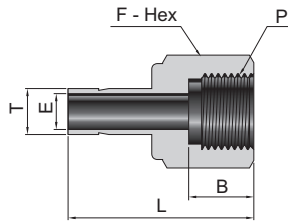
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/16	1/8	FT1-FA-FNPT2-	1.07(27.2)	0.41(10.4)	0.03(0.8)	0.56(14.3)
1/8	1/8	FT2-FA-FNPT2-	1.24(31.5)	0.41(10.4)	0.08(2.0)	0.56(14.3)
1/8	1/4	FT2-FA-FNPT4-	1.39(35.3)	0.59(15.0)	0.08(2.0)	0.75(19.1)
3/16	1/8	FT3-FA-FNPT2-	1.25(31.8)	0.41(10.4)	0.11(2.9)	0.56(14.3)
3/16	1/4	FT3-FA-FNPT4-	1.41(35.8)	0.59(15.0)	0.12(3.0)	0.75(19.1)
1/4	1/8	FT4-FA-FNPT2-	1.30(33.0)	0.41(10.4)	0.17(4.3)	0.56(14.3)
1/4	1/4	FT4-FA-FNPT4-	1.46(37.1)	0.59(15.0)	0.17(4.3)	0.75(19.1)
1/4	3/8	FT4-FA-FNPT6-	1.55(39.4)	0.59(15.0)	0.17(4.3)	0.87(22.2)
1/4	1/2	FT4-FA-FNPT8-	1.79(45.5)	0.78(19.8)	0.17(4.3)	1.06(27.0)
5/16	1/8	FT5-FA-FNPT2-	1.34(34.0)	0.41(10.4)	0.22(5.6)	0.56(14.3)
5/16	1/4	FT5-FA-FNPT4-	1.48(37.6)	0.59(15.0)	0.22(5.6)	0.75(19.1)
5/16	3/8	FT5-FA-FNPT6-	1.59(40.4)	0.59(15.0)	0.22(5.6)	0.87(22.2)
3/8	1/8	FT6-FA-FNPT2-	1.35(34.3)	0.41(10.4)	0.27(6.9)	0.56(14.3)
3/8	1/4	FT6-FA-FNPT4-	1.50(38.1)	0.59(15.0)	0.27(6.9)	0.75(19.1)
3/8	3/8	FT6-FA-FNPT6-	1.59(40.4)	0.59(15.0)	0.27(6.9)	0.87(22.2)
3/8	1/2	FT6-FA-FNPT8-	1.84(46.7)	0.78(19.8)	0.27(6.9)	1.06(27.0)
1/2	1/4	FT8-FA-FNPT4-	1.71(43.4)	0.59(15.0)	0.37(9.4)	0.75(19.1)
1/2	3/8	FT8-FA-FNPT6-	1.79(45.5)	0.59(15.0)	0.37(9.4)	0.87(22.2)
1/2	1/2	FT8-FA-FNPT8-	2.04(51.8)	0.78(19.8)	0.37(9.4)	1.06(27.0)
5/8	3/8	FT10-FA-FNPT6-	1.86(47.2)	0.59(15.0)	0.47(11.9)	0.87(22.2)
5/8	1/2	FT10-FA-FNPT8-	2.09(53.1)	0.78(19.8)	0.47(11.9)	1.06(27.0)
3/4	1/2	FT12-FA-FNPT8-	2.08(52.8)	0.78(19.8)	0.58(14.7)	1.06(27.0)
3/4	3/4	FT12-FA-FNPT12-	2.16(54.9)	0.81(20.6)	0.58(14.7)	1.31(33.3)
3/4	1	FT12-FA-FNPT16-	2.30(58.4)	1.00(25.4)	0.58(14.7)	1.63(41.3)
7/8	3/4	FT14-FA-FNPT12-	2.22(56.4)	0.81(20.6)	0.58(14.7)	1.31(33.3)
1	3/4	FT16-FA-FNPT12-	2.39(60.7)	0.81(20.6)	0.80(20.3)	1.31(33.3)
1	1	FT16-FA-FNPT16-	2.53(64.3)	1.00(25.4)	0.80(20.3)	1.63(41.3)
1 1/4	1 1/4	FT20-FA-FNPT20-	3.06(77.7)	1.00(25.4)	1.02(25.9)	2.13(54.0)
1 1/2	1 1/2	FT24-FA-FNPT24-	3.50(88.9)	1.09(27.7)	1.25(31.8)	2.37(60.3)

Fractional Tube

ISO Tapered Thread (RT)

T-Tube O.D. (in.)	P-RT Size	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/4	1/8	FT4-FA-FBT2-	1.30(33.0)	0.41(10.4)	0.17(4.3)	0.56(14.3)
1/4	1/4	FT4-FA-FBT4-	1.45(36.8)	0.59(15.0)	0.17(4.3)	0.75(19.1)
3/8	1/4	FT6-FA-FBT4-	1.50(38.1)	0.59(15.0)	0.27(6.9)	0.75(19.1)
3/8	3/8	FT6-FA-FBT6-	1.59(40.4)	0.59(15.0)	0.27(6.9)	0.87(22.2)
1/2	1/4	FT8-FA-FBT4-	1.71(43.4)	0.59(15.0)	0.37(9.4)	0.75(19.1)
1/2	3/8	FT8-FA-FBT6-	1.80(45.7)	0.59(15.0)	0.37(9.4)	0.87(22.2)
1/2	1/2	FT8-FA-FBT8-	2.05(52.1)	0.78(19.8)	0.37(9.4)	1.06(27.0)

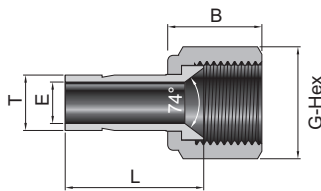
Female Adapters



Fractional Tube

ISO Parallel Thread (BP)

T-Tube O.D. (in.)	P-BP Size	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/8	1/8	FT2-FA-FBP2-	1.17(29.7)	0.40(10.2)	0.08(2.0)	0.56(14.3)
1/4	1/8	FT4-FA-FBP2-	1.25(31.8)	0.40(10.2)	0.17(4.3)	0.56(14.3)
1/4	1/4	FT4-FA-FBP4-	1.50(38.1)	0.60(15.2)	0.17(4.3)	0.75(19.1)
3/8	1/4	FT6-FA-FBP4-	1.55(39.4)	0.60(15.2)	0.27(6.9)	0.75(19.1)
3/8	3/8	FT6-FA-FBP6-	1.57(39.9)	0.60(15.2)	0.27(6.9)	0.94(23.8)
1/2	3/8	FT8-FA-FBP6-	1.78(45.2)	0.60(15.2)	0.38(9.7)	0.94(23.8)
1/2	1/2	FT8-FA-FBP8-	1.95(49.5)	0.72(18.2)	0.38(9.7)	1.06(27.0)

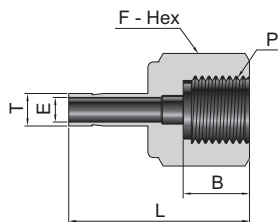


Fractional Tube

AN Thread

T-Tube O.D. (in.)	AN Tube Flare Size(in.)	Basic Ordering Number	Dimension, in. (mm)			
			L	B	E	F
1/8	1/8	FT2-FA-AN2-	0.88(22.4)	0.55(14.0)	0.09(2.4)	0.37(9.5)
1/8	1/4	FT2-FA-AN4-	0.88(22.4)	0.62(15.8)	0.09(2.4)	0.56(14.3)
1/4	1/4	FT4-FA-AN4-	0.96(24.4)	0.62(15.8)	0.18(4.6)	0.56(14.3)
3/8	3/8	FT6-FA-AN6-	1.11(28.1)	0.73(18.5)	0.28(7.1)	0.69(17.5)
1/2	1/2	FT8-FA-AN8-	1.42(36.1)	0.85(21.6)	0.39(9.9)	0.87(22.2)
3/4	3/4	FT12-FA-AN12-	1.49(37.8)	1.03(26.2)	0.58(14.7)	1.25(31.8)

Female Adapters

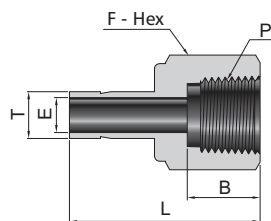


Metric Tube

ISO Parallel Thread (BG)

T-Tube O.D. (mm)	P-BG Size	Basic Ordering Number	Dimension, mm (in.)			
			L	B	E	F
3	1/8	MT3-FA-FBP2-	28.6(1.13)	6.5(0.26)	1.6(0.06)	14.0(0.55)
3	1/4	MT3-FA-FBP4-	33.5(1.32)	10.2(0.40)	1.9(0.07)	19.0(0.75)
4	1/8	MT4-FA-FBP2-	29.4(1.16)	6.5(0.26)	2.0(0.08)	14.0(0.55)
6	1/8	MT6-FA-FBP2-	31.0(1.22)	6.5(0.26)	4.1(0.16)	14.0(0.55)
6	1/4	MT6-FA-FBP4-	35.3(1.39)	10.2(0.40)	4.1(0.16)	19.0(0.75)
6	3/8	MT6-FA-FBP6-	38.4(1.51)	14.2(0.56)	4.1(0.16)	24.0(0.94)
6	1/2	MT6-FA-FBP8-	42.9(1.69)	18.0(0.71)	4.1(0.16)	27.0(1.06)
8	1/4	MT8-FA-FBP4-	33.0(1.30)	10.2(0.40)	5.5(0.22)	19.0(0.75)
8	3/8	MT8-FA-FBP6-	38.9(1.53)	14.2(0.56)	5.6(0.22)	24.0(0.94)
8	1/2	MT8-FA-FBP8-	43.7(1.72)	18.0(0.71)	5.6(0.22)	27.0(1.06)
10	1/4	MT10-FA-FBP4-	34.5(1.36)	10.2(0.40)	5.5(0.22)	19.0(0.75)
10	3/8	MT10-FA-FBP6-	36.1(1.42)	14.2(0.56)	6.5(0.26)	24.0(0.94)
10	1/2	MT10-FA-FBP8-	41.1(1.62)	18.0(0.71)	7.1(0.28)	27.0(1.06)
12	1/4	MT12-FA-FBP4-	41.1(1.62)	10.2(0.40)	5.5(0.22)	19.0(0.75)
12	3/8	MT12-FA-FBP6-	44.7(1.76)	14.2(0.56)	6.5(0.26)	24.0(0.94)
12	1/2	MT12-FA-FBP8-	48.8(1.92)	18.0(0.71)	7.0(0.28)	27.0(1.06)
16	1/2	MT16-FA-FBP8-	49.0(1.93)	18.0(0.71)	7.0(0.28)	27.0(1.06)
18	1/2	MT18-FA-FBP8-	49.3(1.94)	18.0(0.71)	7.0(0.28)	27.0(1.06)

Female Adapters



Metric Tube

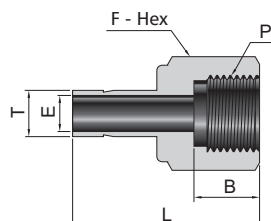
NPT Thread

T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)			
			L	B	E	F
3	1/8	MT3-FA-FNPT2-	28.8(1.13)	10.4(0.41)	1.3(0.05)	14.0(0.55)
4	1/8	MT4-FA-FNPT2-	33.3(1.31)	10.4(0.41)	2.0(0.08)	14.0(0.55)
6	1/8	MT6-FA-FNPT2-	32.5(1.28)	10.4(0.41)	4.1(0.16)	14.0(0.55)
6	1/4	MT6-FA-FNPT4-	37.1(1.46)	15.0(0.59)	4.1(0.16)	19.0(0.75)
8	1/8	MT8-FA-FNPT2-	35.1(1.38)	10.4(0.41)	6.4(0.25)	14.0(0.55)
8	1/4	MT8-FA-FNPT4-	37.6(1.48)	15.0(0.59)	5.6(0.22)	19.0(0.75)
8	3/8	MT8-FA-FNPT6-	36.5(1.44)	15.0(0.59)	6.4(0.25)	22.0(0.87)
10	1/4	MT10-FA-FNPT4-	38.1(1.50)	15.0(0.59)	7.1(0.28)	19.0(0.75)
10	3/8	MT10-FA-FNPT6-	40.1(1.58)	15.0(0.59)	7.1(0.28)	22.0(0.87)
10	1/2	MT10-FA-FNPT8-	46.5(1.83)	19.8(0.78)	7.1(0.28)	27.0(1.06)
12	1/4	MT12-FA-FNPT4-	43.7(1.72)	15.0(0.59)	8.8(0.35)	19.0(0.75)
12	3/8	MT12-FA-FNPT6-	42.9(1.69)	15.0(0.59)	9.1(0.36)	22.0(0.87)
12	1/2	MT12-FA-FNPT8-	52.3(2.06)	19.8(0.78)	8.8(0.35)	27.0(1.06)
16	1/2	MT16-FA-FNPT8-	49.2(1.94)	19.8(0.78)	12.7(0.50)	27.0(1.06)
18	3/4	MT18-FA-FNPT12-	52.4(2.06)	20.6(0.81)	14.0(0.55)	32.0(1.26)
20	1/2	MT20-FA-FNPT8-	50.0(1.97)	19.8(0.78)	15.0(0.59)	27.0(1.06)
20	3/4	MT20-FA-FNPT12-	53.2(2.09)	20.6(0.81)	15.1(0.59)	32.0(1.26)
25	1	MT25-FA-FNPT16-	66.7(2.63)	25.4(1.00)	19.8(0.78)	41.0(1.61)

Metric Tube

ISO Tapered Thread BSPT)

T-Tube O.D. (mm)	P-BSPT Size	Basic Ordering Number	Dimension, mm (in.)			
			L	B	E	F
3	1/8	MT3-FA-FBT2-	27.8(1.09)	10.4(0.41)	1.8(0.07)	14.0(0.55)
4	1/8	MT4-FA-FBT2-	28.6(1.13)	10.4(0.41)	2.0(0.08)	14.0(0.55)
6	1/8	MT6-FA-FBT2-	33.0(1.30)	10.4(0.41)	4.1(0.16)	14.0(0.55)
8	1/4	MT8-FA-FBT4-	37.6(1.48)	15.0(0.59)	5.6(0.22)	19.0(0.75)
10	1/4	MT10-FA-FBT4-	38.1(1.50)	15.0(0.59)	7.1(0.28)	19.0(0.75)
10	3/8	MT10-FA-FBT6-	36.5(1.44)	15.0(0.59)	7.5(0.30)	22.0(0.87)
10	1/2	MT10-FA-FBT8-	41.3(1.63)	19.8(0.78)	7.5(0.30)	27.0(1.06)
12	1/4	MT12-FA-FBT4-	40.5(1.59)	15.0(0.59)	9.1(0.36)	19.0(0.75)
12	3/8	MT12-FA-FBT6-	43.7(1.72)	15.0(0.59)	9.1(0.36)	22.0(0.87)
12	1/2	MT12-FA-FBT8-	46.8(1.84)	19.8(0.78)	9.1(0.36)	27.0(1.06)
16	1/2	MT16-FA-FBT8-	48.4(1.91)	19.8(0.78)	12.7(0.50)	27.0(1.06)
18	3/4	MT18-FA-FBT12-	52.4(2.06)	20.6(0.81)	14.0(0.55)	32.0(1.26)
20	3/4	MT20-FA-FBT12-	53.2(2.09)	20.6(0.81)	15.1(0.59)	32.0(1.26)
25	1	MT25-FA-FBT16-	66.7(2.63)	25.4(1.00)	19.8(0.78)	41.0(1.61)

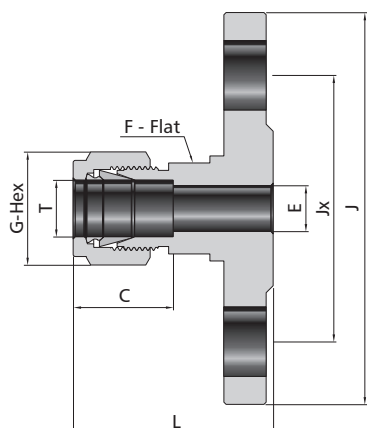


Metric Tube

ISO Parallel Thread (BG)

T-Tube O.D. (mm)	P-BG Size	Basic Ordering Number	Dimension, mm (in.)			
			L	B	E	F
6	1/8	MT6-FA-FBP2-	32.0(1.26)	10.2(0.40)	4.1(0.16)	14.0(0.55)
6	1/4	MT6-FA-FBP4-	37.8(1.49)	15.2(0.60)	4.1(0.16)	19.0(0.75)
12	1/2	MT12-FA-FBP8-	49.8(1.96)	18.8(0.74)	8.8(0.35)	27.0(1.06)

Flange Adapters



ASME Flanges

T-Tube O.D. (in.)	ASME Flange NPS	Class	Basic Ordering Number Raised Face Flange	Dimension, mm							
				L	J	Jx	E	C	G	F	
1/4	1/2	150	F4-FLA-FL8-150-	40.9	88.9	60.5	4.8	15.2	14.3	20.6	
3/8	1/2	300	F6-FLA-FL8-150-	45.5	95.3	66.5	7.1	16.8	17.5	20.6	
1/2	1/2	150	F8-FLA-FL8-150-	45.2	88.9	60.5	10.4	22.9	22.2	20.6	
1/2	1	150	F8-FLA-FL16-150-	48.3	108.0	79.2	10.4	22.9	22.2	20.6	
1/2	2	150	F8-FLA-FL32-150-	53.1	152.4	121	10.4	22.9	22.2	20.6	
3/4	1	150	F12-FLA-FL16-150-	50.3	108.0	79.2	15.7	24.4	28.6	31.8	
1	1	150	F16-FLA-FL16-150-	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 (in.)							
			L	J	Jx	E	C	G	F	
6	25	M6-FLA-RF25-40C-	47.5(1.87)	115.0(4.53)	85.0(3.35)	4.8(0.19)	15.3(0.60)	14.0(0.55)	20.0(0.79)	
12	15	M12-FLA-RF15-40C-	48.5(1.91)	95.0(3.74)	65.0(2.56)	9.5(0.37)	22.8(0.90)	22.0(0.87)	20.0(0.79)	
12	25	M12-FLA-RF25-40C-	50.5(1.99)	115.0(4.53)	85.0(3.35)	9.5(0.37)	22.8(0.90)	22.0(0.87)	20.0(0.79)	
12	50	M12-FLA-RF50-40C-	55.3(2.18)	165.0(6.50)	125.0(4.92)	9.5(0.37)	22.8(0.90)	22.0(0.87)	20.0(0.79)	
18	15	M18-FLA-RF15-40C-	51.8(2.04)	95.0(3.74)	65.0(2.56)	15.1(0.59)	24.4(0.96)	30.0(1.18)	32.0(1.26)	
18	25	M18-FLA-RF25-40C-	53.8(2.12)	115.0(4.53)	85.0(3.35)	15.1(0.59)	24.4(0.96)	30.0(1.18)	32.0(1.26)	
25	25	M25-FLA-RF25-40C-	64.0(2.52)	115.0(4.53)	85.0(3.35)	21.8(0.86)	31.3(1.23)	38.0(1.50)	35.0(1.38)	

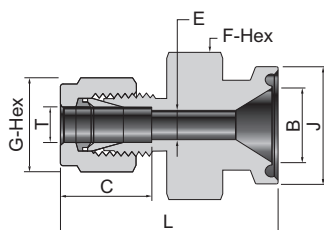
EN Flanges, Pressure Class PN 40

T-Tube O.D. (mm)	EN Flange Size DN	Basic Ordering Number Raised Face Flange	Dimension, mm (in.)							
			L	J	Jx	E	C	G	F	
6	25	M6-FLA-RF25E-40B1-	47.5(1.87)	115.0(4.53)	85.0(3.35)	4.8(0.19)	15.3(0.60)	14.0(0.55)	20.0(0.79)	
12	15	M12-FLA-RF15E-40B1-	48.5(1.91)	95.0(3.74)	65.0(2.56)	9.5(0.37)	22.8(0.90)	22.0(0.87)	20.0(0.79)	
12	25	M12-FLA-RF25E-40B1-	50.5(1.99)	115.0(4.53)	85.0(3.35)	9.5(0.37)	22.8(0.90)	22.0(0.87)	20.0(0.79)	
12	50	M12-FLA-RF50E-40B1-	55.3(2.18)	165.0(6.50)	125.0(4.92)	9.5(0.37)	22.8(0.90)	22.0(0.87)	20.0(0.79)	
18	15	M18-FLA-RF15E-40B1-	51.8(2.04)	95.0(3.74)	65.0(2.56)	15.1(0.59)	24.4(0.96)	30.0(1.18)	32.0(1.26)	
18	25	M18-FLA-RF25E-40B1-	53.8(2.12)	115.0(4.53)	85.0(3.35)	15.1(0.59)	24.4(0.96)	30.0(1.18)	32.0(1.26)	
25	25	M25-FLA-RF25E-40B1-	64.0(2.52)	115.0(4.53)	85.0(3.35)	21.8(0.86)	31.3(1.23)	38.0(1.50)	35.0(1.38)	

JIS Flanges, Pressure Class 10K

T-Tube O.D.	JIS Flange Size DN	Basic Ordering Number Raised Face Flange	Dimension, in. (mm)							
			L	J	Jx	E	C	G	F	
1/4	15	F4-FLA-RF15-10K-	1.66(42.2)	3.74(95.0)	2.76(70.1)	0.19(4.8)	0.60(15.2)	0.56(14.3)	0.81(20.6)	
3/8	15	F6-FLA-RF15-10K-	1.72(43.7)	3.74(95.0)	2.76(70.1)	0.28(7.1)	0.66(16.8)	0.69(17.5)	0.81(20.6)	
1/2	15	F8-FLA-RF15-10K-	1.83(46.5)	3.74(95.0)	2.76(70.1)	0.41(10.4)	0.90(22.9)	0.87(22.2)	0.81(20.6)	
3/4	15	F12-FLA-RF15-10K-	1.91(48.5)	3.74(95.0)	2.76(70.1)	0.62(15.7)	0.96(24.4)	1.13(28.6)	1.25(31.8)	
1	25	F16-FLA-RF25-10K-	2.40(61.0)	4.92(125.0)	3.54(89.9)	0.88(22.4)	1.23(31.2)	1.50(38.1)	1.37(34.9)	
12mm	15	M12-FLA-RF15-10K-	1.83(46.5)	3.74(95.0)	2.76(70.0)	0.37(9.5)	0.90(22.8)	0.87(22.0)	0.79(20.0)	
18mm	15	M18-FLA-RF15-10K-	1.91(48.5)	3.74(95.0)	2.76(70.0)	0.59(15.1)	0.96(24.4)	1.18(30.0)	1.26(20.0)	
25mm	25	M25-FLA-RF25-10K-	2.40(61.0)	4.92(125.0)	3.54(90.0)	0.86(21.8)	1.23(31.3)	1.50(38.0)	1.38(35.0)	

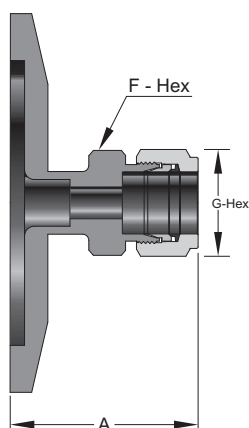
Sanitary Flange Fittings



Fractional Tube

T-Tube O.D. (in.)	Flange Size (in.)	Basic Ordering Number	Dimension, in. (mm)						
			L	B	C	E	F	J	G
1/4	1/2	F4-SFF-SC8-	1.57(39.9)	0.37(9.4)	0.60(15.2)	0.19(4.8)	1.00(25.4)	0.98(24.9)	0.98(24.9)
1/4	3/4	F4-SFF-SC12-	1.57(39.9)	0.62(15.7)	0.60(15.2)	0.19(4.8)	1.00(25.4)	0.98(24.9)	0.98(24.9)
1/4	1	F4-SFF-SC16-	1.57(39.9)	0.87(22.1)	0.60(15.2)	0.19(4.8)	1.37(34.9)	1.98(50.3)	1.98(50.3)
1/4	1 1/2	F4-SFF-SC24-	1.57(39.9)	1.37(34.8)	0.60(15.2)	0.19(4.8)	1.37(34.9)	1.98(50.3)	1.98(50.3)
3/8	1/2	F6-SFF-SC8-	1.63(41.4)	0.30(79.4)	0.66(16.8)	0.28(7.1)	1.00(25.4)	0.98(24.9)	0.98(24.9)
3/8	3/4	F6-SFF-SC12-	1.63(41.4)	0.62(15.7)	0.66(16.8)	0.28(7.1)	1.00(25.4)	0.98(24.9)	0.98(24.9)
3/8	1	F6-SFF-SC16-	1.63(41.4)	0.87(22.1)	0.66(16.8)	0.28(7.1)	1.37(34.9)	1.98(50.3)	1.98(50.3)
3/8	1 1/2	F6-SFF-SC24-	1.63(41.4)	1.37(34.8)	0.66(16.8)	0.28(7.1)	1.37(34.9)	1.98(50.3)	1.98(50.3)
1/2	1/2	F8-SFF-SC8-	1.74(44.2)	0.30(79.4)	0.90(22.9)	0.37(9.4)	1.00(25.4)	0.98(24.9)	0.98(24.9)
1/2	3/4	F8-SFF-SC12-	1.74(44.2)	0.62(15.7)	0.90(22.9)	0.41(10.4)	1.00(25.4)	0.98(24.9)	0.98(24.9)
1/2	1	F8-SFF-SC16-	1.74(44.2)	0.87(22.1)	0.90(22.9)	0.41(10.4)	1.37(34.9)	1.98(50.3)	1.98(50.3)
1/2	1 1/2	F8-SFF-SC24-	1.74(44.2)	1.37(34.8)	0.90(22.9)	0.41(10.4)	1.37(34.9)	1.98(50.3)	1.98(50.3)
1	1	F16-SFF-SC16-	1.91(48.5)	0.87(22.1)	1.23(31.2)	0.87(22.1)	1.37(34.9)	1.98(50.3)	1.98(50.3)
1	2	F16-SFF-SC32-	2.49(63.2)	1.37(34.8)	1.23(31.2)	0.88(22.4)	2.75(69.9)	2.52(64.0)	2.52(64.0)

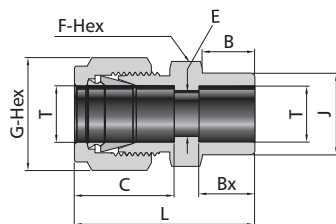
KF Vacuum Flange Fittings



Tube OD in.	Flange Size	Basic Ordering Number	A in.(mm)	F in.(mm)	G in.(mm)
1/4	KF10	KF10-VFA-F4-	1.47(37.3)	1/2(12.7)	9/16(14.3)
	KF16	KF16-VFA-F4-			
	KF25	KF25-VFA-F4-			
	KF40	KF40-VFA-F4-			
	KF50	KF50-VFA-F4-			
3/8	KF10	KF10-VFA-F6-	1.63(41.4)	5/8(15.9)	11/16(17.5)
	KF16	KF16-VFA-F6-			
	KF25	KF25-VFA-F6-			
	KF40	KF40-VFA-F6-			
	KF50	KF50-VFA-F6-			
1/2	KF25	KF25-VFA-F8-	1.77(45.0)	13/16(20.6)	7/8(22.2)
	KF40	KF40-VFA-F8-			
	KF50	KF50-VFA-F8-			
3/4	KF25	KF25-VFA-F12-	2.14(54.4)	1 1/16(27.0)	1 1/8(28.6)
	KF40	KF40-VFA-F12-			
	KF50	KF50-VFA-F12-			
1	KF25	KF25-VFA-F16-	2.60(66.0)	1 3/8(34.9)	1 1/2(38.1)
	KF40	KF40-VFA-F16-			
	KF50	KF50-VFA-F16-			

F16-VAF-KF50-

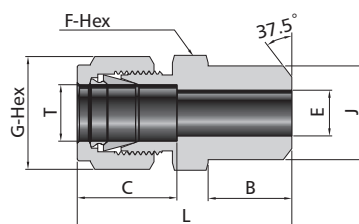
Weld Connectors



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	F2-WC-FSW2-	29.0	12.7	11.1	11.1	8.6	2.3	2.5	7.9
3/16	F3-WC-FSW3-	29.7	13.7	12.7	11.1	9.5	3.3	4.8	10.7
1/4	F4-WC-FSW4-	33.5	15.2	14.3	12.7	10.4	4.8	7.1	11.2
3/8	F6-WC-FSW6-	37.6	16.8	17.5	15.9	11.9	7.1	7.9	15.7
1/2	F8-WC-FSW8-	41.1	22.9	22.2	20.6	11.9	10.4	9.7	19.1
5/8	F10-WC-FSW10-	41.9	24.4	25.4	23.8	11.9	12.7	10.4	23.4
3/4	F12-WC-FSW12-	43.4	24.4	28.6	27.0	11.9	15.7	11.1	26.7
1	F16-WC-FSW16-	52.6	31.2	38.1	34.9	14.2	22.4	15.7	33.3

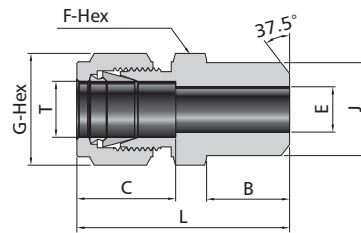


Fractional Tube

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	F2-WC-PBW2-	30.5	12.7	11.1	11.1	2.3	9.7	10.3
3/16	1/8	F3-WC-PBW2-	31.2	13.7	12.7	11.1	3.0	9.7	10.3
1/4	1/8	F4-WC-PBW2-	32.8	15.2	14.3	12.7	4.8	9.7	10.3
1/4	1/4	F4-WC-PBW4-	37.8	15.2	14.3	14.3	4.8	14.2	13.7
5/16	1/8	F5-WC-PBW2-	34.0	16.3	15.9	14.3	5.3	9.7	10.3
5/16	1/4	F5-WC-PBW4-	38.6	16.3	15.9	14.3	6.4	14.2	13.7
3/8	1/4	F6-WC-PBW4-	39.9	16.8	17.5	15.9	7.1	14.2	13.7
3/8	3/8	F6-WC-PBW6-	39.9	16.8	17.5	17.5	7.1	14.2	17.1
3/8	1/2	F6-WC-PBW8-	46.2	16.8	17.5	22.2	7.1	19.1	21.3
3/8	3/4	F6-WC-PBW12-	47.8	16.8	17.5	27.0	7.1	19.1	26.7
1/2	3/8	F8-WC-PBW6-	43.4	22.9	22.2	20.6	10.4	14.2	17.1
1/2	1/2	F8-WC-PBW8-	49.0	22.9	22.2	22.2	10.4	19.1	21.3
1/2	3/4	F8-WC-PBW12-	50.5	22.9	22.2	27.0	10.4	19.1	26.7
5/8	1/2	F10-WC-PBW8-	49.0	24.4	25.4	23.8	12.7	19.1	21.3
3/4	1/2	F12-WC-PBW8-	50.5	24.4	28.6	27.0	14.0	19.1	21.3
3/4	3/4	F12-WC-PBW12-	50.5	24.4	28.6	27.0	15.7	19.1	26.7
1	1	F16-WC-PBW16-	62.2	31.2	38.1	34.9	22.4	23.9	33.4
1 1/4	1 1/4	F20-WC-PBW20-	77.2	41.1	47.6	44.5	27.7	23.9	42.2
1 1/2	1 1/2	F24-WC-PBW24-	88.9	50.0	57.2	54.0	34.0	26.2	48.3

Weld Connectors

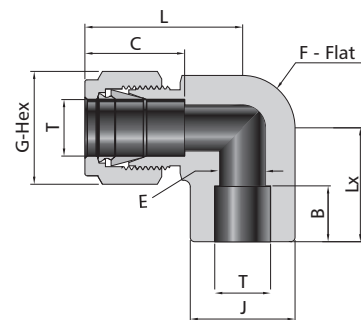


Metric Tube

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	M3-WC-PBW2-	30.5	12.9	12	12	2.4	9.7	10.3
4	1/8	M4-WC-PBW2-	31.5	13.7	12	12	2.4	9.7	10.3
6	1/8	M6-WC-PBW2-	32.8	15.3	14	14	4.8	9.7	10.3
6	1/4	M6-WC-PBW4-	37.9	15.3	14	14	4.8	14.2	13.7
8	1/8	M8-WC-PBW2-	34.2	16.2	16	15	5.4	9.7	10.3
8	1/4	M8-WC-PBW4-	38.7	16.2	16	15	6.4	14.2	13.7
8	1/2	M8-WC-PBW8-	45.6	16.2	16	22	6.4	19.1	21.3
10	1/4	M10-WC-PBW4-	40.9	17.2	19	18	7.5	14.2	13.7
10	3/8	M10-WC-PBW6-	40.9	17.2	19	18	7.9	14.2	17.2
10	1/2	M10-WC-PBW8-	46.5	17.2	19	22	7.9	19.1	21.3
12	1/4	M12-WC-PBW4-	43.4	22.8	22	22	7.5	14.2	13.7
12	3/8	M12-WC-PBW6-	43.4	22.8	22	22	9.5	14.2	17.1
12	1/2	M12-WC-PBW8-	49.0	22.8	22	22	9.5	19.1	21.3
14	3/8	M14-WC-PBW6-	44.1	24.4	25	24	10.7	14.2	17.1
15	1/2	M15-WC-PBW8-	49.0	24.4	25	24	11.9	19.1	21.3
16	1/2	M16-WC-PBW8-	49.0	24.4	25	24	12.7	19.1	21.3
18	1/2	M18-WC-PBW8-	50.5	24.4	30	27	13.9	19.1	21.3
30	1 1/4	M30-WC-PBW20-	77.2	39.6	50	46	26.2	23.9	42.2
32	1 1/4	M32-WC-PBW20-	79.6	42.0	50	46	28.6	23.9	42.2
38	1 1/2	M38-WC-PBW24-	91.6	49.4	60	55	33.7	26.2	48.3

Weld Elbows

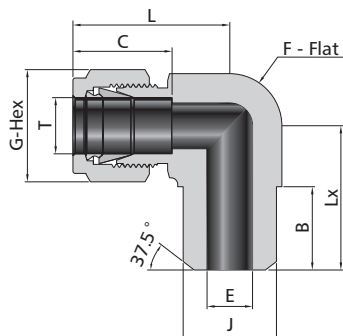


Fractional Tube

Tube Socket Weld

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm							
		L	C	G	F	B	E	Lx	J
1/8	F2-WE-FSW2-	16.8	12.7	11.1	9.5	2.5	2.3	16.0	9.7
3/16	F3-WE-FSW3-	18.3	13.7	12.7	11.1	4.8	3.3	17.5	11.2
1/4	F4-WE-FSW4-	26.9	15.2	14.3	12.7	7.1	4.8	19.6	12.7
3/8	F6-WE-FSW6-	30.5	16.8	17.5	15.9	7.9	7.1	23.1	15.7
1/2	F8-WE-FSW8-	36.1	22.9	22.2	20.6	9.7	10.4	25.9	20.6
5/8	F10-WE-FSW10-	29.5	24.4	25.4	27.0	10.4	12.7	29.5	23.9
3/4	F12-WE-FSW12-	39.9	24.4	28.6	27.0	11.2	15.7	29.7	26.9
1	F16-WE-FSW16-	49.0	31.2	38.1	34.9	15.7	22.4	36.8	35.1

Weld Elbows

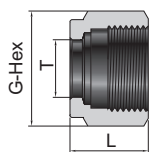


Fractional Tube

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	F2-WE-PBW2-	23.4	12.7	11.1	11.1	9.7	2.3	18.3	10.3	
3/16	1/8	F3-WE-PBW2-	25.7	13.7	12.7	12.7	9.7	3.3	18.8	10.3	
1/4	1/8	F4-WE-PBW2-	26.9	15.2	14.3	12.7	9.7	4.8	18.8	10.3	
1/4	1/4	F4-WE-PBW4-	26.9	15.2	14.3	12.7	14.2	4.8	23.4	13.7	
3/8	1/4	F6-WE-PBW4-	30.5	16.8	17.5	15.9	14.2	7.1	25.4	13.7	
1/2	3/8	F8-WE-PBW6-	34.8	22.9	22.2	19.1	14.2	10.4	28.8	17.2	
1/2	1/2	F8-WE-PBW8-	36.1	22.9	22.2	20.6	19.1	10.4	33.0	21.3	
5/8	1/2	F10-WE-PBW8-	36.3	24.4	25.4	23.8	19.1	12.7	35.1	21.3	
3/4	3/4	F12-WE-PBW12-	39.9	24.4	28.6	27.0	19.1	15.7	36.8	26.7	
1	3/4	F16-WE-PBW12-	49.3	31.2	38.1	34.9	19.1	22.4	41.9	26.7	
1	1	F16-WE-PBW16-	49.3	31.2	38.1	34.9	20.6	22.4	46.7	33.4	

Nuts



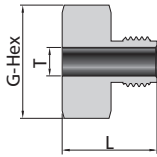
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)	
		L	G
1/16	N-F1-	0.31(7.9)	0.31(7.9)
1/8	N-F2-	0.47(11.9)	0.44(11.1)
3/16	N-F3-	0.47(11.9)	0.50(12.7)
1/4	N-F4-	0.50(12.7)	0.56(14.3)
5/16	N-F5-	0.53(13.5)	0.63(15.9)
3/8	N-F6-	0.56(14.2)	0.69(17.5)
1/2	N-F8-	0.69(17.5)	0.87(22.2)
5/8	N-F10-	0.69(17.5)	1.00(25.4)
3/4	N-F12-	0.69(17.5)	1.13(28.6)
7/8	N-F14-	0.69(17.5)	1.25(31.8)
1	N-F16-	0.81(20.6)	1.50(38.1)
1 1/8	N-F18-	1.21(30.8)	1.81(46.0)
1 1/4	N-F20-	1.25(31.8)	1.87(47.6)
1 1/2	N-F24-	1.50(38.1)	2.25(57.2)

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)	
		L	G
2	N-M2-	11.9(0.47)	12.0(0.47)
3	N-M3-	11.9(0.47)	12.0(0.47)
4	N-M4-	11.9(0.47)	12.0(0.47)
6	N-M6-	12.7(0.50)	14.0(0.55)
8	N-M8-	13.5(0.53)	16.0(0.63)
10	N-M10-	15.1(0.59)	19.0(0.75)
12	N-M12-	17.4(0.69)	22.0(0.87)
14	N-M14-	17.4(0.69)	25.0(0.98)
15	N-M15-	17.4(0.69)	25.0(0.98)
16	N-M16-	17.4(0.69)	25.0(0.98)
18	N-M18-	17.4(0.69)	30.0(1.18)
20	N-M20-	17.4(0.69)	32.0(1.26)
22	N-M22-	17.4(0.69)	32.0(1.26)
25	N-M25-	20.6(0.81)	38.0(1.50)
28	N-M28-	30.6(1.20)	46.0(1.81)
30	N-M30-	32.7(1.29)	50.0(1.97)
32	N-M32-	34.4(1.35)	50.0(1.97)
38	N-M38-	40.6(1.60)	60.0(2.36)

Male Nuts



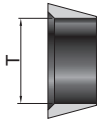
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)	
		L	G
1/16	MN-F1-	0.38(9.7)	0.25(6.4)
1/8	MN-F2-	0.53(13.5)	0.37(9.5)
1/4	MN-F4-	0.62(15.7)	0.50(12.7)
1/2	MN-F8-	0.87(22.1)	0.94(23.8)

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number	Dimension, mm (in.)	
		L	G
3	MN-M3-	13.5(0.53)	10.0(0.39)
6	MN-M6-	15.7(0.62)	14.0(0.55)
10	MN-M10-	22.1(0.87)	22.0(0.87)
12	MN-M12-	22.1(0.87)	24.0(0.94)

Front Ferrules



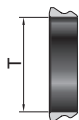
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number
1/16	FF-F1
1/8	FF-F2
3/16	FF-F3
1/4	FF-F4
5/16	FF-F5
3/8	FF-F6
1/2	FF-F8
5/8	FF-F10
3/4	FF-F12
7/8	FF-F14
1	FF-F16
1 1/8	FF-F18
1 1/4	FF-F20
1 1/2	FF-F24

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number
2	FF-M2
3	FF-M3
4	FF-M4
6	FF-M6
8	FF-M8
10	FF-M10
12	FF-M12
14	FF-M14
15	FF-M15
16	FF-M16
18	FF-M18
20	FF-M20
22	FF-M22
25	FF-M25
28	FF-M28
30	FF-M30
32	FF-M32
38	FF-M38

Rear Ferrules



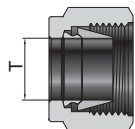
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number
1/16	RF-F1
1/8	RF-F2
3/16	RF-F3
1/4	RF-L4
5/16	RF-F5
3/8	RF-L6
1/2	RF-F8
5/8	RF-F10
3/4	RF-F12
7/8	RF-F14
1	RF-F16
1 1/8	RF-F18
1 1/4	RF-F20
1 1/2	RF-F24

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number
2	RF-M2
3	RF-M3
4	RF-M4
6	RF-M6
8	RF-M8
10	RF-M10
12	RF-M12
14	RF-M14
15	RF-M15
16	RF-M16
18	RF-M18
20	RF-M20
22	RF-M22
25	RF-M25
28	RF-M28
30	RF-M30
32	RF-M32
38	RF-M38

Nuts+ Ferrules



Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number
1/16	NFR-F1
1/8	NFR-F2
3/16	NFR-F3
1/4	NFR-F4
5/16	NFR-F5
3/8	NFR-F6
1/2	NFR-F8
5/8	NFR-F10
3/4	NFR-F12
7/8	NFR-F14
1	NFR-F16
1 1/8	NFR-F18
1 1/4	NFR-F20
1 1/2	NFR-F24

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number
2	NFR-M2
3	NFR-M3
4	NFR-M4
6	NFR-M6
8	NFR-M8
10	NFR-M10
12	NFR-M12
14	NFR-M14
15	NFR-M15
16	NFR-M16
18	NFR-M18
20	NFR-M20
22	NFR-M22
25	NFR-M25
28	NFR-M28
30	NFR-M30
32	NFR-M32
38	NFR-M38

Nut - Ferrule Sets



Each Nut-Ferrule Set contains 5 nuts, 5 front ferrules and 5 rear ferrules.

Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number
1/16	NFS-F1-
1/8	NFS-F2-
3/16	NFS-F3-
1/4	NFS-F4-
5/16	NFS-F5-
3/8	NFS-F6-
1/2	NFS-F8-
5/8	NFS-F10-
3/4	NFS-F12-

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number
2	NFS-M2-
3	NFS-M3-
4	NFS-M4-
6	NFS-M6-
8	NFS-M8-
10	NFS-M10-
12	NFS-M12-
14	NFS-M14-
15	NFS-M15-
16	NFS-M16-
18	NFS-M18-

Ferrule Sets



Each Ferrule Set contains 10 front ferrules and 10 rear ferrules.

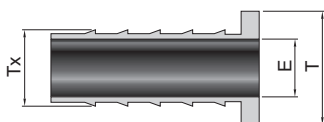
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number
1/16	FRS-F1-
1/8	FRS-F2-
3/16	FRS-F3-
1/4	FRS-F4-
5/16	FRS-F5-
3/8	FRS-F6-
1/2	FRS-F8-
5/8	FRS-F10-
3/4	FRS-F12-

Metric Tube

T-Tube O.D. (mm)	Basic Ordering Number
2	FRS-M2-
3	FRS-M3-
4	FRS-M4-
6	FRS-M6-
8	FRS-M8-
10	FRS-M10-
12	FRS-M12-
14	FRS-M14-
15	FRS-M15-
16	FRS-M16-
18	FRS-M18-

Insert for Soft Plastic Tubings



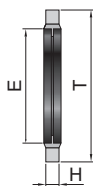
Fractional Tube

T-Tube O.D. (in.)	Tx-Tube I.D. (in.)	Basic Ordering Number	E in. (mm)
3/16	1/8	ISPF-3-2-	0.09(2.3)
1/4	1/8	ISPF-4-2-	0.09(2.3)
1/4	0.17	ISPF-4-017-	0.11(2.8)
1/4	3/16	ISPF-4-3-	0.14(3.5)
5/16	1/8	ISPF-5-2-	0.09(2.3)
5/16	3/16	ISPF-5-3-	0.12(3.0)
5/16	1/4	ISPF-5-4-	0.19(4.8)
3/8	3/16	ISPF-6-3-	0.12(3.0)
3/8	1/4	ISPF-6-4-	0.19(4.8)
1/2	1/4	ISPF-8-4-	0.19(4.8)
1/2	3/8	ISPF-8-6-	0.31(7.9)
5/8	3/8	ISPF-10-6-	0.31(7.9)
5/8	1/2	ISPF-10-8-	0.44(11.1)
3/4	1/2	ISPF-12-8-	0.44(11.1)
3/4	5/8	ISPF-12-10-	0.56(14.2)
1	3/4	ISPF-16-12-	0.69(17.5)

Metric Tube

T-Tube O.D. (mm)	Tx-Tube I.D. (mm)	Basic Ordering Number	E mm (in.)
6	4	ISPM-6-4-	2.8(0.11)
8	6	ISPM-8-6-	4.4(0.17)
10	8	ISPM-10-8-	6.4(0.25)
12	8	ISPM-12-8-	6.4(0.25)
12	10	ISPM-12-10-	8.3(0.33)

BS Gaskets



ISO Parallel Thread Size	Basic Ordering Number	Dimension, in. (mm)		
		T	E	H
1/8	BS-2	0.63(16.0)	0.41(10.4)	0.08(2.0)
1/4	BS-4	0.81(20.6)	0.54(13.7)	
3/8	BS-6	0.94(23.9)	0.68(17.3)	
1/2	BS-8	1.13(28.7)	0.85(21.6)	0.10(2.5)
3/4	BS-12	1.38(35.1)	1.06(26.9)	
1	BS-16	1.69(42.9)	1.33(33.8)	

Metric Thread Size	Basic Ordering Number	Dimension, mm (in.)		
		T	E	H
M8 x 1	BS-MS8-	13.0(0.51)	8.7(0.34)	1.5(0.06)
M10 x 1	BS-MS10-	16.0(0.63)	10.7(0.42)	
M12 x 1.5	BS-MS12-	18.0(0.63)	12.7(0.42)	
M14 x 1.5	BS-MS14-	22.0(0.71)	14.7(0.50)	
M16 x 1.5	BS-MS16-	24.0(0.87)	16.7(0.66)	
M18 x 1.5	BS-MS18-	26.0(0.94)	18.7(0.74)	
M20 x 1.5	BS-MS20-	28.0(1.02)	20.7(0.81)	2.0(0.08)
M22 x 1.5	BS-MS22-	30.0(1.10)	22.7(0.89)	
M24 x 1.5	BS-MS24-	32.0(1.20)	24.7(1.00)	
M27 x 2	BS-MS27-	36.0(1.30)	27.2(1.10)	
M30 x 2	BS-MS30-	39.0(1.40)	30.7(1.20)	
M33 x 2	BS-MS33-	42.0(1.50)	33.7(1.30)	
M36 x 2	BS-MS36-	48.0(1.70)	37.0(1.50)	2.5(0.10)
M39 x 2	BS-MS39-	51.0(1.90)	40.0(1.60)	
M42 x 2	BS-MS42-	53.0(2.00)	42.7(1.70)	
M45 x 2	BS-MS45-	57.0(2.10)	46.0(1.80)	3.0(0.12)
M48 x 2	BS-MS48-	59.0(2.20)	48.7(1.90)	

The BS 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.

Ordering Information

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

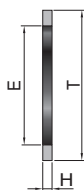
Ring		Designator
Outer	Inner	
Stainless Steel	FKM	316, 304
Carbon Steel	Buna-N	CS

Example:

A BS 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 BS-2-CS.

BS gasket can be used with BS fitting only.

BP Gaskets

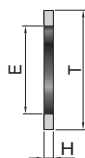


ISO Parallel Thread Size	Basic Ordering Number	Dimension, in. (mm)		
		T	E	H
1/8	BP-2-	0.59(15.0)	0.39(9.9)	0.04(1.0)
1/4	BP-4-	0.75(19.1)	0.52(13.2)	0.06(1.5)
3/8	BP-6-	0.91(23.1)	0.66(16.8)	
1/2	BP-8-	1.06(26.9)	0.83(21.1)	0.08(2.0)
3/4	BP-12-	1.30(33.0)	1.05(26.7)	
1	BP-16-	1.58(40.1)	1.31(33.2)	

Metric Thread Size	Basic Ordering Number	Dimension, mm (in.)		
		T	E	H
M8 x 1	BP-MS8-	13.2(0.52)	8.2(0.32)	1.5(0.06)
M10 x 1	BP-MS10-	15.2(0.60)	10.2(0.40)	
M12 x 1.5	BP-MS12-	18.2(0.60)	12.2(0.40)	2.0(0.08)
M14 x 1.5	BP-MS14-	20.2(0.72)	14.2(0.48)	
M16 x 1.5	BP-MS16-	22.2(0.80)	16.2(0.64)	
M18 x 1.5	BP-MS18-	24.2(0.87)	18.2(0.72)	
M20 x 1.5	BP-MS20-	26.2(0.95)	20.2(0.80)	
M22 x 1.5	BP-MS22-	28.2(1.03)	22.2(0.87)	
M24 x 1.5	BP-MS24-	30.2(1.10)	24.2(1.00)	2.5(0.10)
M27 x 2	BP-MS27-	33.3(1.20)	27.2(1.10)	
M30 x 2	BP-MS30-	37.3(1.30)	30.2(1.20)	
M33 x 2	BP-MS33-	40.3(1.50)	33.2(1.30)	
M36 x 2	BP-MS36-	43.3(1.60)	36.2(1.40)	
M39 x 2	BP-MS39-	47.3(1.70)	39.2(1.50)	
M42 x 2	BP-MS42-	50.3(1.90)	42.2(1.70)	
M45 x 2	BP-MS45-	53.3(2.00)	45.2(1.80)	
M48 x 2	BP-MS48-	56.3(2.10)	48.2(1.90)	

The BP gasket provides a seal with male ISO parallel threads. The BP gasket may be used with a BP fitting.

BG Gaskets



ISO Parallel Thread Size	Basic Ordering Number	Dimension, in. (mm)		
		T	E	H
1/4	BG-4	0.42(10.7)	0.30(7.6)	0.07(1.8)
3/8	BG-6	0.56(14.2)	0.34(8.6)	0.09(2.3)
1/2	BG-8	0.70(17.8)	0.36(9.1)	0.10(2.5)

ISO Parallel Thread Size	Basic Ordering Number	Dimension, in. (mm)		
		T	E	H
M10 x 1	BG-MS10-	8.3(0.33)	3.3(0.13)	1.5(0.06)
M12 x 1.5	BG-MS12-	9.7(0.38)	5.4(0.21)	2.0(0.08)
M14 x 1.5	BG-MS14-	11.7(0.38)	6.4(0.21)	
M16 x 1.5	BG-MS16-	13.7(0.46)	8.4(0.25)	
M18 x 1.5	BG-MS18-	15.7(0.54)	10.0(0.39)	
M20 x 1.5	BG-MS20-	17.6(0.62)	11.4(0.45)	
M22 x 1.5	BG-MS22-	19.6(0.69)	13.4(0.53)	
M24 x 1.5	BG-MS24-	21.6(0.77)	14.8(0.58)	2.5(0.10)
M27 x 2	BG-MS27-	24.0(0.90)	13.9(0.50)	
M30 x 2	BG-MS30-	27.0(0.90)	19.5(0.80)	
M33 x 2	BG-MS33-	30.0(1.10)	21.5(0.80)	
M36 x 2	BG-MS36-	33.0(1.20)	23.5(0.90)	
M39 x 2	BG-MS39-	36.0(1.30)	24.5(1.00)	
M42 x 2	BG-MS42-	38.9(1.40)	29.5(1.20)	
M45 x 2	BG-MS45-	41.9(1.50)	30.0(1.20)	
M48 x 2	BG-MS48-	44.9(1.60)	32.5(1.30)	

Ordering Information

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

Material	Designator
Copper	CU
316L SS	316L
PTFE	T

Vulcanized Fibre and PTFE cannot be used for BG gasket.

Example:

BP-8-BR, BG-4-316, BG-MS14-BR.

O-rings



O-rings for Fittings with SAE/MS Straight Threads

SAE/MS Thread Size	Ordering Number	Material
5/16-24	FKM9-902	90 Durometer Fluorocarbon FKM
3/8-24	FKM9-903	
7/16-20	FKM9-904	
1/2-20	FKM9-905	
9/16-18	FKM9-906	
3/4-16	FKM9-908	
7/8-14	FKM9-910	
1 1/16-12	FKM9-912	
1 3/16-12	FKM9-914	
1 5/16-12	FKM9-916	
1 5/8-12	FKM9-920	
1 7/8-12	FKM9-924	

O-rings for Fittings with O-Seal Pipe Threads

NPT/ISO Thread Size	Ordering Number	Material
1/8	NBR7-013	70 Durometer NBR
1/4	NBR7-113	
3/8	NBR7-116	
1/2	NBR7-118	

O-rings for Adjustable Fittings with ISO Parallel Threads

ISO Parallel Thread Size	Ordering Number	Material
1/8	FKM9-502	90 Durometer Fluorocarbon FKM
1/4	FKM9-111	
3/8	FKM9-113	
1/2	FKM9-508	
3/4	FKM9-119	
1	FKM9-217	

O-rings for Fittings with O-Seal Straight Threads

SAE/MS Thread Size	Ordering Number	Material
5/16-24	NBR7-011	70 Durometer NBR
3/8-24	NBR7-012	
7/16-20	NBR7-013	
1/2-20	NBR7-112	
9/16-18	NBR7-113	
3/4-16	NBR7-116	
1 1/16-12	NBR7-121	
1 5/16-12	NBR7-125	

How to Order

F8 — MBT — F8 — NPT8 — 316

Port 1 Type	Port 1 Size	Configuration Designator	Port 2 Type	Port 2 Size	Port 3 and Port 4	Material	
M Metric Ferrule	1 1/16 in.	MC Male Connector	Same as the Port 1 or as follow :	Same as the Port 1 or as follow :	Same as the Port 1	316 316 S.S.	
F Fractional Ferrule	2 1/8 in. or 2 mm	BMC Bulkhead Male Connector	FNPT Female NPT	5 M5 x 0.8 or 5/16-24		316L 316L S.S.	304 304 S.S.
	3 3/16 in. or 3 mm	TC Thermocouple Connector	NPT Male NPT	6 M6 x 1 or 3/8-24		304L 304L S.S.	A20 Alloy 20
	4 1/4 in. or 4 mm	FC Female Connector	NPTO O-ring with Male NPT	7 7/16-20		A400 Alloy 400	A600 Alloy 600
	5 5/16 in.	BFC Bulkhead Female Connector	FBT Female BSPT	8 M8 x 1 or 1/2-20		A825 Alloy 825	A276 Alloy C276
	6 3/8 in. or 6 mm	U Union	MBT Male BSPT	9 9/16-18		DU7 Duplex 2507	BR Brass
	8 1/2 in. or 8 mm	ME Male Elbow	MBTO O-ring with Male BSPT	10 M10 x 1		CS Carbon steel	TI Titanium (graded)
	10 5/8 in. or 10 mm	45ME 45° Male Elbow	FBP Female BSPP	12 M12 x 1.5 or 3/4-16			
	12 3/4 in. or 12 mm	PME Positionable Male Elbow	PMBP Male BSPP (for BP)	14 M14 x 1.5 or 7/8-14			
	14 7/8 in. or 14 mm	FE Female Elbow	MBS Male BSPP (for BS)	16 M16 x 1.5			
	15 15 mm	UE Union Elbow	MBP Male BSPP (for BG)	17 1 1/16-12			
	16 1 in. or 16 mm	MRT Male Run Tee	FMS Female ISO	18 M18 x 1.5			
	18 1 1/8 in. or 18 mm	MBT Male Branch Tee	MS Male ISO (for BG)	19 1 3/16-12			
	20 1 1/4 in. or 20 mm	PMRT Positionable Male Run Tee	BPMS Male ISO (for BP)	20 M20 x 1.5			
	22 22 mm	PMBT Positionable Male Branch Tee	BSMS Male ISO (for BS)	21 1 5/16 -12			
	24 1 1/2 in. or 24 mm	FRT Female Run Tee	OMS O-ring with Male ISO	22 M22 x 1.5			
	25 25 mm	FBT Female Branch Tee	FST Female SAE	24 M24 x 1.5			
	28 28 mm	UT Union Tee	MST Male SAE (for BG)	26 1 5/8 -12			
	30 30 mm	UC Union Cross	MST Male SAE (for BG)	27 M27 x 2			
	32 2 in. or 32 mm	CA Cap	BPST Male SAE (for BP)	30 1 7/8 -12			
	38 38 mm	PL Plug	BSST Male SAE (for BS)				
	50 50 mm	R Reducer	OST O-ring with Male SAE				
		PC Port Connector	PPT Positionable BSP Parallel Thread				
		MA Male Adapter	PMS Positionable ISO Parallel Thread				
		FA Female Adapter	PST Positionable SAE Parallel Thread				
		WC Weld Connector	AN 37° Flare				
		WE Weld Elbow	FSW Fractional Tube Socket Weld				
		FLA Flange Adapter	FBW Fractional Tube Butt Weld				
		SFF Sanitary Flange Fitting	MSW Metric Tube Socket Weld				
		N Nut	MBW Metric Tube Butt Weld				
		MN Male Nut					
		RF Rear Ferrule					
		FF Front Ferrule					
		FR Ferrules					
		NFR Nut + Ferrules					

